

# SITE HAZARD ASSESSMENT

## Worksheet 1

### Summary Score Sheet

**SITE INFORMATION:**

Damascus Baptist Church  
5237 Rainier Avenue S  
Seattle, King County, WA 98118

Cleanup Site ID: 9285  
Facility/Site ID: 45575896

Section:	22	Latitude:	47.55473
Township:	24	Longitude:	-122.28259
Range:	4E	Tax/Parcel ID:	5649600473, 5649600411

*Site Scored/ranked for the August 2014 Hazardous Sites List Publication*

**SITE DESCRIPTION:**

The Damascus Baptist Church site (Site) is a former gasoline service station located in Seattle, King County, Washington. The 0.67-acre property is located approximately 4,700 feet from Lake Washington, and zoned for neighborhood commercial (NC2-40) use.

Adjacent properties include parcels owned by Damascus Baptist Church to the south, and single family residences beyond the Damascus Baptist Church to the south. To the north and the northeast, across Rainier Avenue South, are several retail properties. To the east, across Rainier Avenue South, is a supportive housing complex. West of the property are single family residences and Hitts Hill Park.

The Site is currently operated as an education center by Damascus Baptist Church.

Current activities at the Site include operation of a preschool and daycare center affiliated with the Damascus Baptist Church.

The Site is located on the southwest side of Rainier Avenue South, between 39th Avenue South to the north and 42nd Avenue South to the south. Damascus Baptist Church extends to the south, beyond the two parcels associated with this Site.

**SITE BACKGROUND:**

A summary of prior operations/tenants at the subject property is presented below.

<u>From</u>	<u>To</u>	<u>Operator/Tenant</u>	<u>Activity</u>
	1983	David L. Olson	Parcel No. 5649600473
1983	2014	Damascus Baptist Church	Parcel No. 5649600473; Church and education center

**SITE CONTAMINATION:**

In 1993 the Damascus Baptist Church site was reported to Washington State Department of Ecology (Ecology) and placed on the Leaking Underground Storage Tank (LUST) list with ID number 3214.

A release at the Site was reported to Ecology in 1993, when four underground storage tanks (USTs) were removed from the Site.

The Site was reportedly a former gasoline service station, with four USTs located on the property. Former tanks included one 1,000-gallon gasoline tank, one 650-gallon motor oil tank, and two 650-gallon gasoline tanks. The date of installation is unknown.

**PAST REMEDIATION ACTIVITIES:**

In 1993, four USTs were reportedly excavated and removed from the property. There were two separate excavation pits, one for the 1,000-gallon gasoline tank (approximately 6 feet by 7 feet, and 9 feet deep), and one

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for the three 650-gallon tanks (approximately 8 feet by 30 feet, and 8 feet deep). During excavation, visual and olfactory evidence of petroleum in soil was reportedly observed, and specifically noted during the removal of tank #2, one of the 650-gallon gasoline tanks. No groundwater was encountered during excavation. Soil samples were collected from the north and south walls of the 1,000-gallon tank excavation at approximately 8 feet below ground surface (bgs), and from the bottom of the excavation at approximately 9 feet bgs. Soil samples from the 650-gallon tank excavation were collected from the north and south sidewalls at approximately 7 feet bgs, from the east and west sidewalls at approximately 7.5 feet bgs, and from the bottom of the excavation, at approximately 8 feet bgs. Excavated soils were reportedly stockpiled at the Site in a visqueen-lined area. Samples from each excavation were reportedly composited in the laboratory prior to analysis, so only one analysis was available for each excavation. Two soil samples were supposedly taken from stockpiled soils, though it is unclear if these were incorporated into the composite sample. The 1,000-gallon tank excavation composite soil sample contained gasoline at a concentration of 1,600 milligrams per kilogram (mg/kg), which is above the Model Toxics Control Act (MTCA) Method A cleanup level. The 650-gallon tank excavation composite soil sample reportedly contained petroleum hydrocarbons (type unspecified) at a concentration of 110 mg/kg.

One building may have been removed from the Site between 1990 and 2002, based on aerial imagery of the Site. No further information is known regarding petroleum-impacted soils in the vicinity of this building.

Documentation in Ecology's Site file suggested intention to overexcavate the area, but no additional information was available about further remediation or excavation efforts at the Site. Three letters were reportedly sent from Ecology to request final cleanup reports and documentation, but no additional reports are present in the files.

#### **CURRENT SITE CONDITIONS:**

The status of the soil excavated and stockpiled in 1993 is unknown, as is the fill material for the excavated area. Following the 1993 report, there was no available documentation of excavation or remedial activity at the Site, including any information on the reportedly intended overexcavation of the excavation. Groundwater was reportedly not encountered during excavation, and groundwater conditions are unknown.

Gasoline was detected in soil at the Site at concentrations above the MTCA Method A cleanup level.

The approximate depth to groundwater is 10 to 25 feet below ground surface, with groundwater flowing to the northeast (estimated from surface topography). Subsurface soils are expected to be sand and silt.

#### **SPECIAL CONSIDERATIONS:**

Checked boxes indicate routes applicable for Washington Ranking Method (WARM) scoring

**Surface Water**

Release occurred in the subsurface.

**Air**

Release of volatile substances occurred to subsurface soils.

**Groundwater**

Gasoline was detected in subsurface soils at concentrations above MTCA Method A cleanup levels, and has the potential to impact groundwater.

Further excavation was supposedly planned at the Site following the 1993 UST excavation, but no information is available regarding any such activities.

#### **ROUTE SCORES:**

Surface Water/ Human Health:

Surface Water/ Environment:

Air/ Human Health: 40.4

Air/ Environment: 1.5

Groundwater/ Human Health: 25.6

**Overall Rank: 3**

# SITE HAZARD ASSESSMENT

## Worksheet 1

### Summary Score Sheet

#### REFERENCES:

- 1 Coastal Tank Services and Construction, 1993, Site Check and Site Assessment, Damascus Baptist Church, 5261 Rainier Avenue South, Seattle, Washington 98118. November 17, 1993.
  - 2 Ecology Water Resources Explorer, accessed February 2014.  
<https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx>
  - 3 Google Earth, Aerial photos from the U.S. Geological Survey taken July 9, 1990. Accessed March 17, 2014.
  - 4 King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed March 2014.  
<http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx>
  - 5 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. <http://mcdc.missouri.edu/websas/caps10c.html>. Accessed March 2014.
  - 6 National Climatic Data Center 2011 Local Climatological Data for Seattle, Seattle Tacoma Airport. <http://www1.ncdc.noaa.gov/pub/orders/IPS-90B1F39F-6CFA-4A6B-AA82-5ED1FF897CCC.pdf>
  - 7 WARM Scoring Manual
  - 8 WARM Toxicological Database
  - 9 Washington Department of Transportation 24-hour Isopluvial Maps, January 2006 update. <http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIsopluvials.pdf>
  - 10 Washington State Department of Ecology, 1993, Underground Storage Tank Notice of Confirmed Release, Incident #4962. November 2, 1993.
  - 11 Washington State Department of Ecology, 1998, Petroleum Contamination at Damascus Baptist Church in Seattle, WA. August 10, 1998.
  - 12 Washington State Department of Ecology, 2002, Damascus Baptist Church, 5261 Rainier Avenue South, Seattle/Ecology UST #102142, requesting additional information regarding site cleanup activities. July 25, 2002.
  - 13 Washington State Department of Ecology, 2004, Damascus Baptist Church, 5261 Rainier Avenue South, Seattle, Ecology UST #102142, Requesting additional information regarding site cleanup activities. August 17, 2004.
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**SITE HAZARD ASSESSMENT**  
**Worksheet 2**  
**Route Documentation**

Cleanup Site ID: 9285

Damascus Baptist Church

Facility/Site ID: 45575896

**1. SURFACE WATER ROUTE**

**List those substances to be considered for scoring:**

Not applicable

**Explain the basis for choice of substances to be used in scoring:**

**List those management units to be considered for scoring:**

**Explain basis for choice of unit to be used in scoring:**

**2. AIR ROUTE**

**List those substances to be considered for scoring:**

Gasoline (benzene)

**Explain the basis for choice of substances to be used in scoring:**

Gasoline was detected in soils at concentrations above MTCA Method A cleanup levels

**List those management units to be considered for scoring:**

Soil vapor

**Explain basis for choice of unit to be used in scoring:**

Potential for vapor transport

**3. GROUNDWATER ROUTE**

**List those substances to be considered for scoring:**

Gasoline (benzene)

**Explain the basis for choice of substances to be used in scoring:**

Gasoline was detected in soils at concentrations above MTCA Method A cleanup levels

**List those management units to be considered for scoring:**

Groundwater

**Explain basis for choice of unit to be used in scoring:**

Potential for transport to groundwater

**Worksheet 5**

**Air Route**

**CSID:** 9285

**Site Name:** Damascus Baptist Church

**1.0 Substance Characteristics**

**1.1 Introduction (WARM Scoring Manual) - Please Review before scoring**

**1.2 Human Toxicity**

Substance	Ambient Air Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Gasoline (benzene)	10	3	X	5

Highest Value 10  
 Bonus Points? 0  
 Toxicity Value

**1.3 Mobility**

Gaseous Mobility	Max Value:	4
Particulate Mobility	Soil Type:	
	Erodibility:	
	Climatic Factor:	

Mobility Value

**1.4 Final Human Health Toxicity/Mobility Matrix Value**

**HH Final Matrix Value**

**1.5 Environmental Toxicity/Mobility**

Substance	Non-human Mammalian Inhalation Toxicity (mg/m3)	Acute Value	Mobility Value	Table A-7 Matrix Value
Gasoline (benzene)	31947	3	4	6

Env. Final Matrix Value

**1.6 Substance Quantity**

Amount: 280 square feet

Basis: Estimated extent of remaining petroleum-impacted soil

Substance Quantity Value

**Worksheet 5**

**Air Route**

**CSID:** 9285

**Site Name:** Damascus Baptist Church

**2.0 Migration Potential**

**2.1 Containment**

Containment Value

Explain Basis: Soil cover of at least 2 feet, but no vapor collection system present

**3.0 Targets**

**3.1 Nearest Population**

Population Distance Value

Approximately 200 feet to the nearest dwelling

**3.2 Distance to and name of nearest sensitive environments**

Sensitive Environment Value

Approximately 380 feet to Hitts Hill Park

**3.3 Population within 0.5 miles**

Population Value

7,134 population

**4.0 Release**

Release to Air Value

Explain basis for scoring a release to air:  
No confirmed release to air

**Pathway Scoring - Air Route, Human Health Pathway**

$$AIR_H = (SUB_{AH} * 60/329) * [REL_A + (TAR_{AH} * 35/85)] / 24$$

Where:

$$SUB_{AH} = (\text{Human toxicity} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$$

$$REL_A = \text{Release to Air}$$

$$TAR_{AH} = \text{Nearest Population} + \text{Population within 1/2 mile}$$

SUB <sub>AH</sub>	152
REL <sub>A</sub>	0
TAR <sub>AH</sub>	85
<b>AIR<sub>H</sub></b>	<b>40.4</b>

**Pathway Scoring - Air Route, Environmental Pathway**

$$AIR_E = (SUB_{AE} * 60/329) * [REL_A + (TAR_{AE} * 35/85)] / 24$$

Where:

$$SUB_{AE} = (\text{Environmental Toxicity Value} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$$

$$REL_A = \text{Release to Air}$$

$$TAR_{AE} = \text{Nearest Sensitive Environment}$$

SUB <sub>AE</sub>	68
REL <sub>A</sub>	0
TAR <sub>AE</sub>	7
<b>AIR<sub>E</sub></b>	<b>1.5</b>

**Worksheet 6**  
**Groundwater Route**

CSID: 9285

Site Name: Damascus Baptist Church

**1.0 Substance Characteristics**

**1.1 Human Toxicity**

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Gasoline (benzene)	8	3	X	5

Highest Value 8  
 Bonus Points? 0  
 Toxicity Value

**1.2 Mobility**

Cations/Anions Max Value:  
 Solubility Max Value: 3 Mobility Value

**1.3 Substance Quantity**

Amount: 40 cubic yards  
 Basis: Estimated volume of remaining petroleum-impacted soils  
 Substance Quantity Value

**2.0 Migration Potential**

**2.1 Containment** Containment Value   
 Explain Basis: Contaminated soil

**2.2 Net Precipitation** 10 to 20 inches Net Precipitation Value

**2.3 Subsurface Hydraulic Conductivity** Conductivity Value   
 Mixed gravel, sand, and clay

**2.4 Vertical Depth to Groundwater** 10 to 25 feet  
 Confirmed release: No Depth to Aquifer Value

**3.0 Targets**

**3.1 Groundwater Usage** Aquifer Use Value   
 Private supply, but alternate sources are available with minimum hookup requirements

**3.2 Distance to Nearest Drinking Water Well** 5670 feet  
 Well Distance Value

**3.3 Population Served within 2 Miles** Population Served Value   
 3 people

**Worksheet 6**  
**Groundwater Route**

**CSID:** 9285

**Site Name:** Damascus Baptist Church

**3.4 Area Irrigated by GW Wells within 2 miles**

Area Irrigated Value

1 acres

**4.0 Release**

Release to Groundwater Value

Explain basis for scoring a release to groundwater:

No confirmed release to groundwater

**Pathway Scoring - Groundwater Route, Human Health Pathway**

$$GW_H = (SUB_{GH} * 40 / 208) * [(MIG_G * 25 / 17) + REL_G + (TAR_{GH} * 30 / 165)] / 24$$

Where:

$SUB_{GH} = (\text{Human toxicity} + \text{mobility} + 3) * (\text{Containment} + 1) + \text{Substance Qty}$

$MIG_G = \text{Depth to Aquifer} + \text{Net Precip} + \text{Hydraulic Conductivity}$

$REL_G = \text{Release to Groundwater}$

$TAR_{GH} = \text{Aquifer Use} + \text{Well Distance} + \text{Population Served} + \text{Area Irrigated}$

$SUB_{GH}$	156
$MIG_G$	13
$REL_G$	0
$TAR_{GH}$	7.5
$GW_H$	25.6

## Washington Ranking Method

### Route Scores Summary and Ranking Calculation Sheet

**Site Name:** Damascus Baptist Church

**CSID:** 9285

**Site Address:** 5237 Rainier Avenue South

**FSID:** 45575896

#### HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	40.4	5
Groundwater	25.6	2

H= 5  
M= 2  
L= 0

$$\begin{array}{c}
 H^2 + 2M + L \\
 \hline
 25 + 4 + 0 \\
 \hline
 8
 \end{array}$$

**Human Health  
Priority Bin Score:**  
4  
 rounded up to next whole number

#### ENVIRONMENT ROUTE SCORES

Enter Environment Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	1.5	2

H= 2  
L= 0

$$\begin{array}{c}
 H^2 + 2L \\
 \hline
 4 + 0 \\
 \hline
 7
 \end{array}$$

**Environment  
Priority Bin Score:**  
1  
 rounded up to next whole number

**Comments/Notes:**

**FINAL MATRIX  
RANKING**

3

#### FOR REFERENCE:

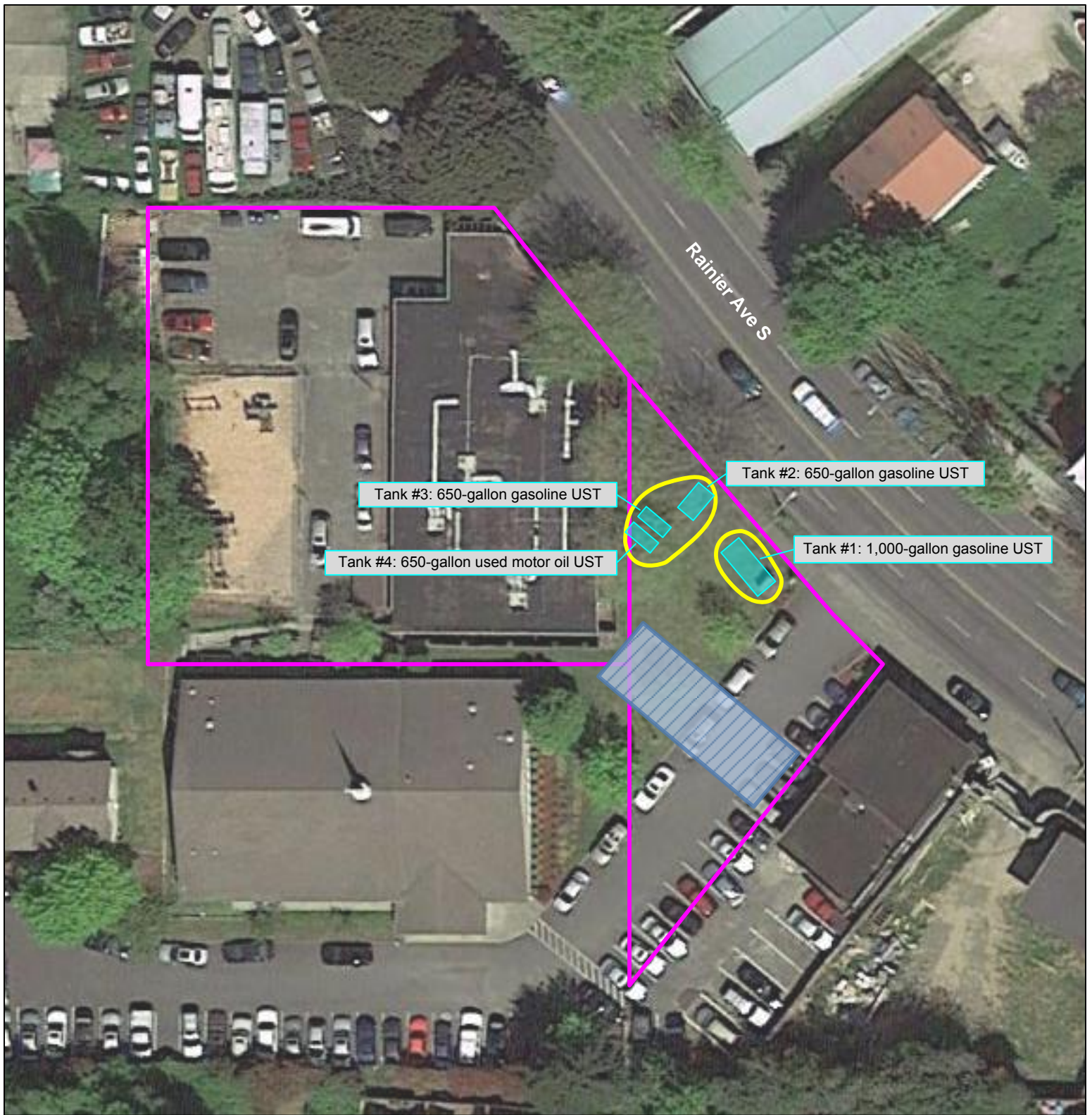
##### Final WARM Bin Ranking Matrix

Human Health Priority	Environment Priority					
	5	4	3	2	1	N/A
5	1	1	1	1	1	1
4	1	2	2	2	3	2
3	1	2	3	4	4	3
2	2	3	4	4	5	3
1	2	3	4	5	5	5
N/A	3	4	5	5	5	NFA

##### Quintile Values for Route Scores - March 2014 Values

Quintile	Human Health			Environment	
	Surface Water	Air	Ground Water	Surface Water	Air
5	>= 30.0	>= 35.6	>= 50.7	>= 49.6	>= 29.5
4	>= 21.1	>= 22.4	>= 40.4	>= 30.6	>= 20.5
3	>= 12.5	>= 14.1	>= 32.2	>= 22.7	>= 9.5
2	>= 6.2	>= 7.9	>= 23.1	>= 10.2	>= 1.4
1	< 6.2	< 7.9	< 23.1	< 10.2	< 1.4

Quintile value associated with each route score entered above



**Legend:**

- Property location (approximate)
- Excavation area (approximate)
- Former building location (approximate)
- Former UST location (approximate)

**Notes:**

1. All locations are approximate, and not to scale.



**Damascus Baptist Church**  
**5237 Rainier Avenue South**  
**Seattle, WA 98118**



DEPARTMENT OF  
**ECOLOGY**  
 State of Washington

**Site Overview Map**

**CSID 9285**

CSID9285.vsd