



**Stantec**

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May 31, 2011

Ms. Mary Monahan  
State of Washington Department of Ecology  
Central Regional Office  
15 West Yakima Avenue, Suite 200  
Yakima, Washington 98902-3452

RE: **Work Plan for Soil & Groundwater Assessment**  
7-Eleven Store #26088  
1540 Jadwin Avenue  
Richland, Washington  
Stantec Project Number: 212302671

Dear Ms. Monahan:

This work plan was prepared by Stantec Consulting Corporation (Stantec) on behalf of 7-Eleven Inc. for the installation of up to four proposed monitoring wells (MW-1 through MW-4) at 7-Eleven store #26088, located at 1540 Jadwin Avenue, in Richland, Washington (Figures 1 and 2).

### **SITE BACKGROUND**

On September 10, 2010, a maintenance technician observed a small leak in the arm of the ball valve for the westernmost regular unleaded turbine product line. Stantec personnel found slightly elevated photoionization detector (PID) readings in the pea gravel beneath the ball valve, and one soil sample was collected. Laboratory results confirmed the presence of total xylenes and total petroleum hydrocarbons characterized as gasoline (TPH-G) at concentrations above their respective State of Washington Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) for soil. The release was reported to Ecology on September 14, 2010 and was assigned Environmental Reports Tracking System (ERTS) number 622-313. Soil sample analytical results are summarized on Table 1.

### **MONITORING WELL INSTALLATION**

Stantec proposes to install a total of up to four monitoring wells (MW-1 through MW-4) at the locations shown in Figure 2 to collect soil and groundwater samples. Data obtained from the advancement of the proposed monitoring wells will be used to investigate the lateral and vertical extent of petroleum hydrocarbons absorbed to soil and dissolved in groundwater at the site.

### **Health and Safety**

Stantec will generate a site-specific *Health and Safety Plan* (HASP) for the proposed scope of work as required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The

document will be reviewed and signed by all Stantec personnel and subcontractors prior to performing work at the site.

**Utility Clearance**

The local public utility notification system will be contacted to delineate subsurface piping near the proposed boring locations with surface markings. In addition, a private utility locator service will be contracted to locate subsurface utilities that may be present around the proposed boring locations.

**Soil Boring, Soil Sampling and Analysis**

Stantec will supervise the advancement of up to four monitoring wells (MW-1, MW-2, MW-3, and MW-4) to approximately 25 feet below ground surface (bgs) using a hollow-stem auger drilling method at the locations shown on Figure 1.

Soil samples will be collected for stratigraphic assessment at approximate five foot intervals. A minimum of two soil samples per well will be selected for laboratory analysis based on field observations and known historic impacts.

Down-hole drilling equipment will be cleaned before advancing each borehole, and sampling equipment will be cleaned between each sampling interval. Each soil sample will be screened for hydrocarbon vapors using a portable photoionization detector (PID). The PID will be calibrated in the field prior to soil sample collection per the manufacturer's specifications. Soils encountered during drilling will be logged using the Unified Soil Classification System by a Stantec field geologist, working under the supervision of a Washington State Licensed Geologist.

Selected soil samples retained for analysis will be collected in accordance with EPA Method 5035A, labeled and placed on ice in an insulated container for delivery to Kiff Analytical, LLC (Kiff) laboratory located in Davis, California under proper chain-of-custody (COC) documentation. Soil samples will be analyzed for TPH-G by Ecology Method NWTPH-Gx; and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B. Based on preliminary laboratory results, one sample may also be analyzed for 1,2-dibromoethane (EDB), 1,2-dichloroethane (EDC), methyl tertiary-butyl ether (MTBE) by EPA Method 8260B and for total lead by EPA Method 6010.

**Well Installation and Well Development**

Stantec proposes to install up to four monitoring wells, MW-1, MW-2, MW-3, and MW-4. Monitoring wells MW-1 through MW-4 will be constructed using 2-inch diameter PVC blank casing and 0.020-inch-slot well screen. The well screen will be installed from approximately 10 to 25 feet bgs (Table 3). The specific screen interval may be adjusted in the field to ensure at least ten feet of well screen is set into groundwater. A sand filter pack will be placed within the annulus of the well from the bottom of the boring to approximately two feet above the top of the well screen. The annulus of the well will be sealed with two feet of hydrated bentonite on top of the sand, and a portland cement/bentonite slurry to the surface. An eight-inch-diameter, traffic-rated, watertight street box will be installed to protect the well from surface traffic.

Following installation, the well will be developed by surging and bailing using a surge block and bailer to remove fine-grained sediments from the well and sand pack. Periodic measurements of

pH, conductivity, and temperature will be made during development to establish baseline values for groundwater. Approximately 10 well casing volumes will be removed from the well during development.

Following installation, the new well will be professionally surveyed to establish horizontal position in relation to pertinent site features and elevation with respect to mean sea level.

### **GROUNDWATER MONITORING AND SAMPLING**

Within two weeks of completion, the new wells will begin to be monitored and sampled on a quarterly basis. Groundwater monitoring and sampling will be conducted to evaluate the groundwater quality by collecting representative samples. Prior to sampling, depth to water in each groundwater monitor well will be measured. Approximately three well volumes of water will be purged. Groundwater samples will then be collected by lowering a clean disposable bailer into the well and collecting a representative sample of the formation water. If the well is slow to recover, the sample will not be collected until the water level has approached 80 percent of its initial level. The groundwater sample will be slowly transferred to laboratory-cleaned sample containers, sealed with Teflon<sup>®</sup>-lined caps, and placed in cooled storage.

Groundwater samples will be submitted to Kiff for analysis of TPH-G by Ecology Method NWTPH-Gx and BTEX by EPA Method 8260B.

### **WASTE HANDLING AND STORAGE**

Soil cuttings and development and decontamination water generated during the drilling operations will be temporarily stored onsite in properly labeled Department of Transportation (DOT) approved 55-gallon drums. The soil and development and decontamination water will be removed by Stantec's disposal contractor to an appropriate disposal facility. The drums will be temporarily stored onsite for approximately 2-3 weeks pending characterization and disposal.

## **REPORTING**

Stantec will prepare an assessment report summarizing the fieldwork completed and data collected as follows:

- Details of field procedures and operations
- Boring logs and well construction details
- Tabulated results of the soil and groundwater sample analyses
- Updated map showing the surveyed location of new monitoring wells.

If you have any questions or comments regarding the contents of this report, please contact the undersigned at (916) 861-0400.

Sincerely,  
**Stantec Consulting Corporation**  
Prepared by:

Reviewed by:

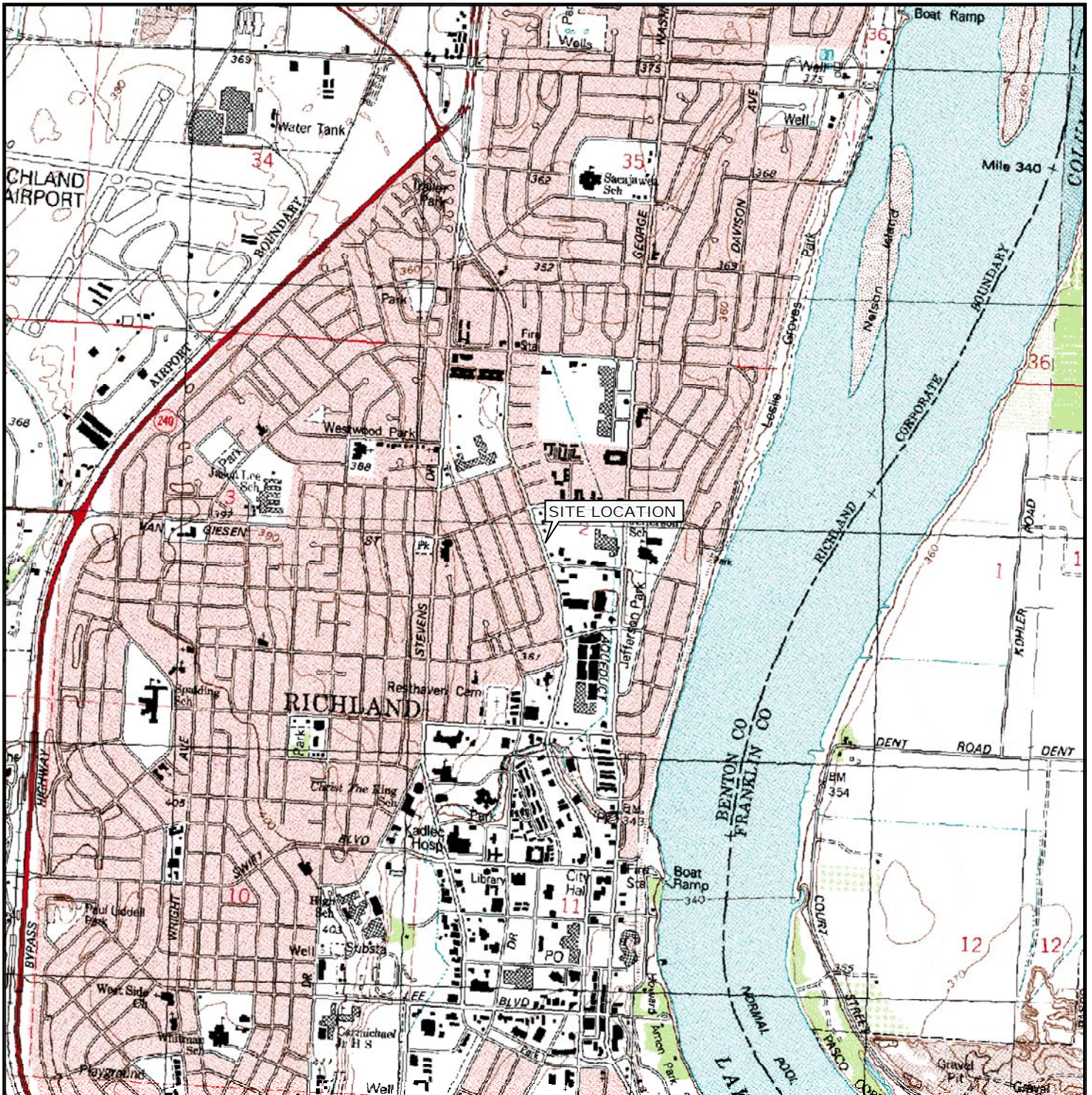
Amanda S. Magee, RG  
Geologic Associate

Paul Fairbairn  
Project Manager

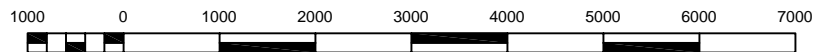
### **ATTACHMENTS:**

Figures  
Tables

# Figures



SCALE IN MILE



SCALE IN FEET

REFERENCE: WA Digital Raster Graphics (<http://rocky2.ess.washington.edu/data/raster/drgclip/index.html>)  
 7.5 Minute Series, NAD27 WA State Planes, N Zone, Trimmed  
 Block o46119c3; Downloaded 4/1/10

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**Stantec**

12034 134th COURT NORTHEAST  
 REDMOND, WASHINGTON 98052  
 PHONE: (425) 298-1000 FAX: (425) 298-1020

FOR:



STORE NO. 26088  
 1540 JADWIN AVE  
 RICHLAND, WASHINGTON

JOB NUMBER:  
 212302671

DRAWN BY:  
 JCR

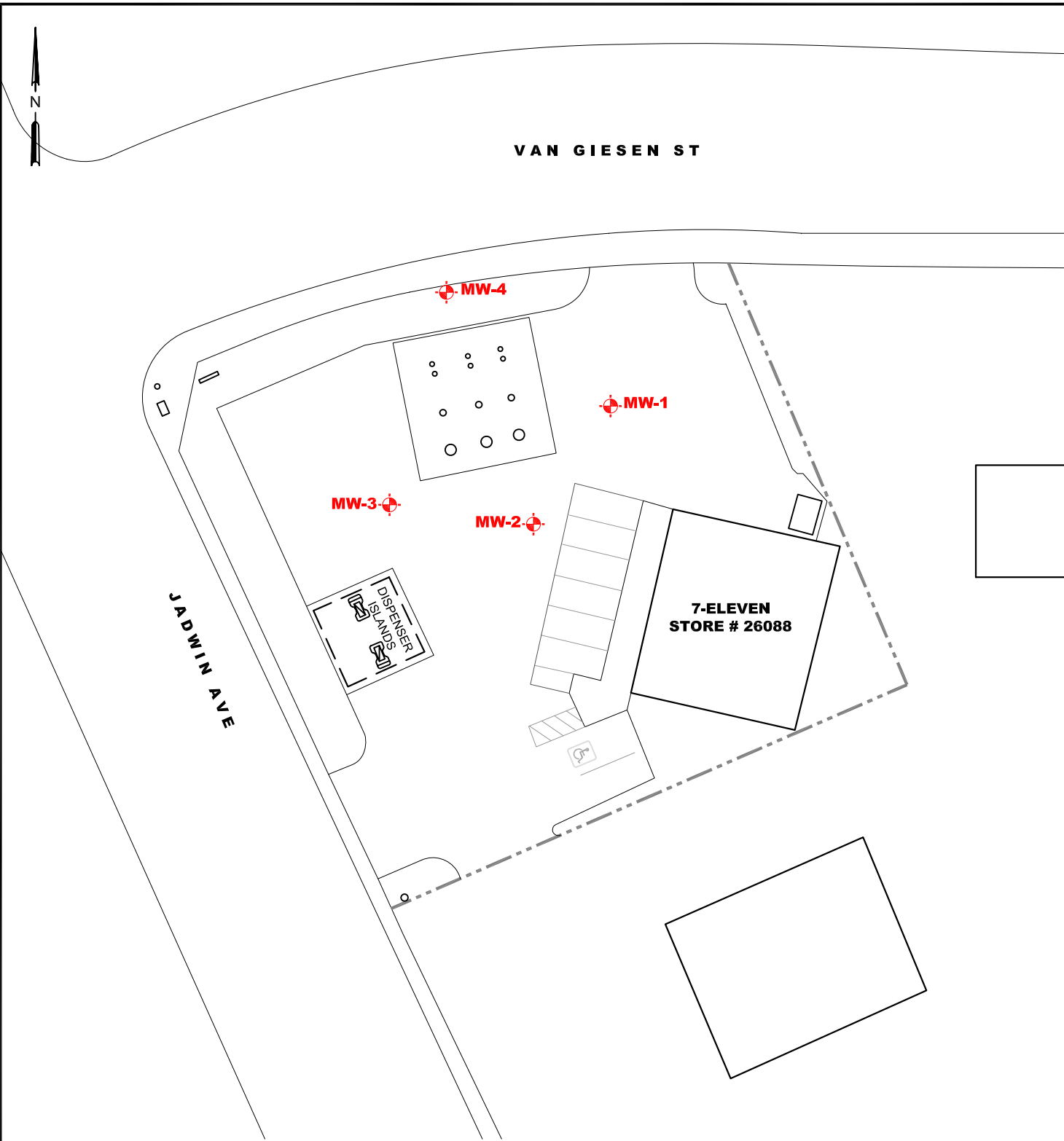
CHECKED BY:

APPROVED BY:


FIGURE:

1

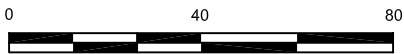
DATE:  
 5/2/11





**LEGEND**

- SITE BOUNDARY
-  PROPOSED MONITORING WELL LOCATION

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APPROXIMATE SCALE IN FEET

 <b>Stantec</b> 12034 134th COURT NORTHEAST REDMOND, WASHINGTON 98052 PHONE: (425) 298-1000 FAX: (425) 298-1020	FOR:  STORE NO. 26088 1540 JADWIN AVE RICHLAND, WASHINGTON	<b>SITE PLAN</b>		FIGURE: <h1 style="text-align: center;">2</h1>
	JOB NUMBER: 212302671	DRAWN BY: JCR	CHECKED BY:	APPROVED BY:

# Tables

**Table 1**  
**Historic Soil Sample Analytical Results**

7-Eleven Store No. 26088  
 1540 Jadwin Avenue  
 Richland, Washington

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TPH-G
RUL Turbine 1	9/10/2010	1.0	0.03	0.89	1.5	<b>13</b>	<b>120</b>
<b>MTCA Method A Soil Cleanup Levels</b>			0.03	7	6	9	30 <sup>1</sup>

**NOTES:**

**BOLD** = Results exceed MTCA Method A Soil Cleanup Levels

bgs = Below ground surface

TPH-G = Total petroleum hydrocarbons in the gasoline range, by Ecology Method WTPH-Gx

MTCA = Model Toxics Control Act

1 = Gasoline mixtures without benzene and where the total of ethylbenzene, toluene, and xylene

are less than 1% of the gasoline mixture have a cleanup level of 100 mg/kg; all other mixtures are 30 mg/kg

**Table 2  
Soil Boring and Well Construction Details**

7-Eleven Store No. 26088  
1540 Jadwin Avenue  
Richland, Washington

Well I.D.	Drill Date	Well		Screen		Screen Length (feet)	Comments
		Depth (feet bgs)	Diameter (inches)	Top (feet bgs)	Bottom (feet bgs)		
<b>Monitoring Wells</b>							
MW-1	proposed	25	2	10	25	15	
MW-2	proposed	25	2	10	25	15	
MW-3	proposed	25	2	10	25	15	
MW-4	proposed	25	2	10	25	15	
<b>Explanation</b>							
Wells are of poly-vinyl-chloride (PVC) construction							
bgs = Below ground surface							