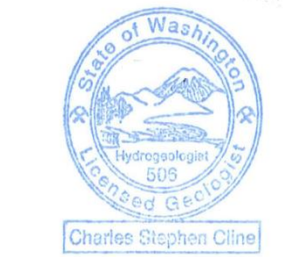
ASSOCIATED ENVIRONMENTAL GROUP, LLC

Work Plan for Final Closure

Conducted on:
Holt's Quik Chek
400 North Pacific Avenue
Kelso, Washington 98626

Prepared for:
Mr. Han Kim
P.O. Box 296
Littlerock, Washington 98556-0296

Prepared & Reviewed by:



Charles S. Cline L.G./L. Hg
Senior Hydrogeologist

Nicolas Pushckor
Staff Geologist

AEG Project #: 14-174
Date of Report: July 31, 2015

TABLE OF CONTENTS

FIGURES

TABLES

ARCHIVED FIGURES

ARCHIVED TABLES

APPENDICES

1.0 INTRODUCTION

Associated Environmental Group, LLC (AEG) has completed a Subsurface Investigation (SI) for Holt's Quik Chek, located at 400 North Pacific Avenue, in Kelso, Washington (the Subject Site/Site). On June 17, 2015, AEG advanced four borings in the west of the parking lot near the underground storage tanks (UST) at the Subject Site property, and one further west, downgradient, on North 1st Avenue, which was subsequently developed into monitoring well MW-7. Soil and water samples were collected from each boring and laboratory analyzed for diesel-range total petroleum hydrocarbons (TPH), lube oil-range TPH, gasoline-range TPH, benzene, toluene, ethylbenzene, and total xylenes (BTEX). The Subsurface Investigation was performed to establish the extent of groundwater contamination downgradient of the Subject Site property as specified by the Washington State Department of Ecology (Ecology), documented in a Further Action opinion letter dated June 25, 2015 and, previously, in a Further Action opinion letter from Ecology dated June 18, 2007. Both letters specified that the full extent of contamination be determined, especially downgradient of monitoring well MW-5, and that groundwater contamination is not affecting downgradient properties. It was also not apparent whether soil contamination remained on Site above the Model Toxics Control Act (MTCA) cleanup levels following remediation efforts. This Work Plan should address Ecology's concerns, and requests an opinion on the next steps to close out this Site.

1.1 Site and Vicinity Area Background

The Site is located at the intersection of North Pacific Avenue and Cowlitz Way, and is positioned on roughly 0.22 acres. The Site is developed as a gas station with a 3,075 square foot convenience store and two associated fueling islands. The Subject Site property has operated as a retail gasoline service or automotive repair station since the 1960s. Holt's Quik Chek has operated a retail gasoline station and convenience store at the Site since 1981. A petroleum release was discovered by the property owner in 1997. Since then, subsurface investigations have been performed in the vicinity of the UST pad, fuel dispenser area, and in portions of Cowlitz Way and North Pacific Avenue. The immediate vicinity of the Site is residential. Figure 1, *Vicinity Map*, presents the general vicinity of the Site. The Site's current layout and features can be seen in Figure 2, *Site Map*. For a more detailed view of the Site property refer to Figure 3, *Subject Site Property Map*.

1.2 Previous Environmental Work Summary

Phase II Environmental Site Assessments, AGI and EMCON – 1997

In 1997, AGI Technologies, Inc. (AGI) advanced 12 borings, and EMCON installed six monitoring wells at the Site. Soil samples were collected at various depths along with groundwater samples, and revealed gasoline-range TPH and benzene concentrations above the Ecology MTCA Method A cleanup levels for both soil and groundwater in the southwest quarter of the Site (Archived Tables, Table 1, *Historic Soil Analytical Results for Petroleum Hydrocarbons and Lead*

(EMCON). For locations of the borings and wells, see Archived Figures, Figure 2, *Groundwater Data September 26, 1997 (EMCON),* and Figure 3, *Farallon Consulting Site Plan Showing Soil Boring and Monitoring Well Locations (Farallon).*

Cleanup Actions, Hart Crowser and Farallon Consulting - 2003

In 2003, Hart Crowser installed a biosparging system at the Site. The system consisted of sparging air at about 0.1 cubic feet per minute in each of the eight sparge wells. Air was sparged into the subsurface water to raise dissolved oxygen levels to enhance the natural biodegradation processes. The biosparge system was operated until September 2005 when Farallon Consulting, LLC (Farallon) completed an in-situ chemical oxidation remediation using activated sodium persulfate. Two-hundred gallons of 5 percent sodium persulfate catalyzed with 10 percent hydrogen peroxide was injected into monitoring wells MW-2, MW-4, and MW-5. See Archived Figures, Figure 5, *Consulting Site Plan (Farallon).* Approximately 50 gallons of the activated sodium persulfate solution was injected into the eight sparge wells. According to Farallon, in the *Site Closure Report* dated March 9, 2007:

> "*The chemical oxidation was successful in removing the residual soil contamination that was impacting groundwater based on the analytical results obtained from four subsequent quarters of groundwater monitoring.*"

Voluntary Cleanup Program, Farallon – 2007

In 2007, Farallon submitted a No Further Action request letter to Ecology. Ecology determined that Further Action was needed at the Site under WAC 173-340-515(5) in order to fully characterize the Site. Ecology's Charles Cline's opinion letter, dated June 18, 2007, stated:

> "*…if soil remains above MTCA Method A cleanup levels on the Holt's Quik Chek Market property, it is possible that a restrictive covenant could be filed with the Cowlitz County Auditor's office.*"
>
> "*If no contamination is present west of the monitoring well MW-5 and contamination is not present in the soil then the remediation is considered complete and no further action is required.*"

Quarterly Groundwater Monitoring, AEG – October 2014 through April 2015

AEG sampled the five groundwater monitoring wells at the Site from October 2014 to April 2015. During these monitoring events, no constituents of concern were detected. Table 3, *Summary of Groundwater Analytical Results,* provides a summary of groundwater analytical results. AEG entered the Site into the Department of Ecology's Voluntary Cleanup Program (VCP) in December of 2014, requesting a "*No Further Action Determination*" based on groundwater sampling results.

1.3 Site Geology and Hydrogeology

The soil at the Subject Site and its vicinity consists of Kelso silt loam, 0 to 8 percent slopes. A typical soil profile consists of very dark grayish brown silt loam from 0 to 11 inches, dark yellowish brown silt loam from 11 to 18 inches, mottled, dark yellowish brown and yellowish brown silty clay loam from 18 to 34 inches, mottled, yellowish brown and grayish brown silty clay loam and silt loam, 34 to 45 inches, and mottled, dark yellowish brown silt loam, 45 to 60 inches below ground surface (bgs). This soil contains areas that vary in drainage from poorly to well drained.

Soils encountered at the Site during the Subsurface Investigation consisted of silt and sand. Sandy silt was encountered on the Subject Site property to a depth of approximately 13 feet bgs, with silty sand being found from approximately 13 feet bgs to approximately 22 feet bgs. Below 22 feet bgs is primarily sand. At the time of drilling, water was encountered on the Subject Site property at approximately 25 feet bgs.

It appears that groundwater at the Site flows to the west towards the Cowlitz river, based on contour maps made from groundwater elevation measurements on September 21, 2006 (Archived Figures, Figure 4, *Site Plan Showing Groundwater Elevation Contours (9/21/06) (Farallon)*, October 7, 2014 (Figure 4, *October 2014 Groundwater Contour Map*), January 20, 2015 (Figure 5, *January 2015 Groundwater Contour Map*), and April 22, 2015 (Figure 6, *April 2015 Groundwater Contour Map*). The approximate gradient of groundwater flow is 0.064 feet per foot (ft/ft).

2.0 OBJECTIVES AND SCOPE OF 2015 SI WORK

The objective of performing the 2015 Subsurface Investigation (SI) at the Site was to establish the extent of groundwater contamination downgradient of the Subject Site property, as specified by Ecology, documented in a Further Action opinion letter dated June 25, 2015 and, previously, in a Further Action opinion letter dated June 18, 2007. Both letters specified that the full extent of contamination be determined, especially downgradient of monitoring well MW-5, and that groundwater contamination is not affecting downgradient properties. It was also not apparent whether soil contamination remained on the Site above the MTCA cleanup levels following remediation efforts. This Work Plan should address Ecology's concerns, and requests an opinion on the next steps to close out this Site. Appendix A, *Ecology Opinion Letters*, shows copies of the June 18, 2007 opinion letter, and the June 25, 2015 opinion letter from Ecology.

3.0 FIELD METHODOLOGY

AEG supervised the advancement of monitoring well MW-7 and soil borings B-1 through B-4 at the Site on June 17, 2015. The monitoring well was advanced via an Auger drilling rig operated by Environmental Services Network NW, Inc. (ESN) of Olympia, Washington, to a total depth of 20 feet bgs. The borings were advanced via a Geoprobe® drilling rig operated by ESN, to a total depth of 35 feet bgs. Soil samples were collected during drilling for field screening and laboratory analyses. The monitoring well was advanced west, downgradient, of monitoring well MW-5. The borings were advanced adjacent to the UST pad to evaluate soil and groundwater contamination on the Subject Site property. The locations of the boreholes and Site features are illustrated in Figure 2, *Site Map*. The locations of the boreholes and monitoring well can be compared to previous boreholes by examining the current site map and Archived Figures, Figure 3, *Site Plan Showing Soil Boring and Monitoring Well Locations (Farallon).*

3.1 Soil Sampling Procedures

Soil sampling methods for this work followed the protocols established by Ecology and EPA. To minimize volatile organic constituent (VOC) losses, soil sampling and field preservation methods for VOCs followed methods set forth by EPA's Method 5035A, and Ecology's guidance, "*Collecting and Preparing Soil Samples for VOC Analysis*". Soil samples were collected from the boreholes via continuous soil cores in an acetate sleeve inside the drilling rod's core barrel. Soils were observed to document soil lithology, color, moisture content, and sensory evidence of contamination.

Based on the field observations, a total of 27 soil samples were transferred to laboratory-provided pre-weighed 40-milliliter (ml) VOA glass vials for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX). Samples for diesel-range TPH were transferred to laboratory provided pre-

weighted 4-ounce glass jars. Nine select soil samples were transported to ESN, a Washington State accredited laboratory, in Olympia, Washington, for analyses following industry standard chain-of-custody procedures.

3.2 Groundwater Sampling Procedures

AEG sampled the groundwater from the newly installed well and borings on June 17, 2015. New, dedicated polyethylene tubing was installed in each of the holes to the total depth. Following the EPA approved low-flow purging and sampling technique, groundwater from each well or boring was purged until the sample was relatively free of sediment.

The groundwater samples were collected in laboratory provided 40-milliliter (ml) vials and analyzed for the gasoline-range TPH and BTEX constituents. Laboratory provided ½ liter amber jars were used for the collection of groundwater to be analyzed for diesel-range TPH.

4.0 ANALYTICAL RESULTS

Selected soil samples were analyzed for:

- Diesel-range TPH and lube oil-range TPH by Method NWTPH-Dx Extended; and
- Gasoline-range TPH, and BTEX by Method NWTPH-Gx/8260.

Selected groundwater samples were analyzed for:

- Diesel-range TPH and lube oil-range TPH by Method NWTPH-Dx Extended; and
- Gasoline-range TPH and BTEX by Method NWTPH-Gx/8260.

All analytical results were compared to Ecology's MTCA Method A cleanup levels.

4.1 Soil Results

Analytical results of the soil samples indicated the presence of gasoline-range TPH above the MTCA Method A Cleanup Levels in borings B-1, B-3, and B-4. Ethylbenzene and total xylenes were detected above their respective MTCA Method A cleanup levels in borings B-1 and B-4. A summary of analytical results for each detected constituent is provided below:

- Toluene was detected **below** the MTCA Method A cleanup level of 7 milligrams per kilogram (mg/kg) at a depth of 10 feet bgs in boring B-1, with a concentration of 1.6 mg/kg, and at a depth of 15 feet bgs in boring B-4, with a concentration of 0.53 mg/kg.
- Ethylbenzene was detected **above** the MTCA Method A cleanup level of 6 mg/kg at a depth of 10 feet bgs in boring B-1, with a concentration of 54 mg/kg, and at a depth of 15 feet bgs in boring B-4, with a concentration of 13 mg/kg.
- Ethylbenzene was detected **below** the MTCA method A cleanup level at a depth of 25 feet bgs in boring B-1, with a concentration of 0.17 mg/kg, and at a depth of 15 feet in boring B-2, with a concentration of 0.11 mg/kg.
- Total xylenes were detected **above** the MTCA Method A cleanup level of 9 mg/kg at a depth of 10 feet bgs in boring B-1, with a concentration of 300 mg/kg, and at a depth of 15 feet bgs in boring B-4, with a concentration of 96 mg/kg.
- Total xylenes were detected **below** the MTCA Method A cleanup level in borings B-1 at 25 feet bgs (1.1 mg/kg), B-2 at 15 feet bgs (0.53 mg/kg), and B-2 at 25 feet bgs (0.27 mg/kg)

- Gasoline-range TPH was detected **above** the MTCA Method A cleanup level of 100 mg/kg in borings B-1 at 10 feet bgs (3,800 mg/kg), B-1 at 25 feet bgs (800 mg/kg), B-3 at 25 feet bgs (620 mg/kg), and B-4 at 15 feet bgs (2,700 mg/kg).
- Gasoline-range TPH was detected **below** the MTCA Method A cleanup level in boring B-2, at depths of 15 feet bgs (65 mg/kg), and 25 feet bgs (37 mg/kg).
- Benzene, diesel-range TPH, and heavy oil-range TPH were not detected in any soil sample above laboratory detection limits.

Table 1, *Summary of Soil Analytical Results*, presents soil analytical results as compared to Ecology's MTCA Method A soil cleanup levels.

4.2 Groundwater Results

Groundwater sampling was performed at each new monitoring well and boring during drilling activities. A summary of analytical results for each detected constituent is provided below:

June 17, 2015

- Toluene was detected **below** the MTCA Method A cleanup level of 1,000 micrograms per liter (µg/l) in boring B-1, with a concentration of 2.5 µg/l.
- Ethylbenzene was detected **below** the MTCA Method A cleanup level of 700 µg/l in borings B-1, and B-4, with concentrations of 36 µg/l, and 2.6 µg/l, respectively.
- Total xylenes were detected **below** the MTCA Method A cleanup level of 1,000 µg/l in boring B-1, with a concentration of 160 µg/l.
- Gasoline-range TPH was detected **above** the MTCA Method A cleanup level of 1,000 µg/l in boring B-1, with a concentration of 1,400 µg/l.
- Diesel-range TPH was detected **above** the MTCA Method A cleanup level of 500 µg/l in borings B-2, and B-3, with concentrations of 540 µg/l, and 1,100 µg/l, respectively.
- Benzene and heavy oil-range TPH were not detected above laboratory reporting limits in any groundwater samples.

July 16, 2015

- Benzene was detected **above** the MTCA Method A cleanup level of 5.0 µg/l in monitoring well MW-6, with a concentration of 45 µg/l.
- Toluene was detected **below** the MTCA Method A cleanup level of 1,000 micrograms per liter (µg/l) in monitoring well MW-6, with a concentration of 3.1 µg/l.

- Gasoline-range TPH was detected **below** the MTCA Method A cleanup level of 1,000 µg/l in monitoring well MW-6, with a concentration of 180 µg/l.

Table 3, *Summary of Groundwater Analytical Results,* presents analytical results as compared to Ecology's MTCA Method A groundwater cleanup levels.

5.0 FINDINGS, CONCLUSIONS, AND PROPOSAL

The findings and conclusions derived during the subsurface assessment activities at the Site are as follows:

5.1 Findings

- Soil and groundwater analytical results from monitoring well MW-7 revealed no detections above laboratory reporting limits.
- Ethylbenzene, total xylenes, and gasoline-range TPH were detected in soil samples above their respective MTCA Method A cleanup levels in boring B-1 at 10 feet bgs, and in boring B-4 at 15 feet bgs.
- Gasoline-range TPH was detected in soil samples above the MTCA Method A cleanup level in boring B-1 at 10 feet bgs, B-1 at 25 feet bgs, and boring B-3 at 25 feet bgs, and B-4 at 15 feet bgs.
- Gasoline-range TPH was detected in the groundwater sample from boring B-1 above the MTCA Method A cleanup level.
- Diesel-range TPH was detected in the groundwater samples above the MTCA Method A cleanup level from borings B-2 and B-3.
- Benzene concentration in monitoring well MW-6 is above the MTCA Method A cleanup level.
- Direction of groundwater flow beneath the Site when encountered is west with an approximate gradient of 0.064 ft/ft.

5.2 Conclusions

Based on the results of the samples analyzed and the findings from this investigation, AEG concludes that:

- Groundwater flow at the Site is to the west;
- Monitoring well MW-7, downgradient of the Site, shows no signs of contamination;
- Montoring well MW-6 shows signs of groundwater contamination and is crossgradient of the Site;
- Soil analytical results remain above the MTCA Method A cleanup levels on the Subject Site property; and
- Although groundwater in borings B-1, B-2, and B-3 had detections above MTCA Method A cleanup levels, it is thought that these results are in error; that soil

contamination from the borehole was carried down to the groundwater and thus, the groundwater samples were contaminated as part of drilling activities.

5.3 Proposal

Based on the findings and conclusions of this investigation, it is proposed that:

- Following the completion of four quarters of groundwater monitoring (including monitoring well MW-6) that demonstrates groundwater concentrations below MTCA regulatory levels, and an attached Environmental Covenant for the soils present on Site, Ecology would generate a "*No Further Action (NFA) with an Environmental Covenant*" determination;
- AEG would generate a *"Feasibility Study and Disproportionate Cost Analysis"* to substantiate the use of an Environmental Covenant according to WAC 173-340-360;
- All seven monitoring wells will be surveyed by a professional surveyor to NGVD 88 standards. If it is determined that monitoring well MW-6 is crossgradient rather than downgradient from the Holt's Quik Chek Site, the monitoring well should be reconsidered for monitoring purposes;
- In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both written and electronic format. Any reports submitted for Ecology review shall be considered incomplete until the electronic data has been entered. Until this data has been entered in electronic format, Ecology cannot issue an NFA determination. AEG will determine that all data has been entered into the Ecology EIM Database according to WAC 173-340-840 requirements; and
- In accordance with WAC 173-340-7490, a Terrestrial Ecological Evaluation (TEE) needs to be completed for the Site. AEG will complete the TEE form (and supporting documentation as appropriate) and submit it to Ecology.

6.0 LIMITATIONS

This report summarizes the findings of the services authorized under our agreement with Mr. Han Kim. It has been prepared using generally accepted professional practices, related to the nature of the work accomplished. This report was prepared for the exclusive use of Mr. Han Kim and his designated representatives for the specific application to the project purpose.

Recommendations, opinions, site history, and proposed actions contained in this report apply to conditions and information available at the time this report was completed. Since conditions and regulations beyond our control can change at any time after completion of this report, or our proposed work, we are not responsible for any impacts of any changes in conditions, standards, practices, and/or regulations subsequent to our performance of services. We cannot warrant or validate the accuracy of information supplied by others, in whole or part.

7.0 REFERENCES

American Society for Testing and Materials (ASTM) Standard E 1903-97. *Standard Guide Environmental Site Assessments: Phase II Environmental Site Assessment Process*

Associated Environmental Group LLC, *Subsurface Investigation Conducted on: Holt's Quik Chek,* July 8, 2015

Farallon Consulting, L.L.C., 2007, *Site Closure Report*

Washington State Department of Ecology, 2004, *Collecting and Preparing Soil Samples for VOC Analysis*, Implementation Memorandum #5

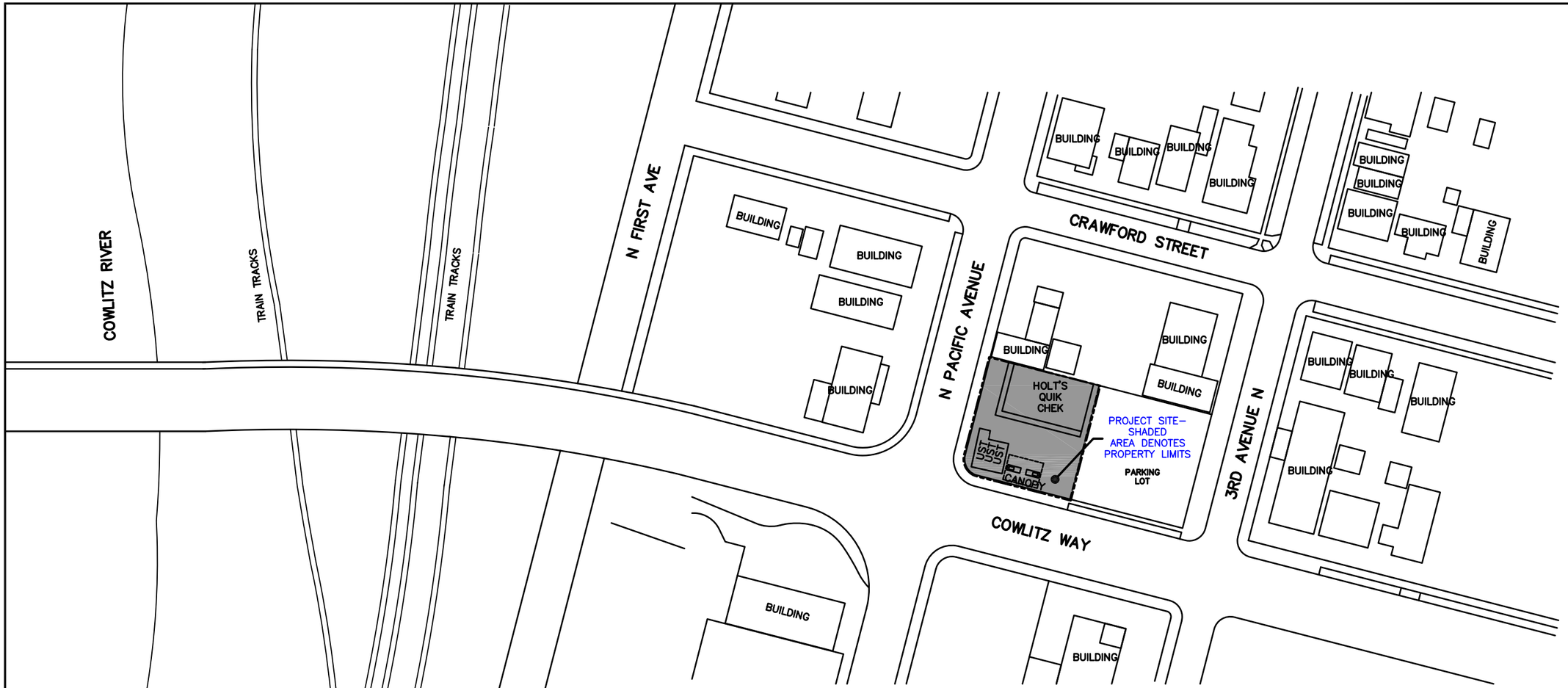
Washington State Department of Ecology, 2007, *Model Toxic Control Act Statute and Regulation – Chapter 173-340 WAC*, Publication number 94-06 (Revised November 2007)

Washington State Department of Ecology, 2007, *Holt's Quik Chek Market, Further Action Determination under WAC 173-340-515(5)* (June 18, 2007)

Washington State Department of Ecology, 2015, *Further Action at the following Site: Holts Quik Chek Market*, (June 25, 2015)

FIGURES

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com



NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.
VICINITY IMAGE SOURCE: U.S. GEOLOGICAL SURVEY– 2013, 7.5 MINUTE QUADRANGLE MAP KELSO, WASHINGTON

PROJECT LOCATION

VICINITY MAP

0 1,500 3,000
SCALE IN FEET

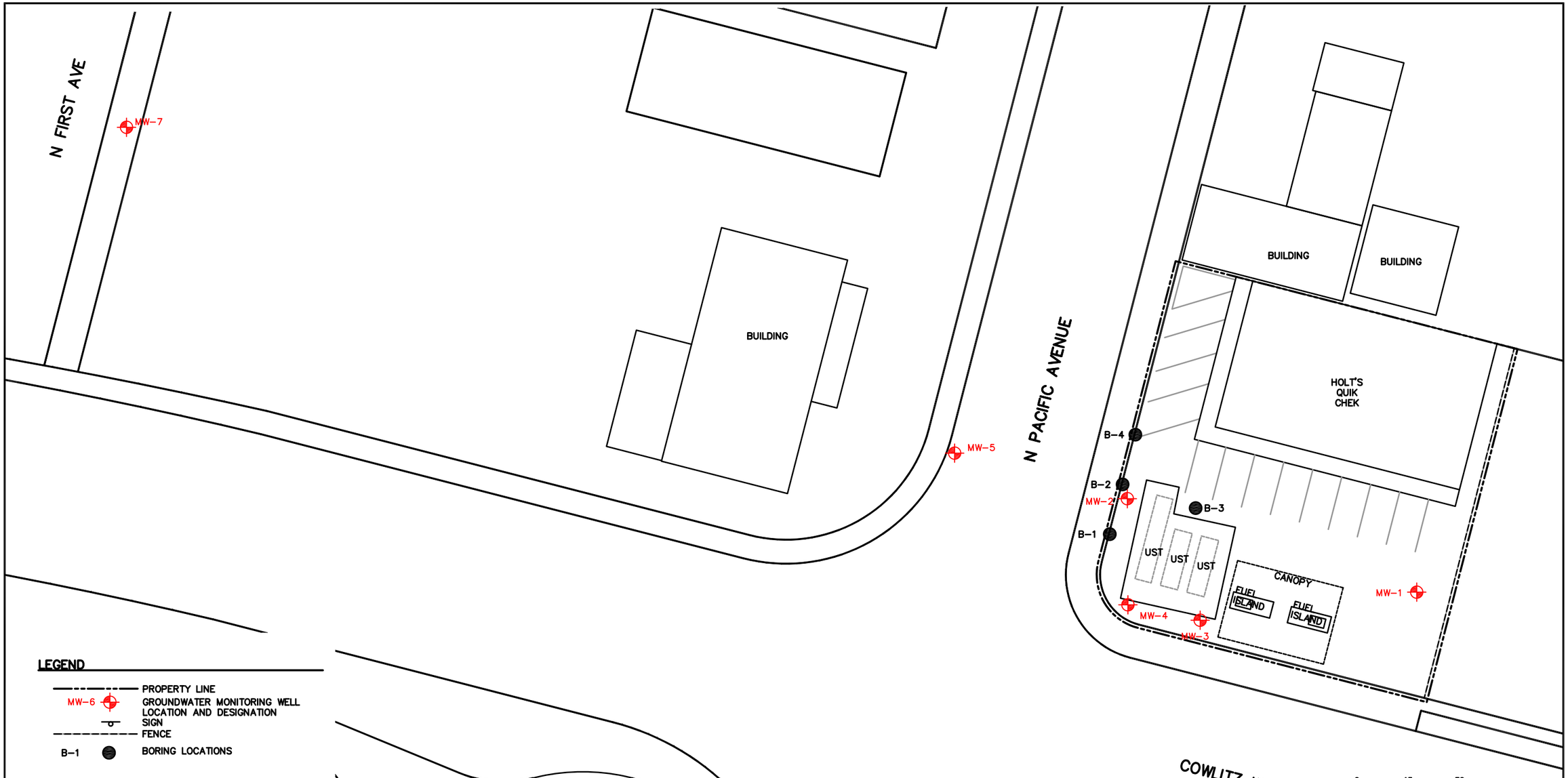
N
W E
S

0 15 30
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 1
VICINITY MAP

HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON



LEGEND

- PROPERTY LINE
- MW-6 — GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- SIGN
- FENCE
- B-1 — BORING LOCATIONS

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

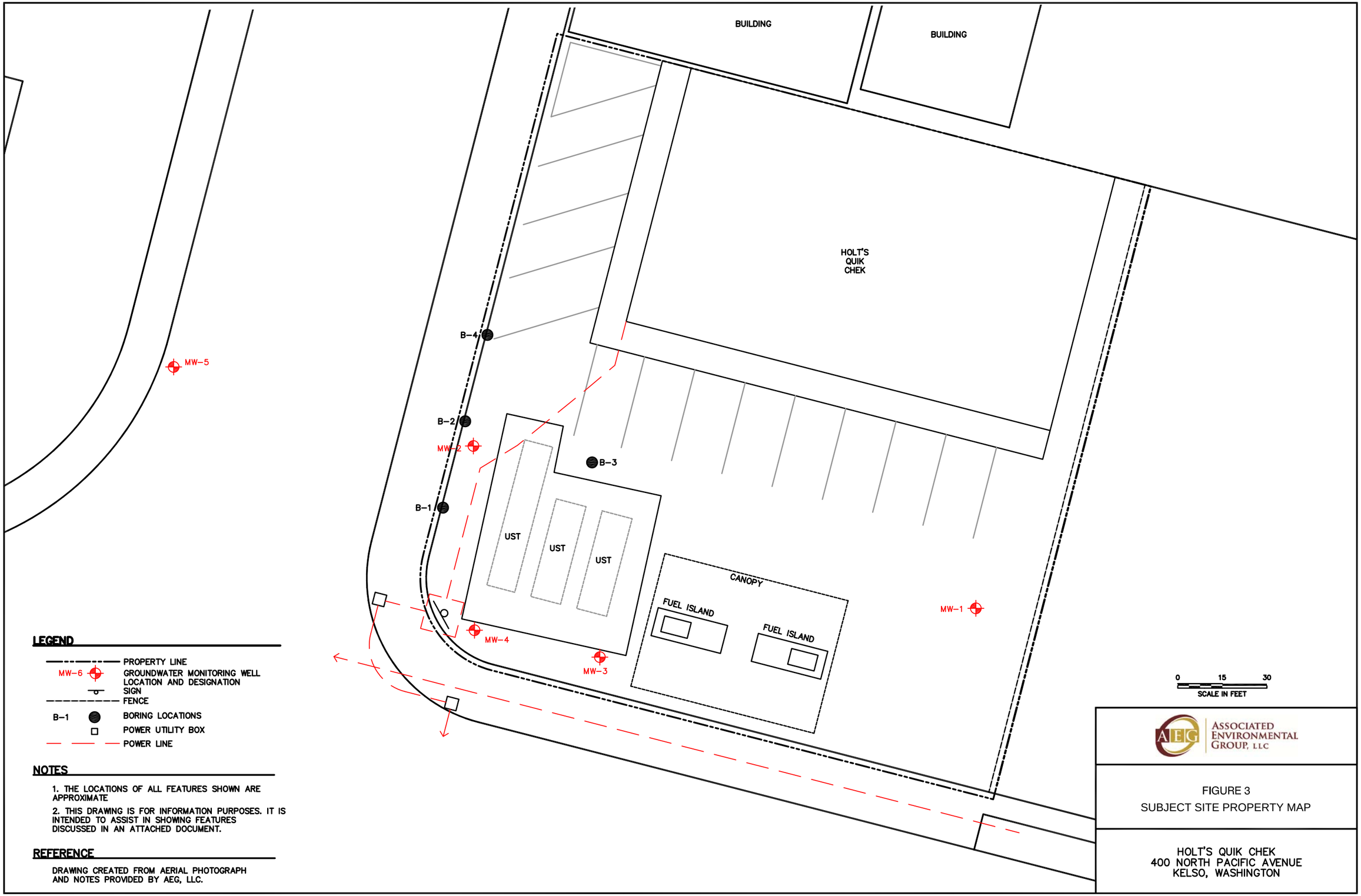
REFERENCE

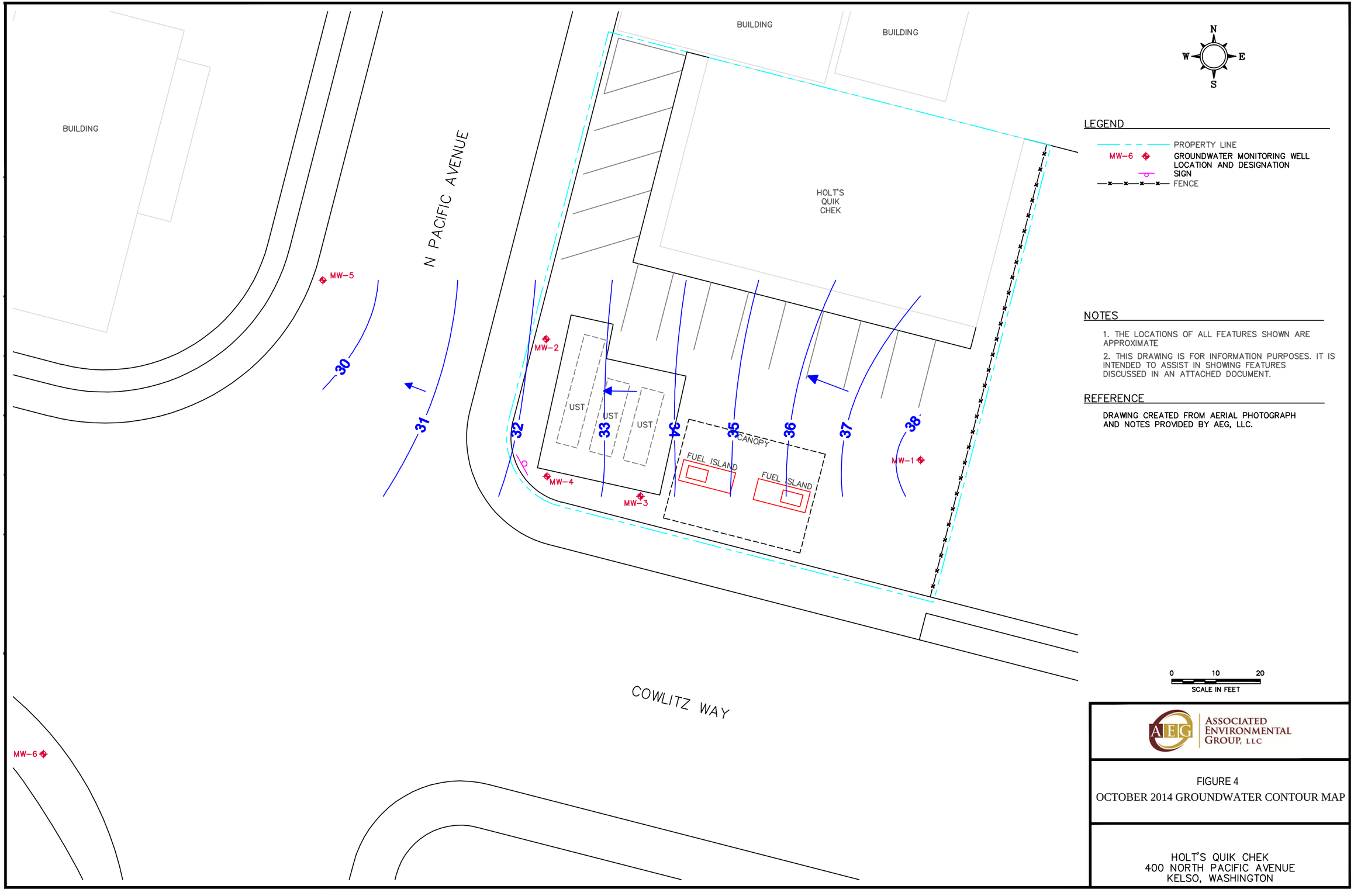
DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 2
SITE MAP

HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON


BUILDING
BUILDING
HOLT'S
QUIK
CHEK
MW-5
B-4
B-2
MW-2
B-3
B-1
UST
UST
UST
CANOPY
FUEL ISLAND
FUEL ISLAND
MW-1
MW-4
MW-3
LEGEND
PROPERTY LINE
MW-6
GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
SIGN
FENCE
B-1
BORING LOCATIONS
POWER UTILITY BOX
POWER LINE
NOTES
1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.
REFERENCE
DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.
0
15
30
SCALE IN FEET
ASSOCIATED ENVIRONMENTAL GROUP, LLC
FIGURE 3
SUBJECT SITE PROPERTY MAP
HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON

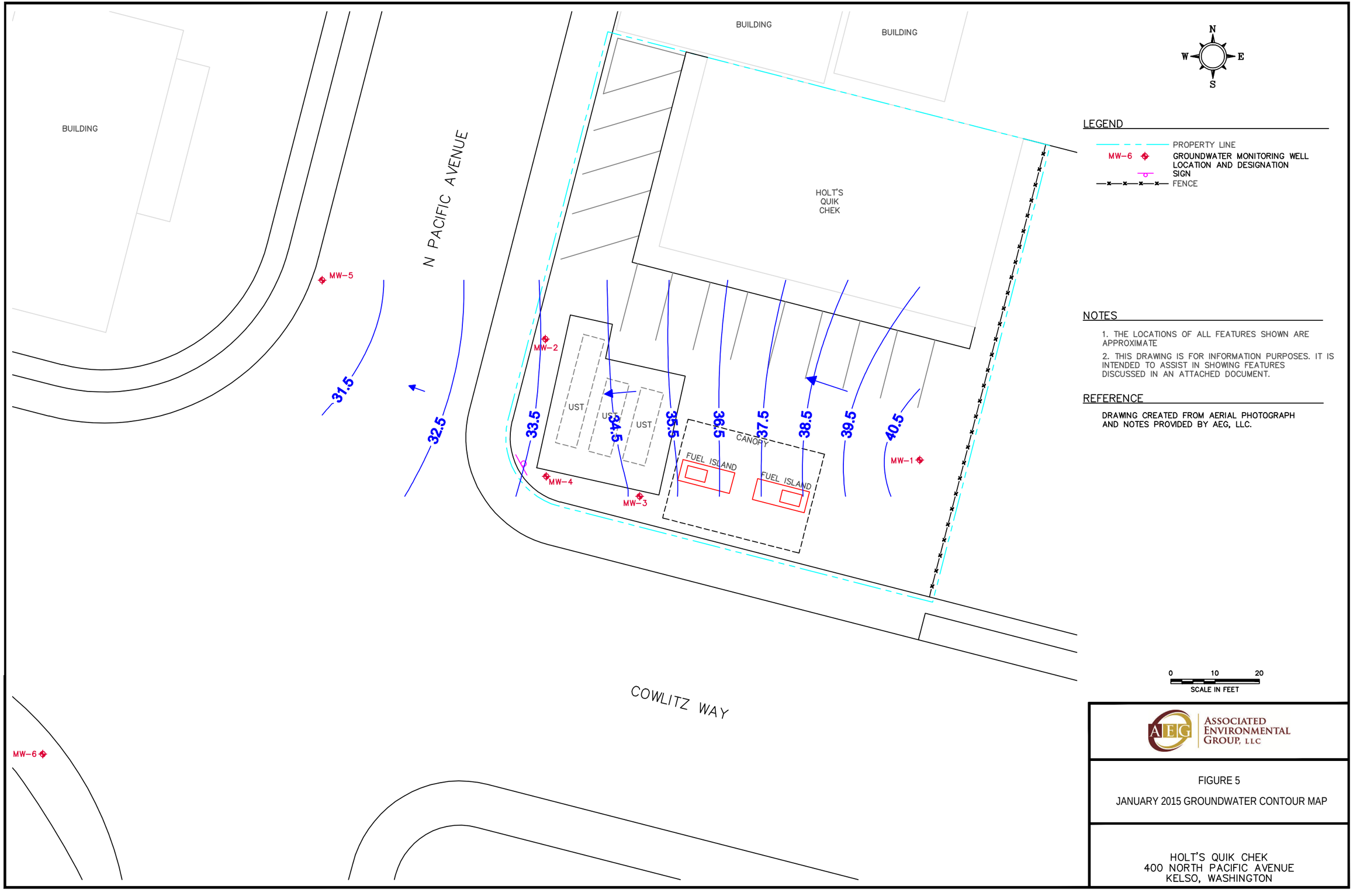


ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 4

OCTOBER 2014 GROUNDWATER CONTOUR MAP

HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON



N
W E
S

LEGEND

- PROPERTY LINE
- MW-6 — GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- SIGN
- FENCE

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

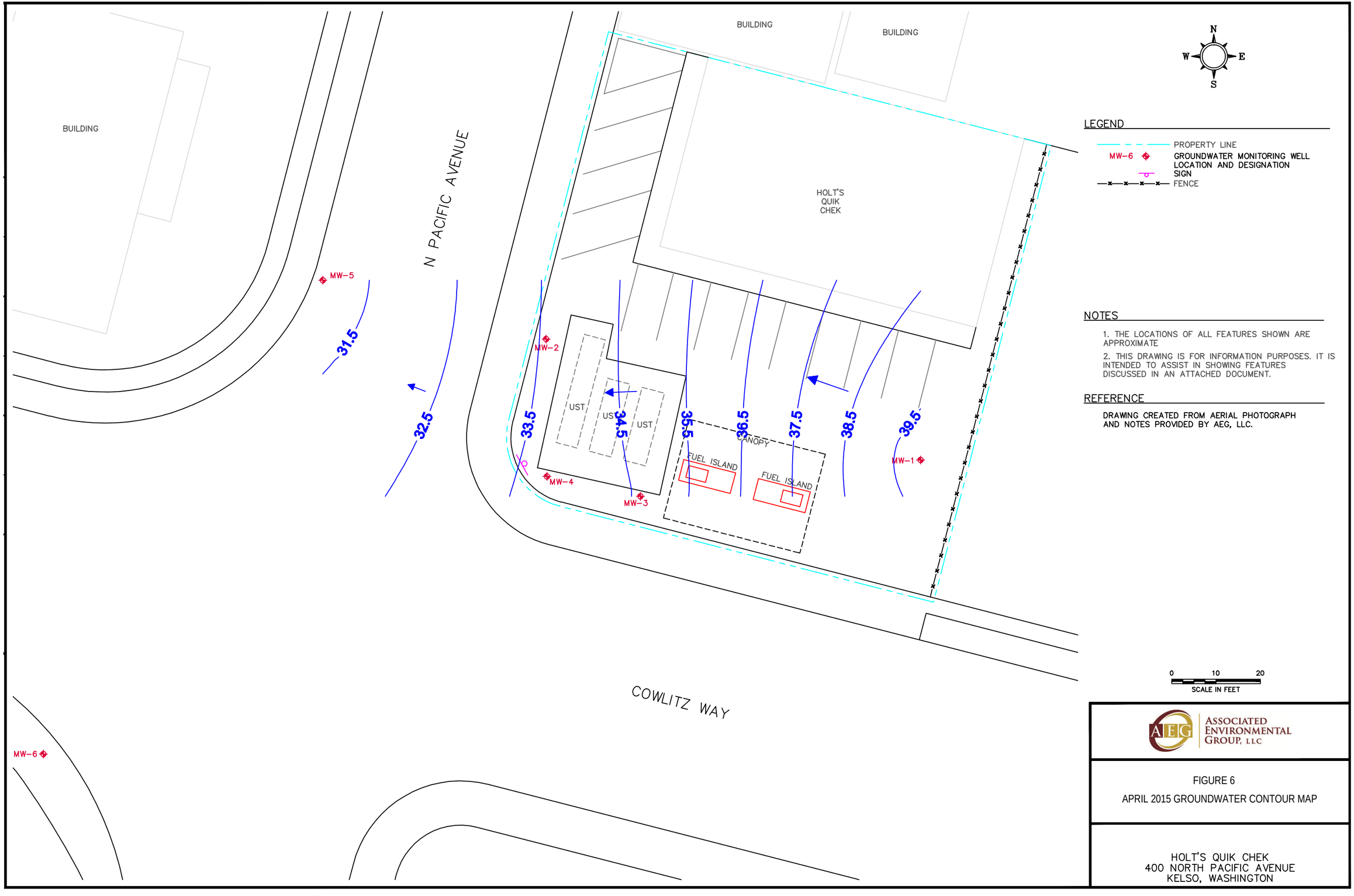
0 10 20
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 5

JANUARY 2015 GROUNDWATER CONTOUR MAP

HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON



ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 6

APRIL 2015 GROUNDWATER CONTOUR MAP

HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON

TABLES

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

Table 1 - Summary of Soil Analytical Results
Holt's Quik Chek
Kelso, Washington

Sample Number	Depth Collected (feet)	Date Collected	Volatile Organic Compounds (mg/kg)				Total Petroleum Hydrocarbons (TPH) (mg/kg)		
			Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline	Diesel	Heavy Oil
MW-7-15	15.0	6/17/2015	<0.02	<0.05	<0.05	<0.15	<10	<50	<100
B1-10	10.0	6/17/2015	<0.02	**1.6**	**54**	**300**	**3,800**	<50	<100
B1-25	25.0	6/17/2015	<0.02	<0.05	**0.17**	**1.1**	**800**	<50	<100
B2-15	15.0	6/17/2015	<0.02	<0.05	**0.11**	**0.53**	**65**	<50	<100
B2-25	25.0	6/17/2015	<0.02	<0.05	<0.05	**0.27**	**37**	<50	<100
B3-10	10.0	6/17/2015	<0.02	<0.05	<0.05	<0.15	<10	<50	<100
B3-25	25.0	6/17/2015	<0.02	<0.05	<0.05	<0.15	**620**	<50	<100
B4-15	15.0	6/17/2015	<0.02	**0.53**	**13**	**96**	**2,700**	<50	<100
B4-20	20.0	6/17/2015	<0.02	<0.05	<0.05	<0.15	<10	<50	<100
PQL (mg/kg)			0.02	0.05	0.05	0.15	10	50	100
MTCA Method A Cleanup Levels (mg/kg)			0.03	7	6	9	100*	2,000	2,000

Notes:
mg/kg = milligrams per kilogram
-- Not analyzed for constituent
< Not detected at the listed laboratory detection limits
PQL = Practical Quantification Limit (laboratory detection limit)
Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level
Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels
* TPH-Gasoline Cleanup Level with no presence of Benzene anywhere at the Site

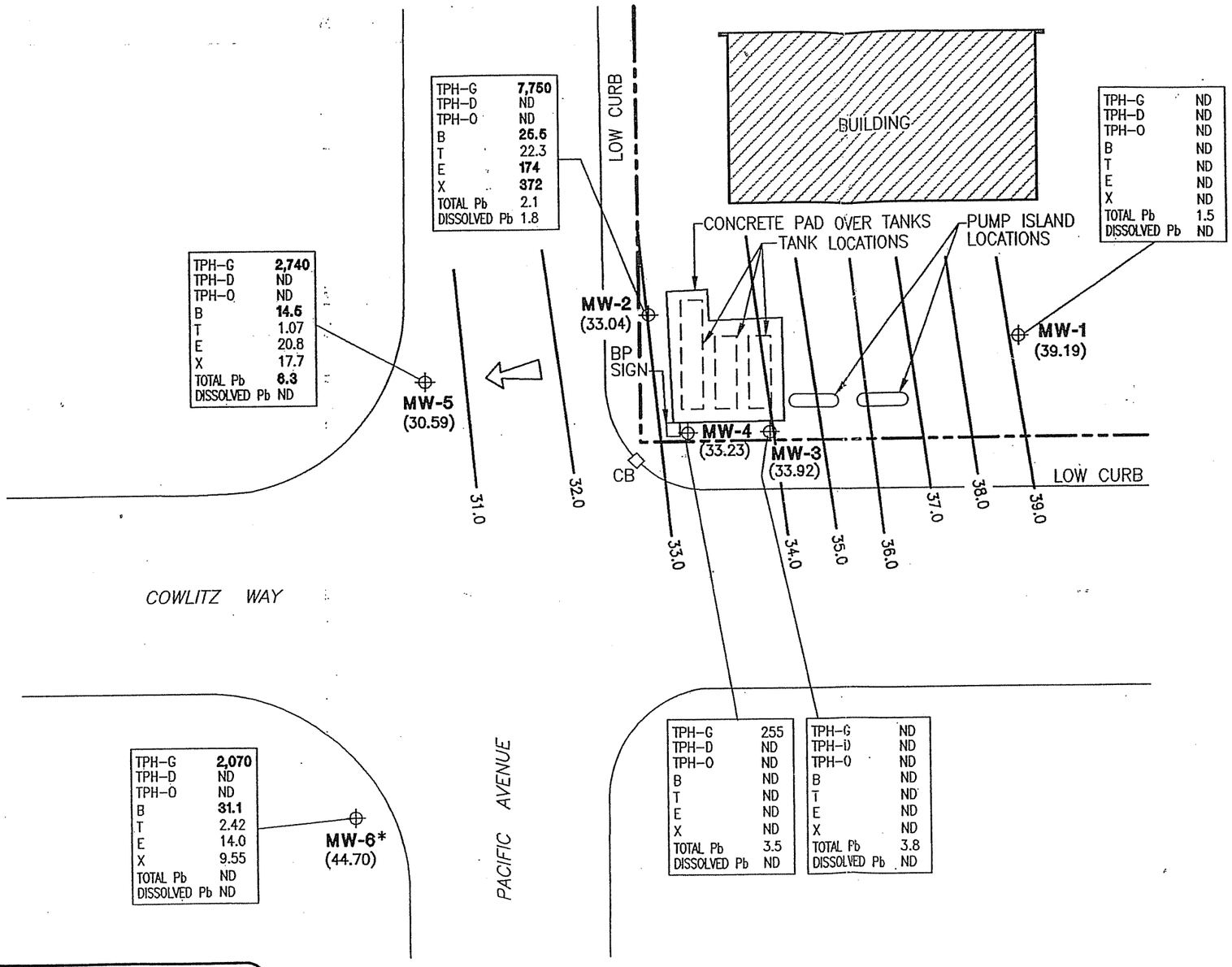
Table 3 - Summary of Groundwater Analytical Results
Holt's Quik Chek
Kelso, Washington

Sample Number	Date Collected	Volatile Organic Compounds (µg/l)				Total Petroleum Hydrocarbons (TPH) (µg/l)		
		Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline	Diesel	Heavy Oil
MW-1	10/7/2014	<1.0	<1.0	<1.0	<3.0	<100	--	--
	1/20/2015	<1.0	<1.0	<1.0	<3.0	**160**	--	--
	4/22/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
	7/16/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
MW-2	10/7/2014	<1.0	<1.0	<1.0	<3.0	<100	--	--
	1/20/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
	4/22/2015	<1.0	<1.0	<1.0	<3.0	**140**	--	--
	7/16/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
MW-3	10/7/2014	<1.0	<1.0	<1.0	<3.0	<100	--	--
	1/20/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
	4/22/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
	7/16/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
MW-4	10/7/2014	<1.0	<1.0	<1.0	<3.0	<100	--	--
	1/20/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
	4/22/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
	7/16/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
MW-5	10/7/2014	<1.0	<1.0	<1.0	<3.0	<100	--	--
	1/20/2015	<1.0	<1.0	<1.0	<3.0	**180**	--	--
	4/22/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
	7/16/2015	<1.0	<1.0	<1.0	<3.0	<100	--	--
MW-6	7/16/2015	**45**	**3.1**	<1.0	<3.0	**180**	--	--
MW-7	6/17/2015	<1.0	<1.0	<1.0	<1.0	<100	<250	<500
	7/16/2015	<1.0	<1.0	<1.0	<1.0	<100	--	--
B-1	6/17/2015	<1.0	**2.5**	**36**	**160**	**1,400**	<250	<500
B-2	6/17/2015	<1.0	<1.0	<1.0	<3.0	<100	**540**	<500
B-3	6/17/2015	<1.0	<1.0	<1.0	<3.0	<100	**1100**	<500
B-4	6/17/2015	<1.0	<1.0	**2.6**	<3.0	<100	<250	<500
PQL (µg/l)		1.0	1.0	1.0	3.0	100	250	500
MTCA Method A Cleanup Levels (µg/l)		5.0	1,000	700	1,000	1,000*	500	500

Notes:
ug/L= micrograms per liter
-- Not analyzed for constituent
< Not detected at the listed laboratory detection limits
PQL = Practical Quantification Limit (laboratory detection limit)
Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level
Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels
* TPH-Gasoline Cleanup Level with no presence of Benzene anywhere at the Site

ARCHIVED
FIGURES

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com



LEGEND:

MW-1 ⊕ Existing Monitoring Well Locations

—31.0— Groundwater Elevation Contour

(39.19) Groundwater Elevation (feet) on September 26, 1997

General Groundwater Flow Direction

TPH-G	**2,740**
TPH-D	ND
TPH-O	ND
B	**14.5**
T	1.07
E	20.8
X	17.7
TOTAL Pb	**6.3**
DISSOLVED Pb	ND

Laboratory Results in Parts per Billion

TPH-G = Total Petroleum Hydrocarbons as Gasoline

TPH-D = Total Petroleum Hydrocarbons as Diesel

TPH-O = Total Petroleum Hydrocarbons as Oil

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total Xylenes

TOTAL Pb = Total Lead

DISSOLVED Pb = Dissolved Lead

Numbers in **Bold** Equal or Exceed MTCA Method A Cleanup Levels

* **MW-6** Groundwater Elevation Data not Included in Groundwater Contours

N

0 30 60

SCALE (ft)

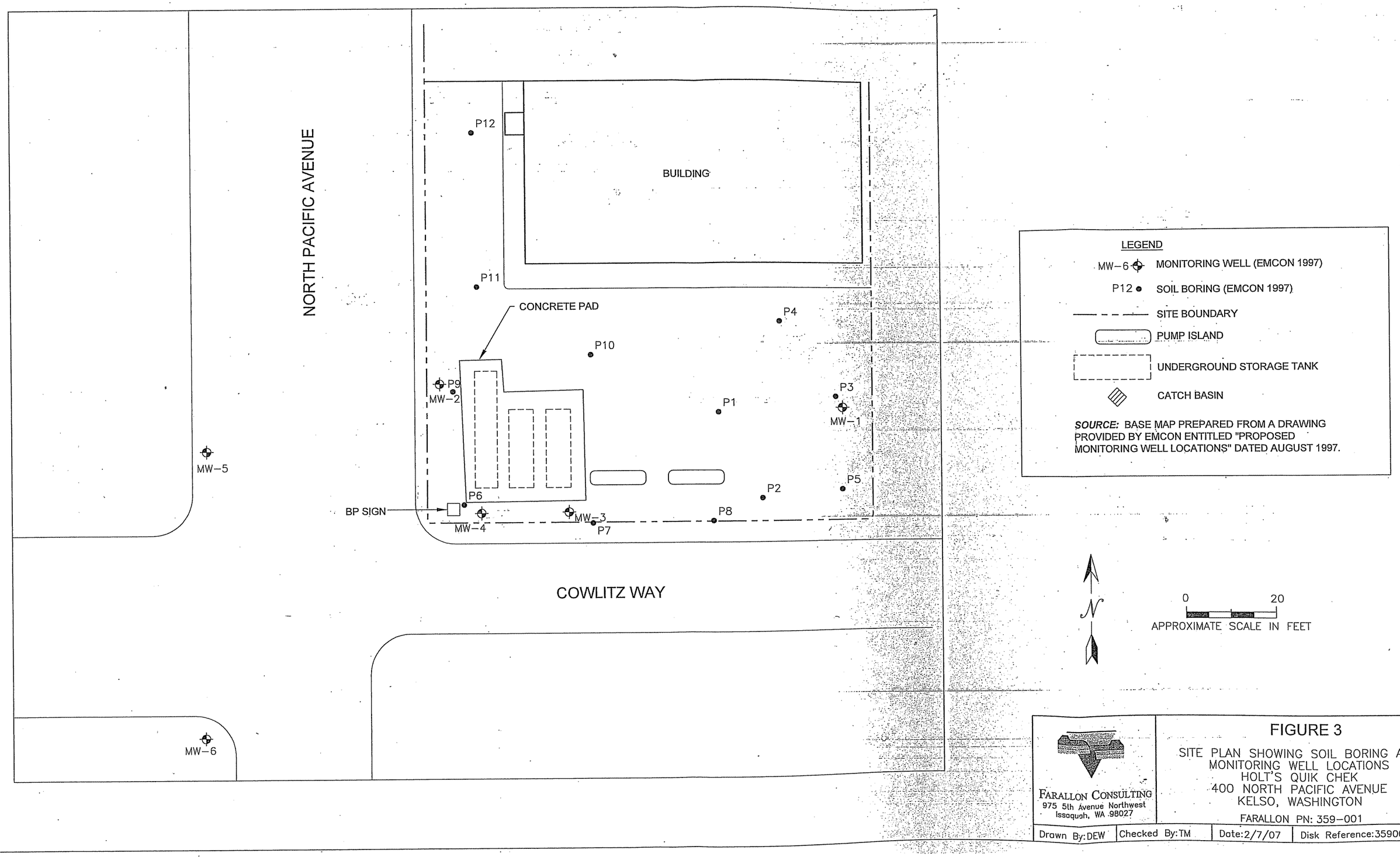
EMCON

DATE	10-97
DWN	mlp
APP	
REV	
PROJECT NO.	41241-001.003

Figure 2

HOLT'S QUIK CHEK MARKET
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON
GROUNDWATER DATA
SEPTEMBER 26, 1997

ENW-BOTHELL2/DATA: G:\DWG\41241001\B00003R01.dwg Xrefs: <NONE>
Scale: 1 = 30.00 DimScale: 1 = 30.00 Date: 11/6/97 Time: 12:40 PM Operator: MLP



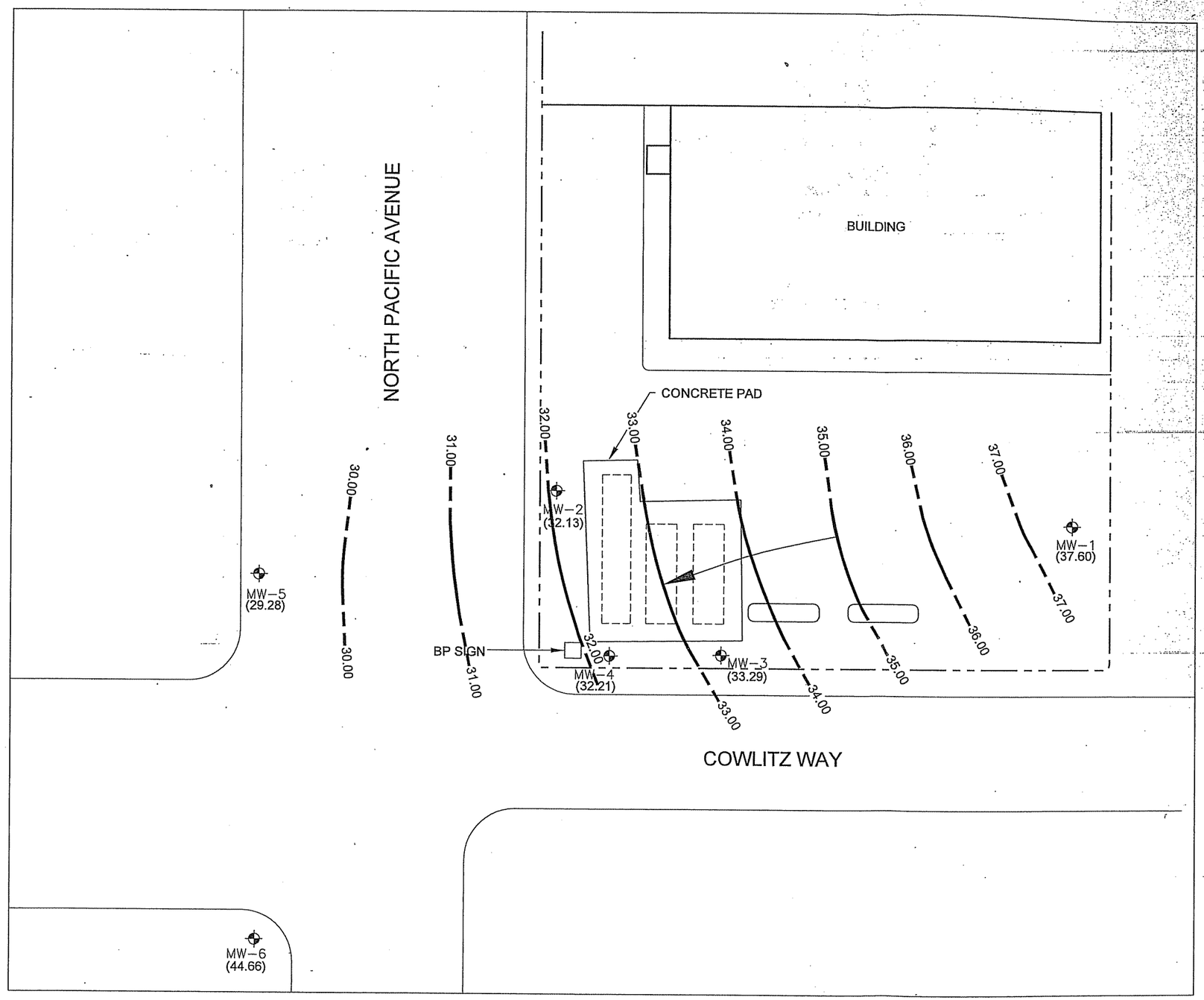
FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

FIGURE 3

SITE PLAN SHOWING SOIL BORING AND MONITORING WELL LOCATIONS
HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON

FARALLON PN: 359-001

Drawn By: DEW	Checked By: TM	Date: 2/7/07	Disk Reference: 359001



LEGEND

MW-6 ⊕ MONITORING WELL (EMCON 1997)

(44.66) GROUNDWATER ELEVATION (3/21/2006)

31.00 GROUNDWATER ELEVATION CONTOUR

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

SITE BOUNDARY

PUMP ISLAND

UNDERGROUND STORAGE TANK

CATCH BASIN

SOURCE: BASE MAP PREPARED FROM A DRAWING PROVIDED BY EMCON ENTITLED "PROPOSED MONITORING WELL LOCATIONS" DATED AUGUST 1997.

NOTE:

ALL LOCATIONS APPROXIMATE

GROUNDWATER ELEVATION MEASURED AT MONITORING WELL MW-6 NOT CONTOURED.

N

0 20

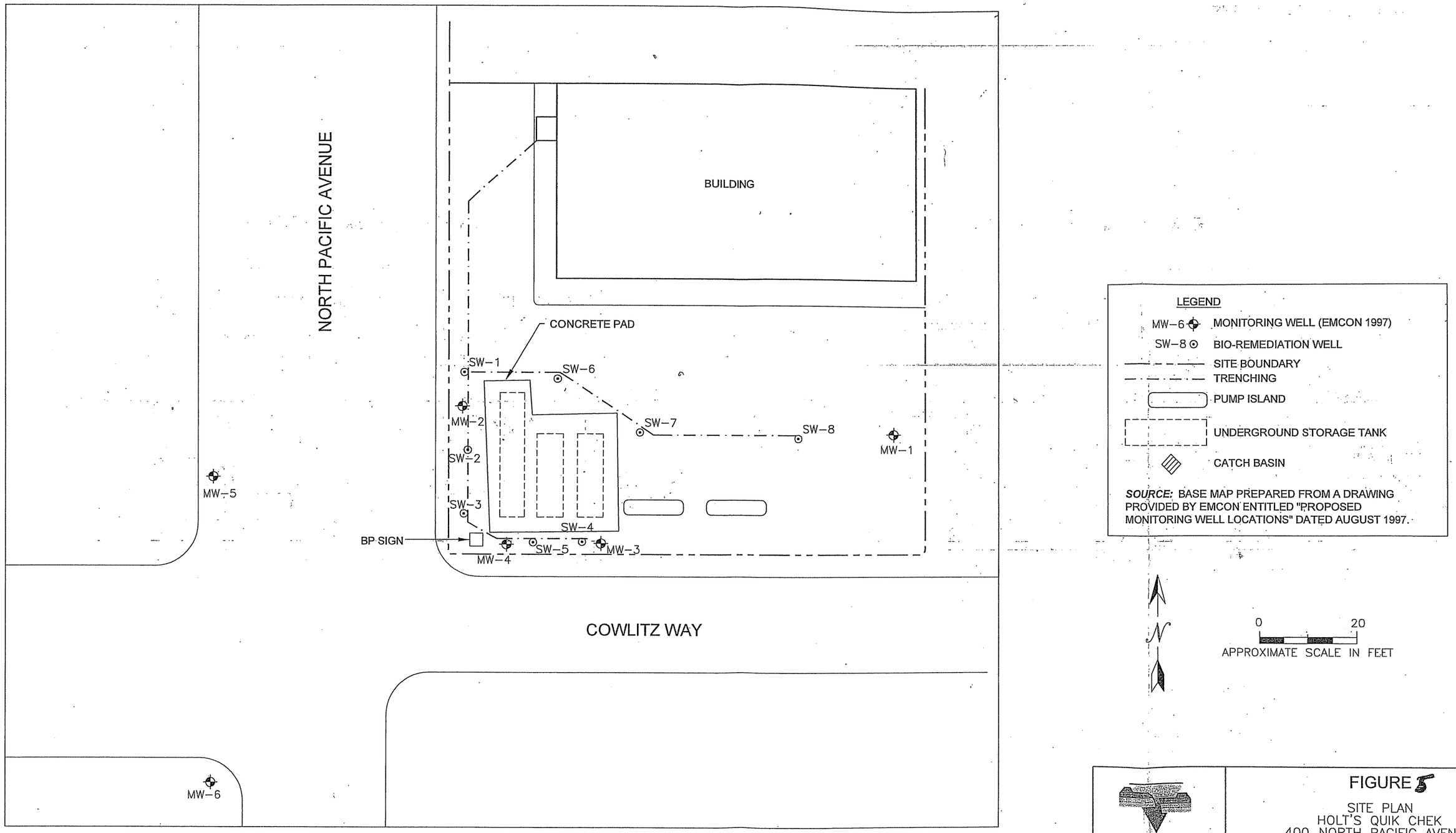
APPROXIMATE SCALE IN FEET

FIGURE 4

SITE PLAN SHOWING GROUNDWATER ELEVATION CONTOURS (9/21/06)
HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON
FARALLON PN: 359-001

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Drawn By: DEW | Checked By: TM | Date: 2/7/07 | Disk Reference: 359001



FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

FIGURE 5

SITE PLAN
HOLT'S QUIK CHEK
400 NORTH PACIFIC AVENUE
KELSO, WASHINGTON

FARALLON PN: 359-001

Drawn By: DEW	Checked By: TM	Date: 2/6/07	Disk Reference: 359001

ARCHIVED
TABLES

605 11th Ave. SE, Suite 201 • Olympia, WA • 98501
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

Table 1
Historic Soil Analytical Results for Petroleum Hydrocarbons and Lead
Holt's Quik Chek Market
400 North Pacific Avenue
Kelso, Washington
Farallon PN: 359-001

Sample Identification	Date Sampled	Sampled By	Depth (ft)[1]	Soil Analytical Results (milligrams per kilogram)							
				GRO[2]	DRO[3]	ORO[3]	Benzene[4]	Toluene[4]	Ethylbenzene[4]	Xylenes[4]	Total Lead[5]
P1-22	3/27/1997	AGI	22.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P2-18	3/27/1997	AGI	18.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P3-12	3/27/1997	AGI	12.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P4-18	3/27/1997	AGI	18.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P5-12	3/27/1997	AGI	12.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P6-20	3/27/1997	AGI	20.0	1900	-	-	<0.05	<0.1	1.2	<8	-
P6-25	3/27/1997	AGI	25.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P7-12	3/27/1997	AGI	12.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P7-20	3/27/1997	AGI	20.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P8-20	3/28/1997	AGI	20.0	200	-	-	<0.05	0.2	0.4	7.8	-
P8-16	3/28/1997	AGI	16.0	250	-	-	<0.05	0.1	0.4	8.4	-
P8-24	3/28/1997	AGI	24.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P9-12	3/28/1997	AGI	12.0	710	-	-	<0.05	<0.1	1.5	3.7	-
P9-28	3/28/1997	AGI	28.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P12-12	3/28/1997	AGI	12.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P10-24	3/28/1997	AGI	24.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P11-16	3/28/1997	AGI	16.0	12,000	-	-	8.7	220	110	760	-
P11-24	3/28/1997	AGI	24.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P12-12	3/28/1997	AGI	12.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
P12-20	3/28/1997	AGI	20.0	<5	-	-	<0.05	<0.1	<0.1	<0.1	-
MW-1-14	6/24/1997	EMCON	14-15.5	ND	ND	ND	ND	ND	ND	ND	ND
MW-2-9.5	6/24/1997	EMCON	9.5-11	5,760	334*	ND	2.4	6.7	25	23	ND
MW-2-27	6/24/1997	EMCON	27-27.5	436	ND	ND	ND	ND	0.8	1.6	ND
MW-3-19	6/25/1997	EMCON	19-20.5	ND	ND	ND	ND	ND	ND	ND	ND
MW-4-19	6/25/1997	EMCON	19-20.5	1,280	209*	ND	ND	0.3	0.5	2	ND
MW-4-21.5	6/25/1997	EMCON	21.5-23	12	ND	ND	ND	ND	ND	ND	ND
SB-5-14.5	9/26/1997	EMCON	14-15.5	ND	ND	ND	ND	ND	ND	ND	ND
SB-6-7	9/26/1997	EMCON	7.0	2,270	37.2	ND	1.21	1.92	9.09	4.97	ND
SB-6-19.5	9/26/1997	EMCON	19.5-20	ND	ND	ND	ND	ND	ND	ND	ND
MTCA Method A Cleanup Levels for Soil[5]				30	2,000	2,000	0.03	7	6	9	250

NOTES:

Results in BOLD denote concentrations above MTCA Method A cleanup levels.

< denotes result is less than laboratory practical quantitation limit or analyte not detected at or above the reporting limit listed.

[1]Depth in feet below ground level.

[2]Analyzed by Northwest Method WTPH-G.

[3]Analyzed by Northwest Method WTPH-D (extended).

[4]Analyzed U.S. Environmental Protection Agency (EPA) Method 5030/8020.

[5]Analyzed by EPA Method 6010A.

[5]Washington State Department of Ecology Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Level, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended February 2001.

- = not analyzed

ND = not detected

* = Detected hydrocarbons in the diesel range appear to be due to the overlap of gasoline-range hydrocarbons.

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO = TPH as gasoline-range organics

ORO = TPH as heavy oil-range organics

Table 2
Analytical Results of Groundwater Samples
Holt's Quik Check
Kelso, Washington
Farallon PN: 359-001

Monitoring Well Identification	Sample Identification	Date Sampled	Sampled By	Analytical Results						
				Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	GRO[2]	DRO[3]	ORO[3]
MW-1	HQM-062797-1	6/27/1997	EMCON	<0.50	<0.50	<0.50	<1.0	<80	<250	<500
	MW-1-092697	9/26/1997	EMCON	<0.50	<0.50	<0.50	<1.0	<80	<250	<500
	MW-1-121597	12/15/1997	EMCON	<0.50	<0.50	<0.50	<1.0	<80	<250	<500
	MW-1-031398	3/13/1998	EMCON	<0.50	<0.50	0.64	<1.0	<80	<250	<500
	061198-MW-1	6/11/1998	EMCON	<0.50	<0.50	<0.50	<1.0	<80	<250	<500
	MW1-122304	12/23/2004	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW1-031705	3/17/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW1-062805	6/28/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
MW-2	HQM-062797-3	6/27/1997	EMCON	**20.8**	15.7	142	287	**4,880**	268	<500
	MW-2-092697	9/26/1997	EMCON	**25.5**	22.3	174	372	**7,750**	<250	<500
	MW-2-121597	12/15/1997	EMCON	**33.3**	20.5	238	461	**8,650**	<250	<500
	MW-2-031398	3/13/1998	EMCON	3.32	6.46	103	202	**3,100**	<250	<500
	MW-2-031398-D	3/13/1998	EMCON	2.72	5.74	94	181	**2,860**	<250	<500
	061198-MW-2	6/11/1998	EMCON	4.12	3.92	106	178	**4,090**	291	<500
	061198-MW-20	6/11/1998	EMCON	**6.06**	9.4	117	195	**4,560**	282	<500
	MW-2	3/13/2004	Farallon	**12.2**	1.89	15.1	7.47	**2,560**	—	—
	MW2-081904	8/19/2004	Farallon	4.4	1.56	7.45	4.06	**1,110**	—	—
	MW2-122304	12/23/2004	Farallon	4.54	0.507	1.56	1.15	678	—	—
	MW2-031705	3/17/2005	Farallon	2.25	<0.50	1.62	<1.0	506	—	—
	MW2-062805	6/28/2005	Farallon	7	<0.50	0.866	<1.0	**940**	—	—
	MW2-092805	9/28/2005	Farallon	**11.5**	<1.0	5.06	<3.0	**1,060**	—	—
	MW2-122905	12/29/2005	Farallon	0.908	<0.50	<0.50	<1.0	108	—	—
	MW-2-032406	3/24/2006	Farallon	3.54	<0.50	<0.50	<1.0	362	—	—
	MW2-062906	6/29/2006	Farallon	<0.500	<0.500	<0.500	<1.00	219	—	—
	MW-2-092106	9/21/2006	Farallon	2.95	<0.500	<0.500	<1.00	248	—	—
MTCA Method A Cleanup Levels for Groundwater[4]				5	1,000	700	1,000	800	500	500

Table 2
Analytical Results of Groundwater Samples
Holt's Quik Check
Kelso, Washington
Farallon PN: 359-001

Monitoring Well Identification	Sample Identification	Date Sampled	Sampled By	Analytical Results						
				Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	GRO[2]	DRO[3]	ORO[3]
MW-3	HQM-062797-2	6/27/1997	EMCON	0.8	<0.50	<0.50	<1.0	90.7	<250	<500
	MW-3-092697	9/26/1997	EMCON	<0.50	<0.50	<0.50	<1.0	<80	<250	<500
	MW-3-121597	12/15/1997	EMCON	1.3	<0.50	<0.50	<1.0	<80	<250	<500
	MW-3-031398	3/13/1998	EMCON	<0.50	<0.50	2.82	5.18	143	<250	<500
	061198-MW-3	6/11/1998	EMCON	<0.50	<0.50	<0.50	<1.0	<80	<250	<500
	MW-3	3/13/2004	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW3-122304	12/23/2004	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW3-031705	3/17/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<80	—	—
	MW3-062805	6/28/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW3-092805	9/28/2005	Farallon	<1.0	<1.0	<1.0	<3.0	<100	—	—
	MW3-122905	12/29/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW-3-032406	3/24/2006	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
MW-4	HQM-062797-4	6/27/1997	EMCON	1.6	<0.50	0.67	<1.0	691	<250	<500
	MW-4-092697	9/26/1997	EMCON	<0.50	<0.50	<0.50	<1.0	255	<250	<500
	MW-4D-092697	9/26/1997	EMCON	<0.50	<0.50	<0.50	<1.0	190	<250	<500
	MW-4-121597	12/15/1997	EMCON	3.78	<0.50	<0.50	<1.0	331	<250	545
	MW-4D-121597	12/15/1997	EMCON	3.76	<0.50	<0.50	<1.0	289	<250	<500
	MW-4-031398	3/13/1998	EMCON	<0.50	<0.50	1.74	3.26	124	<250	<500
	061198-MW-4	6/11/1998	EMCON	<0.50	<0.50	<0.50	<1.0	205	<250	<500
	MW4-122304	12/23/2004	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW4-031705	3/17/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW4-062805	6/28/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW4-092805	9/28/2005	Farallon	<1.0	<1.0	<1.0	<3.0	<100	—	—
	MW4-122905	12/29/2005	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW-4-032406	3/24/2006	Farallon	<0.50	<0.50	<0.50	<1.0	<50	—	—
	MW-4-092106	9/21/2006	Farallon	<0.500	<0.500	<0.500	<1.00	<50.0	—	—
MTCA Method A Cleanup Levels for Groundwater[4]				5	1,000	700	1,000	800	500	500

Table 2.
Analytical Results of Groundwater Samples
Holt's Quik Check
Kelso, Washington
Farallon PN: 359-001

Monitoring Well Identification	Sample Identification	Date Sampled	Sampled By	Analytical Results						
				Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	GRO[2]	DRO[3]	ORO[3]
MW-5	MW-5-092697	9/26/1997	EMCON	**14.5**	1.07	20.8	17.7	**2,740**	<250	<500
	MW-5-121597	12/15/1997	EMCON	**22.7**	3.06	0.93	<1.0	**2,510**	<250	<500
	MW-5-031398	3/13/1998	EMCON	4.48	<0.50	9.03	1.47	**1,080**	<250	<500
	061198-MW-5	6/11/1998	EMCON	**12.1**	0.66	3.18	<1.0	**1,730**	<250	<500
	MW5-031705	3/17/2005	Farallon	**7.48**	0.983	1.77	3.65	**1,190**	—	—
	MW5-062805	6/28/2005	Farallon	4.67	<0.50	12.3	3.18	**2,140**	—	—
	MW5-092805	9/28/2005	Farallon	2.19	<1.0	<1.0	<3.0	<100	—	—
	MW5-122905	12/29/2005	Farallon	<5.0	<5.0	145	55	**3,530**	—	—
	MW-5-032406	3/24/2006	Farallon	2.91	<0.50	0.92	1.27	373	—	—
	MW5-062906	6/29/2006	Farallon	<0.500	0.576	<0.500	<1.00	710	—	—
	MW-5-092106	9/21/2006	Farallon	1.11	0.831	1.9	<1.00	180	—	—
	MW-5-041107	4/11/2007	Farallon	0.626	<0.500	<0.500	<1.00	124	—	—
MW-6	MW-6-092697	9/26/1997	EMCON	**31.1**	2.42	14	9.55	**2,070**	<250	<500
	MW-6-121597	12/15/1997	EMCON	**210**	6.32	<1.0	3.38	416	<250	<500
	MW-6-031398	3/13/1998	EMCON	**244**	<2.50	4.76	<5.0	<400	284	<500
	061198-MW-6	6/11/1998	EMCON	**500**	8.35	26	<5.0	750	354	<500
	MW6-081904	8/19/2004	Farallon	3.13	0.693	<0.50	<1.0	<50	—	—
	MW6-122304	12/23/2004	Farallon	**13**	0.695	<0.50	<1.0	<50	—	—
MTCA Method A Cleanup Levels for Groundwater[4]				5	1,000	700	1,000	800	500	500

NOTES:

Bold result exceeds Washington State Model Toxics Control Act Cleanup Regulation Method A groundwater cleanup level.

< denotes result is less than the laboratory practical quantitation limit listed or analyte not detected at or above the reporting limit.

— denotes sample not analyzed for specific analyte.

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO = TPH as gasoline-range organics

ORO = TPH as oil-range organics

[1] Analyzed by U. S. Environmental Protection Agency Method 8021B.

[2] Analyzed by Northwest Method NWTPH-G.

[3] Analyzed by Northwest Method NWTPH-Dx

[4] Model Toxics Control Act Cleanup Regulation Method A cleanup levels for groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended February 2001.

APPENDIX A

Ecology Opinion Letters

605 11TH AVE SE, SUITE 201 • OLYMPIA, WA • 98501-2363
Phone: 360.352.9835 • Fax: 360.352.8164 • Email: admin@aegwa.com

STATE OF WASHINGTON
DEPARTMENT OF ECOl
PO Box 47775 • Olympia, Washington 98504-77

Holt Fing. Ref
Plus 60, 3 Lty

CERTIFIED MAIL

June 18, 2007

Mr. Han Kim
Holt's Quik Chek
P.O. Box 296
6410 128th Avenue SW
Littlerock, WA 98556

Re: Further Action Determination under WAC 173-340-515(5) for the following Hazardous Waste Site:

- Name: Holt's Quik Chek Market
- Address: 400 Pacific Avenue, Kelso
- Facility/Site No.: 87376683
- VCP No.: SW0840

Dear Mr. Kim:

Thank you for submitting your independent remedial action report for the South Hill Plaza facility (Site) for review by the State of Washington Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding whether further remedial action is necessary at the Site to meet the substantive requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC. Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding the Site:

1. EMCON, **Phase I, Environmental Site Assessment Report, Holt's Quik Chek Market, 400 North Pacific Avenue, Kelso, Washington**, December 5, 1997.

2. EMCON, **Phase II Site Investigation Report, Holt's Quik Chek Market, 400 North Pacific Avenue, Kelso, Washington**, September 4, 1997.

3. EMCON, **Additional Phase II Site Investigation, 2nd Quarter Groundwater Sampling, and Soil Vapor Extraction (SVE) Pilot Test Report, Holt's Quik Chek Market, 400 North Pacific Avenue, Kelso, Washington,** November 26, 1997.

4. EMCON, **Quarterly Groundwater Sampling Report – December 1997, Holt's Quik Chek Market, Kelso, Washington,** April 28, 1998.

5. Farallon Consulting, L.L.C., **Site Closure Report, Holt's Quik Chek Site, 400 North Pacific Avenue, Kelso, Washington,** March 9, 2007.

6. Farallon Consulting, L.L.C., **Final Quarter of Groundwater Monitoring, Holt's Quik Chek Site, 400 Pacific Avenue, Kelso, Washington,** May 24, 2007.

The documents listed above will be kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Appointments can be made by calling the SWRO resource contact at (360) 407-6365.

The Site is defined by the extent of contamination caused by the following release(s):

- Petroleum hydrocarbons and associated constituents in Soil;
- Petroleum hydrocarbons and associated constituents in Ground Water.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of the independent remedial action report and supporting documentation listed above, **Ecology has determined that the independent remedial action(s) performed at the Site are not sufficient to meet the substantive**

requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing any of the contamination at the Site. Therefore, pursuant to WAC 173-340-515(5), Ecology is issuing this opinion that **further remedial action is necessary** at the Site under MTCA.

AGI Technologies, Inc. (AGI) constructed 12 borings (P1 through P12) at the property on March 27 and 28, 1997 (Figure 3). The borings were advanced to depths between 16 and 24 ft bgs. Ground water was encountered in the borings at depths between 16 and 24 ft bgs. Soil samples were collected continuously from a depth of approximately 2 ft bgs to the total depths of the borings. Water samples were collected from borings locations P1, P2, P6, P8, P9, and P10 (fine-grained materials prevented the collection of water samples from the other boreholes). Soil samples indicated elevated concentrations of total petroleum hydrocarbons (TPH) in boring locations P6, P8, P9, and P11. The sample taken at 16 ft bgs at P11 also contained elevated concentrations of benzene, toluene, ethylbenzene, and/or total xylenes (BTEX). This sample was also analyzed by EPA Method 7421 for total lead. Elevated concentrations of TPH and BTEX were detected in water from borehole locations P6, P8, P9, and P10.

In 1997, EMCON installed six monitoring wells (MW-1 through MW-6) on or adjacent to the Holt's Quik Chek property to depths of 28 to 31 ft bgs (Figure 2a). Soil samples were collected from the boreholes during construction. Table 1 shows the soil sample results for both the AGI investigation and the EMCON monitoring well construction.

The six wells have been monitored intermittently since 1997. Farallon Consulting, L.L.C. (Farallon) has performed quarterly monitoring and sampling of the wells since March 2004. Ground-water sampling results are shown in Table 2. The general water table ground-water flow direction on the property is to the west, and has been consistent throughout each monitoring session (Figure 4). Ground water was encountered between 15 and 25 ft bgs on site; however, ground water was 10 ft bgs for monitoring well MW-6. Monitoring well MW-6 is located cross-gradient from the site, but the ground-water elevation is 10 ft higher than the ground water on the site. In addition, EMCON noted that there was a gasoline station located in the southwest corner of the intersection of North Pacific Avenue and Cowlitz Way where monitoring well MW-6 was installed. Based on this, the ground-water contamination present in monitoring well MW-6 does not appear to be associated with the site. However, monitoring well MW-5 is located across North Pacific Avenue and down-gradient from the Holt's Quik Chek property. The ground-water analytical results from monitoring well MW-5 have exceeded Model Toxics Control Act (MTCA) Method A cleanup levels only once in the last six quarters. The last four quarterly monitoring events have indicated that all monitoring wells are below MTCA Method A cleanup levels.

Hart Crowser installed a biosparging system at the site in the spring of 2003. The system consisted of sparging air at approximately 0.1 cubic foot per minute (cfpm) in each of the eight sparge wells, which were designated as sparge wells SW-1 through SW-8 (Figure 5). Air was sparged into the subsurface water to raise dissolved oxygen levels to enhance the natural biodegradation processes. TPH and BTEX concentrations at the site were reduced to levels close to MTCA Method A cleanup levels as a result of the operation of the biosparge system. The biosparge system was operated until September 2005 when Farallon completed an in-situ chemical oxidation remediation using activated sodium persulfate, a chemical oxidant commonly used in the electronics industry for etching. According to Farallon, the oxidation potential expressed as electron volts is approximately 2.6 electron volts for activated sodium persulfate. The energy required to break carbon-hydrogen bonds for gasoline range organics (GRO) require about 1.0 electron volt to break, while carbon-carbon bonds require 2.5 electron volts or more to break. The carbon-carbon bonds making up the benzene take approximately 2.0 electron volts to break. The sodium persulfate was applied at the site with hydrogen peroxide as the activating agent to ensure sufficient oxidation potential to destroy GRO and BTEX constituents present. Two-hundred gallons of 5% sodium persulfate catalyzed with 10% hydrogen peroxide was injected into monitoring wells MW-2, MW-4, and MW-5. In addition, approximately 50 gallons of the activated sodium persulfate solution was injected into the eight sparge wells. The chemical oxidation was successful in removing the residual soil contamination that was impacting ground water based on analytical results obtained from four subsequent quarters of ground-water monitoring. No additional soil samples were collected after operating the biosparge system for four years and implementing the in-situ chemical oxidation remediation alternative. However, the ground-water analytical information obtained for the monitoring wells on the site since September 2005 indicates that residual soil concentrations that may be present are not causing adverse impacts to ground-water quality. The wells adjacent to and down-gradient of the underground storage tank (UST) source area have all indicated that TPH and associated constituent concentrations are below the MTCA Method A cleanup levels.

During the process of evaluating the extent of contamination for ground water, monitoring wells were constructed. However, down-gradient monitoring well MW-5 had contamination above MTCA Method A cleanup levels. The latest monitoring results showed concentrations below MTCA regulatory levels. However, contamination may be present down-gradient of monitoring well MW-5. Additional borings or wells should be constructed down-gradient of monitoring well MW-5 to determine if ground-water is present above MTCA Method A cleanup levels.

In addition, it is not apparent whether soil contamination still remains above MTCA Method A cleanup levels on the Holt's Quik Chek Market property. If soil remains it is possible that a restrictive covenant could be filed with the Cowlitz County Auditor's office. However, monitoring would be required to determine that soil contamination is not an issue for human health and the environment.

Apparently, a feasibility study was not conducted prior to Hart Crowser installing a biosparging system and operating the system. Farallon should also have provided a feasibility evaluation prior to conducting the chemical oxidation remediation using activated sodium persulfate.

A substantive requirement of MTCA is to conduct "sufficient investigations to characterize the distribution of hazardous substances present at the site, and threat to human health and the environment." [WAC 173-340-350] The contamination that defines the "site" may go onto the right-of-way and onto adjacent properties, as well as beneath buildings. The property interest may extend into the right-of-way to the centerline, but the "site" may extend further.

This characterization does not meet the substantive requirements of the Model Toxics Control Act (MTCA). Sufficient soil and ground-water samples will need to be collected to determine the full extent of contamination present throughout the site. Enough samples need to be collected to be certain that contamination is not affecting adjacent properties. Samples should be collected to the west of monitoring well MW-5 to determine the extent of contamination.

Once the full extent of contamination has been determined, it will be necessary to develop a feasibility study before the final cleanup, based on the information obtained in the characterization effort. This feasibility study should include all practicable methods of treatment in addressing the site cleanup. If no contamination is present west of the monitoring well MW-5 and contamination is not present in the soil, then the remediation is considered complete and no further action is required.

Any cleanup action selected for a site must meet some minimum requirements. These requirements include, but are not limited to the following:

- ***<u>Compliance with Cleanup Standards</u>. If a cleanup alternative does not comply with cleanup standards, the alternative is considered an "interim action" and not a "cleanup action."***

- ***Compliance with Applicable State and Federal Laws.*** *Cleanup levels and actions must comply with existing state or federal laws.*

- ***Protecting Human Health and the Environment.*** *The cleanup action selected must either reduce or remove (destroy) the contamination, restoring the site to cleanup levels, or contain the contamination in such a way that will minimize future exposure of humans and/or ecological receptors. Cleanup action alternatives that achieve cleanup levels at the applicable points of compliance and comply with applicable state and federal laws are presumed to be protective of human health and the environment.*

- ***Providing for Compliance Monitoring.*** *The cleanup action selected must provide for monitoring to verify that the cleanup action achieves cleanup or other performance standards and that the cleanup action remains effective over time.*

- ***Using Permanent Solutions to the Maximum Extent Practicable.*** *Permanent solutions (cleanup actions) are actions in which cleanup standards can be met without further action being required, such as monitoring or institutional controls. To select the most practicable permanent solution from among those cleanup action alternatives that are protective of human health and the environment requires conducting a disproportionate cost analysis. This analysis compares costs and benefits of alternatives and selecting the alternative whose incremental costs are not disproportionate to the incremental benefits. The comparison is quantitative, but is often qualitative and requires best professional judgment.*

- ***Providing for a Reasonable Restoration Time Frame.*** *Some cleanup methods, such as natural attenuation, can take years to restore a site, depending on the contaminants. When evaluating alternative methods of cleanup, the time it takes to restore the site will need to be considered. MTCA has certain criteria that need to be applied when evaluating restoration time frame.*

Because contamination may remain in the ground water and in the soil that could be considered part of the Site, the feasibility study should address this contamination.

Should it be determined that a permanent cleanup action cannot be implemented, a disproportionate cost analysis shall be applied. The analysis shall compare costs and benefits of the cleanup action alternatives evaluated in the feasibility study. The costs and benefits to be compared and the disproportionate cost analysis are described in MTCA WAC 173-340-360(3)(e) and (f). It may also be necessary to determine whether a cleanup action provides for a reasonable restoration time frame as described in WAC 173-340-360(4).

An attorney assigned to Ecology from the Attorney General's Office (AGO) has provided opinions concerning property abutting right-of-ways in the State of Washington. The general rule in Washington is that "The conveyance of land bounded by or along a highway carries title to the center of the highway unless there is something in the deed or surrounding circumstances showing an intent to the contrary." Christian v. Purdy, 60 Wash. App. 798, 801 (1991). This rule applies to streets and alleys as well as highways. Id. Further, "[d]eeds may expressly exclude streets, but, unless they do, the implication is that the street is included." Bradley v. Spokane & Inland Empire R.R., 79 Wash. 455, 460 (1914). Any contamination that will be left in place on the property and/or within the right-of-way will require a restrictive covenant that will be placed there by the person "who has been named as a potentially liable person or who has not been named as a potentially liable person by the department but meets the criteria in RCW 70.105D.040 for being named a potentially liable person." The covenant shall be executed by the property owner and recorded with the register of deeds for the county in which the site is located. Therefore, it is important to determine the full extent of contamination and responsibilities for filing a restrictive covenant if contamination is to remain, either in the soil and/or the ground water within the right-of-way, or beneath a building.

All sampling data shall be submitted to Ecology according to the requirements of WAC 173-340-840(5), in printed form and in electronic form capable of being transferred into the Department's data management system. Electronic data submittal requirements are provided at http://www.ecy.wa.gov/eim/.

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or performed at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (360) 407-6267.

Sincerely,

Charles S. Cline
SWRO Toxics Cleanup Program

now Eugene Radcliff

CSC/ksc:Holt's Quik ChekFA

Enclosures: Enclosure A: (text + 6 figures)
2 Tables

Cc: Mr. Terry Montoya, P.E., Project Manager, Farallon Consulting, L.L.C.
Mr. Paul Turner, Ecology
Mr. Robert Warren, Ecology

ENCLOSURE A

The subject property is located at the northeast corner of the intersection of North Pacific Avenue and Cowlitz Way at 400 North Pacific Avenue, Kelso, Cowlitz County, Washington (Figure 1). The property is approximately 10,000 square feet and comprised of one building, two gasoline pump islands, and an asphalt parking lot. The building is a 3,000-square-foot convenience store and deli. The area surrounding the subject property is comprised of a mix of commercial and residential development (see photos attached). Located immediately north of the property is Lee's Transmission. To the east is a parking lot and across Third Avenue is the Dahl Funeral Home. Located to the south, across Cowlitz Way is the First Methodist Church and a vacant lot. Located to the west across North Pacific Avenue is commercial office space and residential properties (Figure 2). The property lies approximately 700 feet east of the Cowlitz River. The topography slopes steeply downward to the west and southwest of the property. The site is located at an elevation of approximately 60 feet above mean sea level (ft above msl). The stratigraphy encountered in borings constructed at the property included fill composed of silty sand with miscellaneous debris from the ground surface to approximately 19 ft bgs, underlain by native sandstone encountered between 19 and 31 ft bgs. Based on site studies performed by EMCON and others, the depth to ground water ranges from approximately 16 to 24 ft bgs. The ground-water flow direction is to the west toward the Cowlitz River.

Based on the Phase I, Holt's Quik Chek was listed at the subject property address since 1981. The property was listed as Short Stop gasoline station in 1979. From 1960 to 1976, the subject property was listed as Partch's Mobil Service Station. The Sanborn maps indicate that a gasoline station was present on the subject property as far back as 1927. Mr. Han Kim leased the facility in the late 1990s and purchased the property from City Bank in 2003. In October 2006, the property was sold to the current owner, Ms. Cynthia Chin.

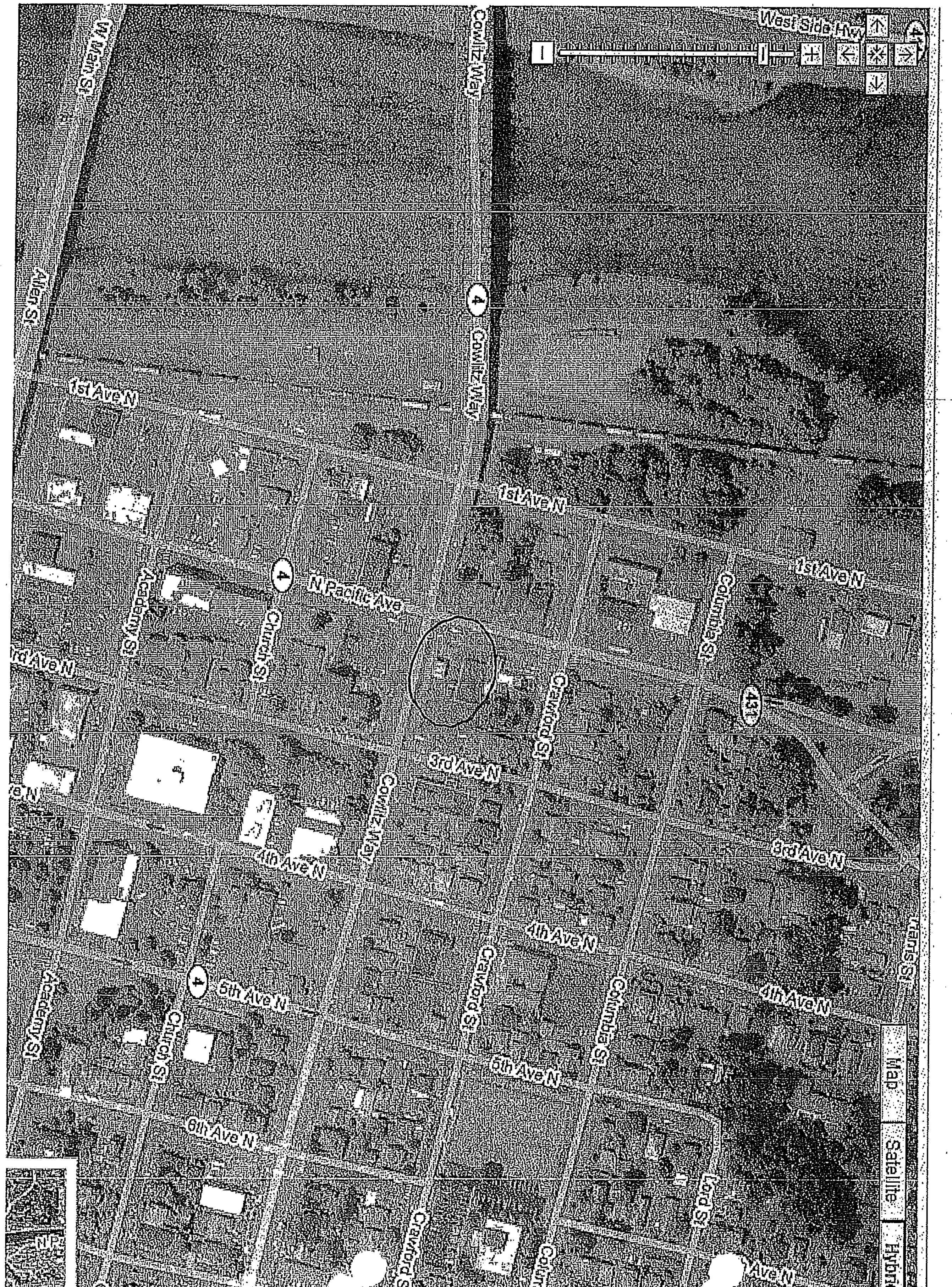
Lee's Transmission property was listed at its location since 1975. The property was occupied by Phillips 66 gasoline station from 1967 to 1970 and Monasco's Flying A gasoline station from 1960 to 1966.

The vacant lot south of the subject property is used by the First Methodist Church as a parking lot. The property was occupied by Cowlitz County Motor Pool from 1981 to 1985 and has been vacant since that time. The property was listed as Dick's Union gasoline station in 1965, and Chuck's Union service station from 1961 to 1964. The property was listed as Melville's Union service station in 1960.

FIGURE 1

http://maps.google.com/?ie=UTF8&ll=46.147016,-122.909932&spn=0.021021,0.030813&z=15&om=1&pw=2

5/30/2007



West Side Hwy
W Main St
Cowlitz Way
Allen St
1st Ave N
N Pacific Ave
Academy St
Church St
Columbia St
Crawford St
3rd Ave N
4th Ave N
5th Ave N
6th Ave N
Harris St
Lord St
Map
Satellite
Hybrid


©2007 Google

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

June 25, 2015

Mr. Michael Chun
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Re: Further Action at the following Site:

- **Site Name:** Holts Quik Chek Market
- **Site Address:** 400 N Pacific Ave., Kelso, WA 98626
- **Facility/Site No.:** 87376683
- **Cleanup Site ID No.:** 6797
- **VCP Project No.:** SW1445

Dear Mr. Chun:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Holts Quik Chek Market facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and it's implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Petroleum constituents into the soil and groundwater.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the Property is affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Associated Environmental Group, LLC (AEG), April 2015 Holt's Quik Chek Quarterly Groundwater Sampling Results Report, May 19, 2015.
2. AEG, January 2015 Holt's Quik Chek Quarterly Groundwater Sampling Results Report, February 4, 2015.
3. AEG, Holt's Quik Check Quarterly Groundwater Sampling Results Summary, December 3, 2014.
4. State of Washington Department of Ecology (Ecology), Site Hazard Assessment, March 26, 2014.
5. AEG, Proposed Supplemental Remedial Investigation Work Plan, July 15, 2011.
6. State of Washington Department of Ecology (Ecology), Further Action Determination, June 18, 2007.
7. Farallon Consulting, LLC (Farallon), Final Quarter of Groundwater Monitoring, May 24, 2007.
8. Farallon, Site Closure Report, Holts Quik Chek Site, March 9, 2007.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site **is not** sufficient to establish cleanup standards and select a cleanup action.

On June 18, 2007, Ecology issued a Further Action Determination through the Voluntary Cleanup Program (VCP) (Fig. 1). The determination was based on the review of work performed at the Site from December 1997 through May 2007. Ecology had the following general comments:

- The characterization did not meet the substantive requirements of MTCA. Sufficient soil (Fig. 2) and groundwater samples (Fig. 3) will need to be collected to determine the full extent of contamination present throughout the Site. Enough samples need to be collected to be certain that contamination is not affecting adjacent properties.
- Downgradient monitoring well MW-5 had contamination above MTCA Method A cleanup levels. Although the latest monitoring results had showed concentrations below the regulatory levels, contamination may be present downgradient of well MW-5. Additional borings or wells should be constructed downgradient of MW-5 to determine if groundwater contamination is present above the MTCA Method A cleanup levels.
- It is not apparent whether soil contamination remains above MTCA Method A cleanup levels on the Holt's Quik Chek Market property (Fig. 4).

Following the Further Action Determination letter from June 18, 2007, a VCP Status Request was sent to the owner by Mr. Chuck Cline (Ecology VCP Site Manager) on January 13, 2011. Due to a lack of progress, the VCP was terminated on February 15, 2011. The Site enrolled again for a brief time beginning May 18, 2011. A Proposed Supplemental Remedial Investigation Work Plan by AEG was received by Ecology on July 19, 2011.

The Supplemental Remedial Investigation Work Plan proposed additional soil borings with soil and groundwater sampling. An Opinion Letter was never issued and following a period of inactivity, the Site was terminated again from the VCP on February 4, 2013.

A Site Hazard Assessment was conducted by Ecology during March 2014. The Site was given a ranking score of "2" which was effective beginning with the August 2014 update of the state Hazardous Sites List.

Since the Further Action Determination Letter was issued June 18, 2007, three groundwater monitoring events were conducted. The events occurred on October 7, 2014, January 20, 2015, and April 22, 2015. Monitoring wells MW-1 through MW-5 were sampled and analyzed for gasoline (TPH-G), benzene, toluene, ethylbenzene, and xylene (BTEX). The only detection was TPH-G in MW-1, MW-2, and MW-5. Although detected, the numbers were well below the MTCA Method A cleanup level of 800 micrograms per liter (µg/l) with benzene detected or 1,000 µg/l without detection of benzene. MW-6, which is located southwest and downgradient of the property, appears to have been sampled six times from September 1997 through the last event conducted on December 23, 2004. During the last event, benzene was detected at 13 µg/l, which is above the MTCA Method A cleanup level of 5 µg/l for groundwater.

Based on a review of the above-listed reports, Ecology has the following comments:

1. Monitoring wells MW-1 through MW-5 have had at least four consecutive quarters with results either non-detect or below MTCA Method A cleanup levels. No further sampling is required from these monitoring wells. Monitoring well MW-6 was last sampled on December 23, 2004 and showed an exceedance above the MTCA Method A cleanup level of 5 µg/l for benzene. All other parameters were below their applicable cleanup level. MW-6 should continue to be sampled and analyzed for benzene.
2. MW-5 and MW-6 are the downgradient wells based on the groundwater contour map produced by Farallon. As stated in the 2007 Opinion Letter, additional wells or borings should be advanced downgradient of MW-5. MW-6 had benzene detected above the cleanup level during the last sampling event. Additional borings or wells should be advanced in this area as well to determine the downgradient extent of benzene.
3. The "Site Plan Showing Groundwater Contours (9/21/06)" produced by Farallon shows the groundwater flow direction to the west. In all future groundwater monitoring reports by AEG, it is stated that groundwater direction could not be determined due to lack of a professional survey to obtain actual elevations of monitoring wells. It should be noted that the casing rim elevation is shown for MW-1 through MW-6 in the Table 3 Summary of Groundwater Elevation Data of the March 9, 2007 Site Closure Report by Farallon. If this (casing elevation) has changed for some reason, the wells should be surveyed again so accurate data can be obtained. The groundwater flow direction and gradient need to be determined, not just assumed. It is very common for the groundwater flow direction to vary greatly throughout the season. Based on the results, further wells or borings may be required to determine the extent of downgradient contamination.
4. The Historical Soil Analytical Results from samples collected by AGI Technologies (AGI) and by EMCON in 1997 confirm soil contamination at depths ranging from 7 feet below ground surface (bgs) to 27.5 feet bgs. TPH-G exceedances ranged from 200 milligrams per kilogram (mg/Kg) to 12,000 mg/Kg. Exceedances above the MTCA Method A soil cleanup level for BTEX were also confirmed. As stated in the June 18, 2007 Opinion Letter, "In addition, it is not apparent whether soil contamination still remains above the MTCA method A cleanup levels on the Holts Quik Chek Market property. If soil remains it is possible that a restrictive covenant could be filed with the Cowlitz County Auditor's office. However, monitoring would be required to determine that soil contamination is not an issue for human health or the environment."
5. Once a release to groundwater has been documented, Ecology requires four consecutive quarters of monitoring with sample results below the applicable cleanup levels before a Site can be considered clean and a NFA determination made. This is to observe any changes in results due to seasonal fluctuations of the groundwater table as well as accurately determine a groundwater flow direction and gradient, which can also fluctuate seasonally.

6. In accordance with WAC 173-340-7490, a TEE needs to be completed for the Site. Please fill out the TEE form (and supporting documentation as appropriate) and submit it to Ecology. The form can be found on our website at http://www.ecy.wa.gov/biblio/ecy090300.html.

7. In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both written and electronic format. For additional information regarding electronic format requirements, see the website http://www.ecy.wa.gov/eim. Be advised that according to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. **Data must be submitted to Ecology in this format for Ecology to issue a NFA determination. Be advised that Ecology requires up to two weeks to process the data once it is received.**

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA. MTCA Method A soil and groundwater cleanup levels for unrestricted land use are being used for the Site.

Standard points of compliance are being used for the Site. The point of compliance for protection of groundwater shall be established in the soils throughout the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the Site from the ground surface to 15 feet bgs. In addition, the point of compliance for the groundwater shall be established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site.

Additional characterization is warranted prior to setting cleanup levels and establishing points of compliance.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site does not meet the substantive requirements of MTCA.

4. Cleanup.

Ecology has determined the cleanup you performed does not meet any cleanup standards at the Site.

Further investigation is needed consisting of soil and groundwater data collection to help determine the potential extent of residual contamination.

Cleanup methods to date have included a biosparging and an in-situ chemical oxidation remediation using activated sodium persulfate.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040 (4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030 (1) (i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-6179 or e-mail at ptur461@ecy.wa.gov.

Sincerely,

Paul Turner, L.HG
SWRO Toxics Cleanup Program

PBT: knf

Enclosures: A –Description and Aerial Photo of the Site
Fig. 1- June 18, 2007 Further Action Determination
Fig. 2- Historical Soil Analytical Results for Petroleum Hydrocarbons and Lead
Fig. 3-Analytical Results for Groundwater Samples
Fig. 4- Site Plan Showing Monitoring Well and Soil Boring

By certified mail: 9171999991703489835872

cc: Mr. Han Kim
Mr. Scott Rose, Ecology
Ms. Dolores Mitchell, Ecology

Enclosure A

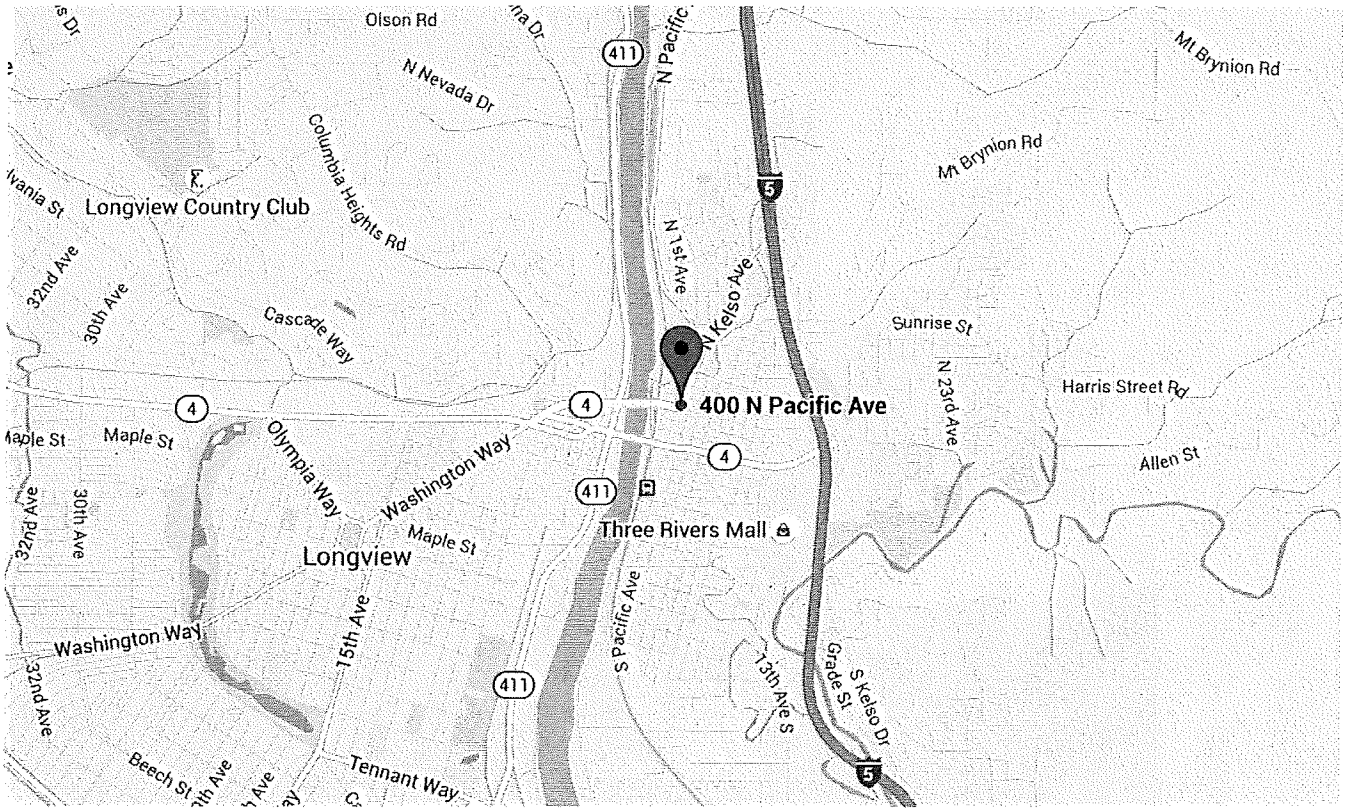
Description and Aerial Photo of the Site

The subject property is located at the northeast corner of the intersection of North Pacific Avenue and Cowlitz Way at 400 North Pacific Avenue in Kelso, Washington. The property is approximately 10,000 square feet and comprised of one building, two fuel pump islands, and an asphalt parking lot. The building is a 3,000 square-foot convenience store and deli. The area surrounding the subject property is comprised of a mix of commercial and residential development. Located immediately north of the property is Lee's Transmission. To the east is a parking lot and across Third Avenue is the Dahl Funeral Home. Located to the south, across Cowlitz Way, is the First Methodist Church and a vacant lot. Located to the west across North pacific Avenue is commercial office space and residential properties. The property lies approximately 700 feet east of the Cowlitz River.

Based on prior research, Holts Quik Chek was listed at the subject property address since 1981. The property was listed as Short Stop gasoline station in 1979. From 1960 to 1979 it was listed as Partch's Mobil Service Station. Sanborn maps indicate that a gasoline station was present on the property as far back as 1927. The current owner purchased the property in 2006.

400 N Pacific Ave

400 N Pacific Ave, Kelso, WA 98626



400 N Pacific Ave

400 N Pacific Ave, Kelso, WA 98626