STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

September 8, 2011

Mr. Dave Ennen
Ennen Brothers Partnership
1305 Old Fairhaven Parkway
Bellingham, WA 98225

Re: Further Action at the following Site:

- **Site Name:** Whatcom Falls Market
- **Site Address:** 1480 Electric Avenue, Bellingham, WA 98225
- **Facility/Site No.:** 53569739
- **VCP Project No.:** NW2414

Dear Mr. Ennen:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Whatcom Falls 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 its 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:

- Gasoline-range total petroleum hydrocarbons (TPHg); benzene, ethylbenzene, toluene, and xylenes (BETX) into the Soil and Ground Water.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note that a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

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

1. April 26, 2011. *Petroleum Contaminated Soil Removal Action, Whatcom Falls Market, 1480 Electric Avenue, Bellingham, Washington, Facility Site ID# 53569739.* Whatcom Environmental.

2. September 27, 2010. *Re: Underground Storage Tank Site Assessment at Closure - Whatcom Falls Mini Mart, 1480 Electric Avenue, Bellingham, Washington (FSID# 53569739).* Letter report from Thomas Davis, Whatcom Environmental to Ennen Brothers Partnership.

2. July 30, 2010. *Adjacent Property Subsurface Investigation, Whatcom Falls Market, 1480 Electric Avenue, Bellingham, Washington, Facility Site ID# 53569739.* Whatcom Environmental.

3. December 21, 2009, *Site Characterization Report, 1480 Electric Avenue, Bellingham, Washington 98229, FSID #53569739.* Whatcom Environmental.

Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the NWRO resource contact, Sally Perkins, at 425 649-7190.

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** sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site **meet** the substantive requirements of MTCA.

Soil Cleanup Levels

The selected soil cleanup levels for TPHg and BETX need to be protective of all potential exposure pathways at this Site as described in the following paragraphs.

The Site is located in an established residential neighborhood. A soil cleanup level for unrestricted use is therefore appropriate, specifically protection of human health from direct contact. Either MTCA Methods A or B could be used for this purpose. Method A values were chosen, and Ecology concurs, for this exposure pathway.

Shallow ground water is present at the Site. Soil cleanup levels protective of ground water quality are therefore needed. Either Method A or B could be used for this purpose. Method A was chosen, and Ecology concurs, for this exposure pathway.

The Site is also located directly across the street from the Whatcom Falls Park, an urban park containing a protected riparian corridor along Whatcom Creek and with large areas of native forest. A terrestrial ecological evaluation (TEE) was conducted by Whatcom Environmental, who concluded terrestrial wildlife protection was required in accordance with a simplified TEE. Ecology does not accept a simplified TEE on the basis of WAC 173-340-7491 (2)(a)(i), and requires a site-specific TEE. A site-specific analysis using MTCA Table 749-3 would result in a soil cleanup level of 5,000 mg/kg TPHg for protection of terrestrial wildlife. Note that soil cleanup levels protective of plants and soil biota are not necessary because the Property containing the Site is commercial.

A private residence is situated directly adjacent to the area of soil contamination; the potential for vapor intrusion therefore exists (or existed prior to remediation). A soil cleanup level protective of indoor air must be established. MTCA does not provide a usable method for establishing such a cleanup level. However, Method A soil cleanup levels are usually protective of air, and will be used for that purpose.

No other exposure pathways exist at this Site or require pathway-specific soil cleanup levels. The final soil cleanup levels for TPHg and BETX are therefore the Method A values (30, .03, 6, 7, 9 mg/kg, respectively). Note that the TPHg cleanup level was set at the lower of the two possible Method A values based on the presence of benzene. The final cleanup values are the most stringent of those developed for protection of direct human contact, protection of ground water, protection of air quality, and protection of terrestrial wildlife.

Soil Point of Compliance

The point of compliance for this Site is throughout the Site.

Ground Water Cleanup Levels: The highest beneficial use for ground water under MTCA is considered to be as a potable source, unless it can be demonstrated that the ground water is non potable. Cleanup levels protective of potable use are therefore the default. Either Method A or B cleanup levels can be used for this purpose. Method A has been proposed, and **Ecology concurs** with the selection.

Ground Water Point of Compliance: The point of compliance for ground water is throughout the Site from the uppermost point of saturation to the lowest depth potentially impacted.

Air Cleanup Level and Point of Compliance

Air cleanup levels would normally need to be established for TPHg and the associated volatiles, especially benzene, given the potential for gasoline vapor intrusion. However, almost all of the soils containing detectable hydrocarbon concentrations were removed as part of the cleanup action at this Site (see below). The detection limits for the hydrocarbons were well below the Method A soil cleanup levels, which, as described previously, were set as the soil concentrations protective of air. The threat of vapor intrusion was therefore effectively eliminated, and Ecology does not consider it necessary to establish air cleanup levels or a point of compliance for this Site.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site **meets** the substantive requirements of MTCA.

The selected cleanup action was excavation and removal of all contaminated soil. This action constitutes a permanent action under MTCA.

4. Cleanup.

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

The cleanup action consisted of excavating approximately 3,850 tons of contaminated soil from around and beneath the underground storage tanks and dispenser islands. The final excavation extended from the northwestern property line along Electric Avenue to the southwestern property line adjoining a residential property, an area measuring

approximately 85 feet by 125 feet in plan dimension. The excavation depth was about 13 feet in the former tank next area, and ranged from 5 to 8 feet elsewhere.

Final confirmation soil samples collected at the base and sides of the excavation showed no exceedance of the applicable soil cleanup levels (results were non-detect for most samples), except along Electric Avenue where an approximately 40-foot stretch of sidewall showed TPHg ranging from 12 to 112 mg/kg (CUL = 30), and benzene ranging up to .14 mg/kg (CUL = .03). The sidewall height along Electric Avenue was about 5 feet, and the confirmation samples collected in this area were from the base of the cut.

No additional ground water sampling was conducted following the excavation work. Additional ground water monitoring will be necessary to confirm ground water meets cleanup standards.

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 at 425 649-7107.

Sincerely,

Mark Adams
NWRO Toxics Cleanup Program

ma/kh

Enclosures (1): A – Description of the Site

cc: Harold Cashman, Whatcom Environmental, via email

Enclosure A

Description and Diagram of the Site

Site Description

This section provides Ecologys' understanding and interpretation of site conditions, and forms the basis for the opinions expressed in the body of the letter.

Site: The Site is associated with the Whatcom Falls Market located at 1480 Electric Avenue in Bellingham, Washington (the Property). Gasoline was released to soil and ground water at the Property and comprises the Site, as shown on the attached figure.

Area Description: The Property is situated within the Whatcom Falls residential neighborhood, which borders the southern edge of Whatcom Falls Park and the western edge of Lake Whatcom. The park property is directly across Electric Avenue, and, at nearly 250 acres, is one of the largest in Bellingham. From near the Property, the park extends about ½ mile down to Bloedel Donovan Park on the western shore of Lake Whatcom.

Property History and Current Use: The history of the Property is not known, but it currently contains a small strip mall comprising two one-story buildings, and a fueling station. The entire Property outside the buildings is paved. One of the businesses is the Whatcom Falls Market, a small convenience store. Gasoline and diesel are sold through four dispensers on two islands beneath one canopy. Four underground storage tanks (USTs) supply the dispensers, and are located in a tank nest on the south side of the Property. Immediately to the south is a single-family residence; other single family homes border the Property on the east.

Sources of Contamination: The only known sources of contamination relate to spills and leaks associated with the USTs and fueling system. The only documented release occurred in 2009, when gasoline was seen floating on ground water in an unlined turbine sump at the tank nest.

Physiographic Setting: The Site and surrounding area are on the northern flank of a group of foothills that slope north towards the Whatcom Creek drainage (see below) and eastward towards Lake Whatcom. The foothills reach elevations of more than 1000 feet south of the Property. Surface water elevations at Lake Whatcom and the portion of Whatcom Creek directly north of the Property are about 300 feet and 100 feet, respectively. At the Property itself, the land surface elevation is about Elevation 350 feet, and slopes down to the north and west.

Surface/Storm Water System: Surface water runoff in the area is collected in municipal storm drains or in roadside ditches and eventually reaches Whatcom Creek. At the Property, surface water runoff is captured in catch basins, which appear to drain to the west corner. From there it appears storm water is carried beneath Electric Avenue, and must ultimately discharge to Whatcom Creek. Within the park itself, there is a small drainage directly across the street from the Property. The drainage slopes down towards the east and appears to capture local flow within the park. There was water in this drainage even during a mid-August reconnaissance by Ecology.

Ecological Setting: There is extensive terrestrial habitat in the area within the Whatcom Falls Park, residential yard areas, and large forested tracts higher in the foothills.

Geology: Area geologic conditions consist of a veneer of Pleistocene glacial sediments (Bellingham Glaciomarine Drift) overlying bedrock (Paden Member of the Chuckanut Formation). The Paden Member is an Eocene-age deposit of terrestrial sandstone, conglomerate, mudstone, and coal.

Conditions at the Site have been explored to a depth of about 15 feet below ground surface (bgs). Bedrock was not encountered in the explorations, although it outcrops in the Whatcom Creek channel a short distance to the north. Within the 15-foot interval is an upper foot or so of fill that extends across most of the Site, except in the area of the tank nest where it is about 12 feet thick. The fill overlies laminated clayey silts and silty fine sands, which extend to a depth of 8 to 12 feet bgs. These fine-grained sediments overlie coarser-grained gravelly sands with cobbles, boulders, and variable amounts of silt.

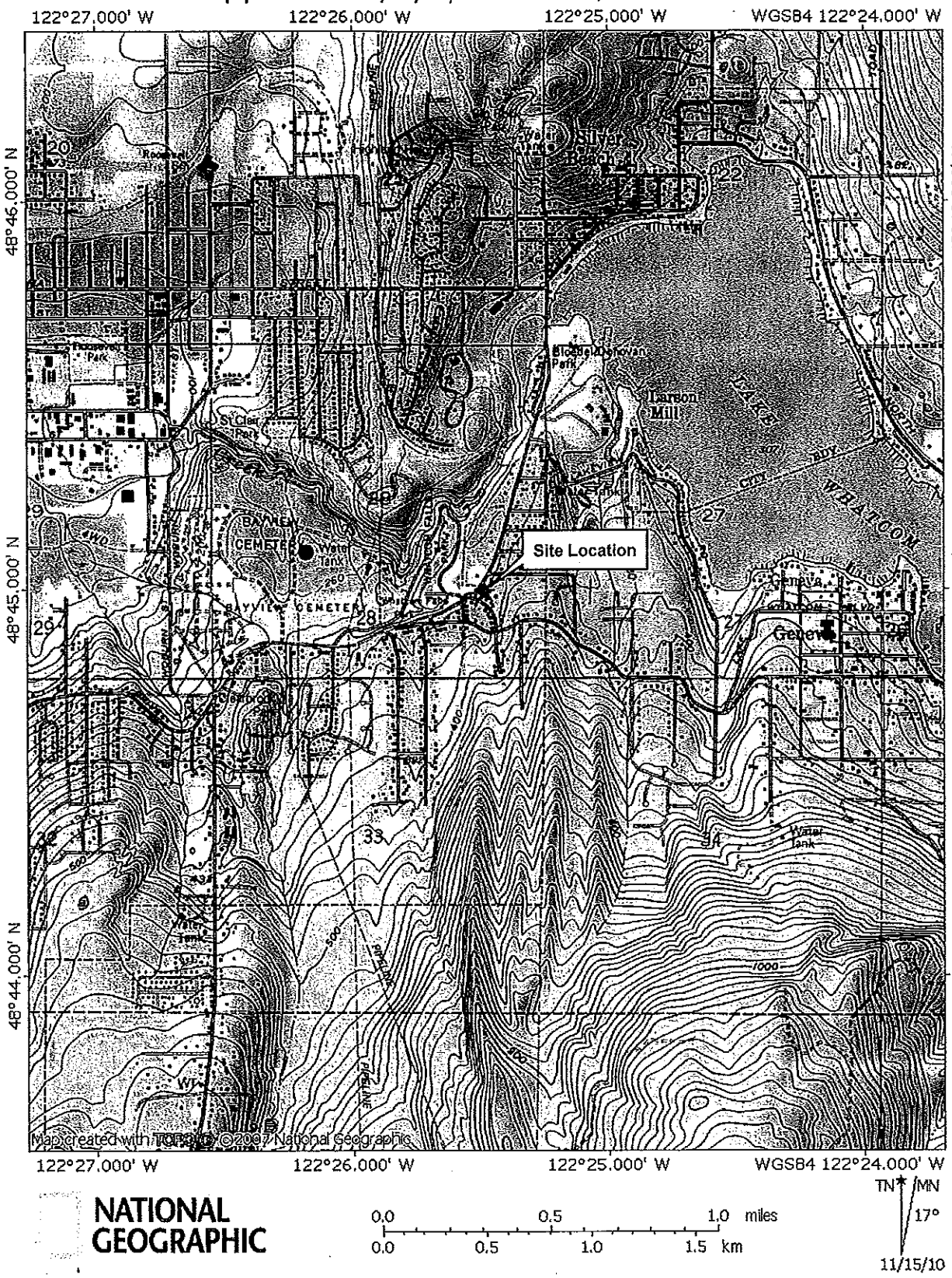
Ground Water: The uppermost ground water at the Site occurs perched within the tank nest backfill and within the shallow fill across the Property. The underlying native sediments are mostly non-water bearing, although explorations immediately west of the tank nest showed water-bearing zones in the gravelly deposits. The water-bearing sediments began at a depth of about 7 feet and extended to the base of the explorations. Ground water flow both in the fill and the underlying native sediments should mimic topography, and be from higher elevation areas on the south towards lower areas on the north and west. Data from the monitoring wells on the Site confirm this flow pattern.

Release and Extent of Contamination - Soil: The Site is defined by the extent of gasoline contamination in soil (as measured by TPHg and BETX). No MTBE or elevated lead concentrations were detected, nor was TPHd detected, although one of the USTs supplied diesel. The maximum TPHg and benzene concentrations detected at the Site were 2,400 mg/kg and 7.7 mg/kg, respectively.

The contamination extended from near land surface, to a depth ranging from 13 feet (in the tank nest area) to between 5 and 8 feet (within the remainder of the Site). The areal extent of contamination, as defined by the remedial excavation, was approximately 80 feet by 125 feet in plan dimension. However, the Site is actually wider than 80 feet because contamination extends some unknown distance north beneath Electric Avenue.

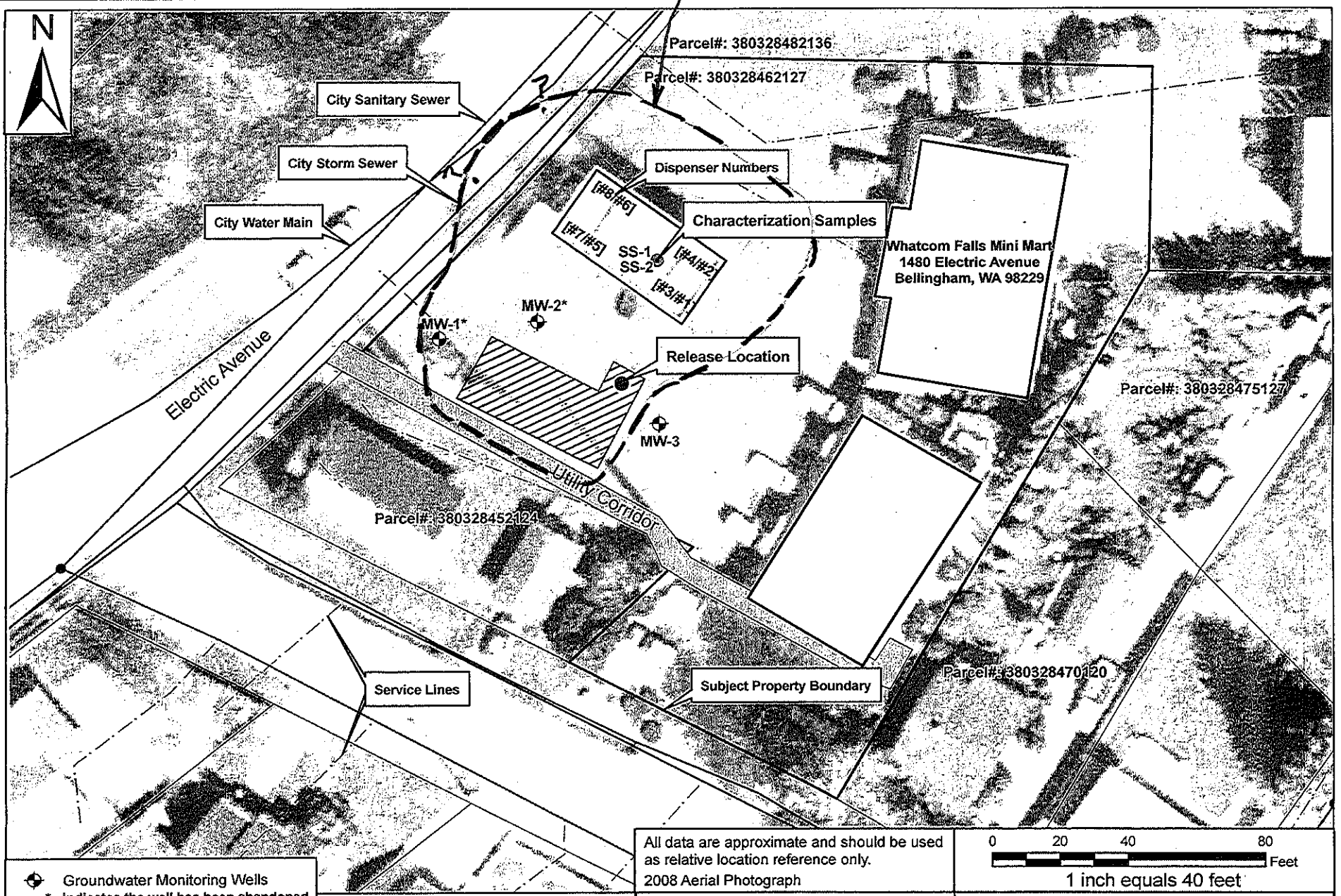
The gasoline contamination likely originated from spills and leaks from the tank nest and product lines and at the fuel dispensers. The combination of shallow ground water and fine-grained native soils prevented the gasoline from moving downward in any significant way, but did allow it to spread laterally. The fact that such a large area was contaminated around the fuel dispenser area suggests that it may have been the primary source of much of the contamination. If the tank nest had been the primary source, the Site would have extended much more to the west, coincident with ground water flow.

Extent of Contamination – Ground Water: The extent of uppermost ground water contamination was never confirmed, except to the west. In this area a series of grab samples from soil borings showed no detectable contamination. Within the rest of the Site only two wells were installed in locations potentially impacted. One of these wells (MW-1) showed both TPHg and benzene detections, with only the benzene above cleanup levels. The other well showed no impact. The potential for impact to deeper ground water has also not been evaluated.



Prepared for:	Prepared by:	
Ennen Brothers Partnership	whatcom ENVIRONMENTAL	Site Location Map
	Whatcom Falls Market 11/18/10	Figure 1

APPROXIMATE BOUNDARY OF SITE



MARK ADAMS, ECOLOGY, 8/25/11