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Offsite Area Cross Sections and Offsite Area Conditions Summary

Former Unocal Seattle Marketing Terminal 0724

3001 Elliott Avenue

Seattle, Washington

March 17, 2015

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Environment

Ms. Maura S. O'Brien, P.G., H.G.
Washington State Department of Ecology
Toxics Cleanup Program
3190 160th Ave SE
Bellevue, WA 98008-5452

Subject:
Offsite Area Cross Sections and Offsite Area Conditions Summary
Former Unocal Seattle Marketing Terminal 0724
3001 Elliott Avenue
Seattle, Washington

Date:
March 17, 2015

Contact:
Rebecca K. Andresen

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Email:
Rebecca.Andresen@
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Our ref:
B0045363.0006

Dear Ms. O'Brien:

On behalf of Chevron Environmental Management Company (CEMC), ARCADIS U.S., Inc. (ARCADIS) prepared detailed cross sections for the Offsite Area at the former Unocal Seattle Marketing Terminal 0724, located at 3001 Elliott Avenue in Seattle, Washington (site). The cross sections were requested by the Washington State Department of Ecology (Ecology) during a meeting on October 29, 2014, and subsequent email correspondence on November 4, 2014. Draft cross-sections were submitted to Ecology on January 14, 2015, and have been updated in response to Ecology and stakeholder comments. This document summarizes known conditions in the Offsite Area and describes the conditions shown on Figure 1 and Cross Sections A-A' through E-E'.

The site was operated by Union Oil Company of California (Unocal) as a bulk fuel distribution facility from the early 1900s to approximately 1975, when site operations were discontinued. In the 1980s, the aboveground site structures were demolished (GeoEngineers 1996b). The site was redeveloped in 2005 and is now the location of the Olympic Sculpture Park. Unocal's historic operations in the Offsite Area were limited to where buried pipelines crossed underneath the northern portion of the Offsite Area.

The site is defined in Order on Consent DE88-N223 (Order) and is divided into four contiguous areas: Upper Yard, Elliott Avenue, Lower Yard, and the Offsite Area. The Offsite Area, which is the focus of this evaluation, generally comprises the Burlington Northern Santa Fe (BNSF) railroad tracks right-of-way (ROW) and Alaskan Way between Bay Street and Broad Street. This area is shown on Figure 1. ARCADIS

prepared five cross sections for the Offsite Area (Cross Sections A-A' through E-E'). These cross sections were developed using available historical site data to inform placement and design of additional groundwater monitoring wells along the BNSF ROW. The site history and conditions are discussed below. The references used to generate the cross sections are listed in Attachment A.

Site Description and History

The Offsite Area was historically the location of tidal lowlands, a wood-planked timber trestle roadway, and a wharf for a local asphalt company that was present on the northern portion of the former Upper Yard (prior to use by Unocal). This area was filled in between approximately 1905 and the 1930s. During the filling operations, a series of sea walls were constructed prior to construction of the final and current concrete sea wall in the 1930s (GeoEngineers 1996a).

Until the late 1960s, Alaskan Way continued along the railroad ROW (through what is now the Offsite Area) and was used for street traffic and parking. Beginning in 1969, Alaskan Way was turned into a parking lot and was no longer used for through traffic. In 1982, a Seattle Metro trolley barn and spur tracks to the barn were constructed (GeoEngineers 1996a).

Terminal operations in the Offsite Area were limited to petroleum piping that extended from the Lower Yard, beneath the railroad ROW, and beneath the Offsite Area to the location of the former Unocal pier (the "piping corridor"). The piping corridor included more than 25 three- to eight-inch-diameter pipes. The below grade piping was emptied, cleaned and decommissioned in place by filling with grout in 1988 (GeoEngineers 1996c).

In 1989, an offsite remediation system (the "Trench D" recovery system) was installed and began operation on both sides of the railroad ROW. Although historically referred to as a trench system, "Trench D" was not constructed as a trench remediation system, and is rather a system of closely-spaced recovery wells. The Trench D remediation system operated until December 2006, when the underground piping connecting the extraction wells to the system equipment was damaged and rendered inoperable during construction of the Olympic Sculpture Park (OSP). From 1989 to November 2006, approximately 29,244,966 gallons of water and 4,809 gallons of light nonaqueous phase liquid (LNAPL) were recovered and treated by the groundwater extraction system. When in operation, no LNAPL was

recovered by the system between the fourth quarter 2004 and December 2006 (GeoEngineers 2006b).

With approval from Ecology, Unocal conducted soil excavation between July and October 2005 to remove a previously identified "hot spot" of impacted soil in the Offsite Area where the former pipelines (previously cleaned and sealed) were located. Although soil Remedial Action Levels (RALs) had not been established for soil in the Offsite Area, the purpose of the excavation was to remove a source of soil impacts and LNAPL to improve groundwater quality in the Offsite Area. In preparation for the excavation, an approximately 200-foot-long shoring wall was installed on the edge of the railroad ROW as shown on Figure 1. The shoring wall was installed to approximately 25 feet bgs and was constructed of steel piles and wooden lagging boards with controlled density fill to stabilize loose soil (see cross sections D-D' and E-E'). Upon completion of the excavation, the top 4 feet of the piles and boards were removed and the remaining portion of the shoring wall was left in place (GeoEngineers 2006a). The top of the remaining portion of the shoring wall extends below the range of measured water table fluctuations and therefore acts as a physical barrier to groundwater flow, influences the extent of tidal influences on groundwater fluctuations, and inhibits potential transport of constituents of concern (COCs) via groundwater flow.

The 2005 excavation work was originally intended to extend to the Elliott Bay sea wall. However, when the sea wall was exposed during the excavation, it was visibly apparent that significant deterioration had occurred, and that further removal of overburden behind the wall would risk collapse of the sea wall. Therefore, the full extent of the planned excavation was reduced and controlled density fill (CDF) was placed upland of the sea wall to minimize vibrations during excavation activities. Due to the concern for the sea wall, soil beneath the CDF beneath a depth of approximately 14 feet bgs was left in place and may have petroleum impacts remaining (GeoEngineers 2006a). To evaluate the whether groundwater was impacted by the soil left in place, monitoring well MW-202 was installed within the excavation backfill near the unexcavated soil (Cross Section D-D').

A 65-foot-long section of the buried former Unocal piping corridor was also removed during the 2005 excavation activities. The section of the piping corridor removed had previously been cleaned, sealed and decommissioned in place in 1988. A section of the piping corridor adjacent to a temporary shoring wall west of the railroad tracks was left in place because it could not be removed without potentially compromising the structural integrity of the sea wall. Following soil removal, the excavation was

backfilled with 3 feet of quarry spalls, topped with a geotextile fabric, brought to grade with excavated materials meeting re-use criteria and gravel. The surface was restored with asphalt pavement. Approximately 4,435 tons of petroleum-impacted soil were removed during the 2005 remedial excavation activities (GeoEngineers 2006a).

Constituents of Concern and Sources

As defined in Amendment 4 of the Order, the current COCs at the site are:

- Total petroleum hydrocarbons as gasoline (GRO)
- Total petroleum hydrocarbons as diesel (DRO)
- Total petroleum hydrocarbons as heavy oil (HO)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX)
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd) pyrene)
- Dissolved lead

Dissolved lead was not present at detectable concentrations in groundwater samples collected between 2007 and 2011, and was present at concentrations below the applicable RALs for at least 12 events for all of the monitoring wells in the Offsite Area. Based on email correspondence from Ecology dated August 11, 2011, dissolved lead is no longer monitored in groundwater samples collected at the site.

According to the 1989 Ecova Document, "Work Plan, Seattle Marketing Terminal Remediation", Ecology documented one spill at the site. Approximately 105,000 to 126,000 gallons of premium-leaded gasoline overflowed from a tank located at the northwest corner of the Upper Yard. Although the spill was largely confined within a concrete containment area, some gasoline reportedly seeped through the containment wall. An estimated 2,500 to 3,000 gallons were not recovered. Unocal files also indicate that approximately 12,600 gallons of leaded regular gasoline was spilled from a tank located in the east-central portion of the Upper Yard in the late

1960s, and that up to several hundred barrels (8,400 gallons) of diesel may have leaked from an underground diesel line at the Lower Yard truck loading rack area west of Elliott Avenue. No releases in the Offsite Area were documented.

Geology

All available boring logs from penetrations in the Offsite Area were used to construct Cross Sections A-A' through E-E'. The geology was generally characterized as fill, with lenses of beach sands present at depths greater than 25 feet below ground surface. Along Cross Section B-B', located furthest east, gravel surface fill as well as fine-grained sand and gravel subsurface fill were documented. Further west, along Cross Sections A-A' and C-C', the documented fill material is predominantly sand. Wood debris was noted in many of the borings at various depths, and wood planking was observed in intervals of varying thicknesses during advancement of the borings for monitoring wells MW-200, MW-201, MW-202, MW-206, MW-207, and MW-27R. The wood planking was first observed at 11 feet bgs and was observed at 18 feet bgs at its deepest. During installation of the monitoring wells, the following observations of wood planking were recorded:

- MW-200: "Wood Planking, Strong Odor" from approximately 13 to 16 feet bgs
- MW-201: "Wood Planking, Black Staining, Strong Hydrocarbon Odor" from approximately 13 to 15 feet bgs
- MW-202: "Wood Planking, Odor" from approximately 13 to 15 feet bgs
- MW-206:– "Wood Planking Debris" and "Wood Planking" at a lower interval from approximately 15.5 to 19.5 feet bgs
- MW-207: "Wood Planking" from approximately 10.5 to 12.5 feet bgs
- MW-27R: "Wood Planking, Strong Odor" from approximately 14.5 to 18 feet bgs

These observations of wood planking are likely related to the old railroad trestle that ran across the tidal flats, the former wooden-pile supported roadway, the relieving platform, a historical sea wall used to expand the shoreline, or construction debris that was historically used as fill material. The observations documented on the available boring logs are consistent with the known history of fill activities in the Offsite Area. The historical shoreline of Elliott Bay was originally located further east near the centerline of Elliott Avenue. Historic filling of the area began in the early 1900s and included fill from regrading of Denny Hill and construction of interstate highway I-5. Fill materials used included sawmill refuse, concrete debris, wood slabs, and other debris, and may have included asphalt paving and building materials that were demolished during the regrading activities (GeoEngineers 1996a).

Hydrogeology

Groundwater is found from approximately 8 to 24 feet bgs in the Offsite Area. The wide range in groundwater depths reflects the significant topographic relief introduced to the area by filling activities for the construction of the Olympic Sculpture Park, The overall groundwater flow direction across the site is west toward Puget Sound; however, groundwater elevations in wells in the Offsite Area exhibit tidal influence. Maximum and minimum depths to groundwater, as observed during site gauging events, are shown on Cross Sections A-A' through E-E'. Elliott Bay high and low tide water levels, based on public information provided by the Elliott Bay Seawall Project (Seattle Department of Transportation 2013) are shown on Cross Section D-D'. Historically, groundwater elevations have been measured during varying tidal conditions.

Groundwater elevations in the wells nearest Puget Sound have the lowest elevation, reflecting low-low tidal conditions in Puget Sound. Upgradient of the railroad tracks, the calculated groundwater gradient ranges from 0.007 to 0.03 foot per foot. West of the railroad tracks in the Offsite Area, the groundwater gradient appears to be in flux with the tidal conditions. East of the railroad tracks groundwater elevations and hydraulic gradient stay relatively consistent, reflecting only seasonal variations (ARCADIS 2011). Historical groundwater elevation measurements are presented in semiannual progress reports (ARCADIS 2014b).

As shown on the cross sections, groundwater levels observed during drilling (1989 for Trench D wells) were approximately 1 to 11.5 feet lower than average water levels measured during the subsequent monitoring history. At some wells, the higher actual depth to water has resulted in submerged well screens during some monitoring events. The Trench D wells were likely installed with deeper well screens to influence water-table draw-down during pumping operations.

Continuous monitoring of groundwater elevations and electrical conductivity to evaluate the effects of the tidal cycle on groundwater at the site was conducted in wells MW-201, MW-202, MW-203, MW-205, MW-206, MW-207, and RW-3 in the Offsite Area during August and September 2009. The results of this study are presented in the Tidal Study Summary Report (ARCADIS 2010b). The results from the study show that surface water from Puget Sound directly influenced groundwater elevations in each of the wells monitored, and salinity concentrations in wells MW-201, MW-202, MW-203, MW-206, and MW-207 indicate some exchange with surface water. The amplitude of these effects varied among the wells tested, and decreased

with distance from the Puget Sound. Effects were observed in each of the wells included in the study. The approximate extent of tidal fluctuation in each of these wells is shown on the cross sections. The approximate extents of tidal fluctuation at wells RW-9 and PZ-8.5, as reported by Applied Geotechnology (1989b), are shown on Cross Section B-B'.

Impacted Media

Limited soil analytical data is available for the Offsite Area. Soil samples were collected during the installation of piezometers PZ-203 and PZ-204 in 2010 (ARCADIS 2011). Soil RALs have not been established and do not apply for the Offsite Area. A GRO concentration of 55 mg/kg was detected in the sample collected from PZ-203 at a depth of 15 feet bgs.

GRO and DRO were detected in the sample collected from PZ-204 at a depth of 19 feet bgs at concentrations of 3,200 mg/kg and 2,600 mg/kg, respectively. This sample was noted to be wet during collection, and was collected below the historical high water table observed in this well. Elevated GRO concentrations were also observed in samples collected below the water table in PZ-204 (25, 29.5, and 35 feet bgs), and an elevated DRO concentration was detected in the soil sample from 25 feet bgs.

Soil samples were also collected from the base and sidewall of the 2005 "hotspot" excavation. Laboratory analysis of the collected soil samples indicated that petroleum impacts were left in place, particularly in the area of the relieving platform at the sea wall (Cross Section D-D'). Soil RALs have not been established for the Offsite Area, and the "hotspot" excavation was conducted to improve groundwater quality in the Offsite Area and subsequent groundwater monitoring events have confirmed improvement of groundwater quality in the Offsite Area. Monitoring well MW-202 was installed specifically to monitor groundwater concentrations near the sea wall in the backfilled 2005 "hot spot" excavation. Groundwater samples for BTEX, GRO, DRO and HO have never had concentrations exceeding applicable RALs for these constituents, providing an empirical demonstration that the soil concentrations left in place are protective of groundwater. Concentrations of certain cPAHs are occasionally present at concentrations exceeding the applicable RALs in the groundwater samples collected from MW-202. However, as discussed in the work plan prepared for assessment activities in 2010, (ARCADIS, 2010a), the presence of cPAH concentrations in the groundwater may not be related to historical terminal operations at the site and are below accepted background levels for urban

soils. Numerous historical reports for the site have referenced fill materials and infrastructure left in place that were used to extend the shoreline from its original location near Elliott Avenue to the current seawall location. These materials included ash and creosote-treated timbers, which could be potential sources of cPAHs. Boring logs for monitoring well MW-202 indicate the presence of odorous wood planking immediately below the groundwater table.

LNAPL has historically been detected in some of the recovery wells used as part of the Trench D remediation system and in some of the historical monitoring wells in the Offsite Area. The Cross Sections depict the interpreted extent of LNAPL "smear" in the wells in blue shading along the well construction, based on visual observations of sheen and product in drilling logs and the available groundwater monitoring history. With respect to LNAPL, the smear zone is the vertical extent of residual LNAPL impacts that develops in response to tidally-influenced groundwater fluctuations. Quarterly gauging of the accessible recovery wells was conducted from 2009 to 2014. LNAPL was not present at measurable thicknesses in any of the accessible recovery wells between April 2011 and February 2014, and has not been present at measurable thicknesses in any of the Offsite Area monitoring wells since April 2011.

As part of Trench D abandonment activities in February 2014, five previously missing Trench D piezometers were located. All accessible recovery wells and piezometers were gauged on February 25, 2014. LNAPL was detected in previously missing piezometers PZ-4.5, PZ-6, PZ-10.5, PZ-11.5, and PZ-13 at thicknesses ranging from 0.53 foot (PZ-6) to 2.72 feet (PZ-11.5) during this gauging event.

The presence of LNAPL detected in 2014 is shown on Figure 2a and Figure 2b. Depth and thickness of LNAPL is indicated by purple coloring on PZ-4.5, PZ-6, PZ-10.5, PZ-11.5, and PZ-13 on Cross Section B-B'. The LNAPL detections in the piezometers that were co-located with recovery wells (PZ-6 co-located with RW-6 and PZ-13 co-located with RW-13) were located in the same well box as the corresponding RW (less than 1 foot away) and in each case, no LNAPL was detected in the corresponding recovery well. The recovery wells that formed Trench D were designed such that many of the wells did not have screened intervals bracketing the water table during non-pumping conditions. Although most of the recovery wells with measurable thicknesses of LNAPL in 2014 had submerged screens, historical evidence suggests that the residual LNAPL is limited in extent and is likely not mobile. The Trench D system recovered approximately 4,809 gallons of LNAPL, but no LNAPL was recovered for the last two years of operation (between fourth quarter 2004 and four quarter 2006), further indicating that the presence of mobile, recoverable LNAPL was limited in extent.

Installation of additional monitoring wells is proposed to assess the lateral extent of LNAPL (ARCADIS 2014a). The proposed monitoring wells (depicted on Cross Section B-B') will be installed so the well screen intersects the water table for evaluation of the absence or presence of LNAPL.

Groundwater has been monitored in the Offsite Area since 1989. Available data were reviewed to prepare the cross sections; compliance with the offsite RALs (if data were available) are indicated on the cross sections. Existing monitoring wells in the Offsite Area (MW-200 through MW-207) were installed in 2006 as part of redevelopment of the OSP to replace monitoring wells decommissioned to facilitate redevelopment. The monitoring wells in the Offsite Area were positioned to evaluate known or suspected impacts (such as the potentially impacted soil left in place following the 2005 "hot spot" excavation), or unique subsurface features that may impact the transport of COCs (such as the shoring wall west of the BNSF ROW). As shown on Cross Sections A-A' and C-C', all of the offsite monitoring wells have been in compliance with applicable RALs for at least the last seven consecutive monitoring events, indicating that groundwater is not being impacted. Many of the historical monitoring wells, which were decommissioned as part of the OSP construction activities, were also in compliance with applicable RALs at the time of decommissioning. Table 1 summarizes the number of consecutive groundwater sampling events these historical wells had been in compliance prior to decommissioning.

Cross Section A-A' shows that monitoring wells MW-202, MW-206 and MW-207 have screened intervals that at times are below the depth to groundwater in the wells. However, as shown on the graphs presented as Figure 3, the water level has been within the screened interval of monitoring well MW-202 for all but one and monitoring well MW-207 for all but six of the sampling events conducted since installation. However, water levels in monitoring well MW-206 are frequently above the screened interval. A review of the analytical data for this well indicates that concentrations of BTEX, GRO, DRO, and HO have been non-detectable since the first sampling event, with the exception of a single detection of DRO in October 2012, which was two orders of magnitude below the RAL for this constituent. Additionally, cPAHs have not been detected at concentrations exceeding the RALs in any of the groundwater samples collected from this well, regardless of whether the groundwater was above or within the screened interval of the well during the sampling event. Water levels in MW-206 do not appear to have an influence on the COC concentrations observed during groundwater sampling events. Generally, groundwater sampling events are planned during low-tide intervals. Prior to future sampling, the depths to groundwater will be

compared to the screened interval to determine if the water level is within the screened interval of the well.

Dissolved-Phase COC Fate and Transportation Evaluation

In 2010, ARCADIS conducted site activities to characterize subsurface conditions and characterize the human health and ecological risk from remaining petroleum hydrocarbon impacts at the site. Fate and Transport modeling conducted as part of this effort indicated that remaining dissolved-phase concentrations measured in groundwater beneath the Offsite Area, using conservative calculations, will not reach the sea wall at concentrations greater than site RALs or surface water criteria (ARCADIS 2011). Further evaluation of the site characterization data indicated that although there may be areas of remaining impact to soil (beneath the sea wall side of the 2005 excavation) and groundwater (beneath the BNSF ROW) in the Offsite Area, the concentrations in groundwater upgradient of the seawall do not exceed standards, and will not reach the seawall in excess of standards. The 2010 report further concluded, that additional remedial measures are not needed. Remaining impacts do not present a risk to human health and the environment due to the absence of a complete or significant exposure pathway. For remaining dissolved phase impacts in groundwater (already below standards), microbiological and geochemical parameter monitoring indicate that natural attenuation processes are occurring and that groundwater at the site likely has excess capacity for further attenuation of petroleum hydrocarbons (ARCADIS 2011).

Data Gaps

Numerous site assessment activities have been conducted in the Offsite Area since 1989. Although limited soil analytical data exist, current groundwater data for areas west of the BNSF ROW, collected from monitoring wells specifically placed to monitor soil impacts left in place, show that soil impacts, if remaining, do not present a threat to groundwater quality at the site because all report at least seven consecutive events with COCs below RALs. Dissolved-phase COC data are not available for the former Trench D area, which is located east of the shoring wall that was installed in 2005. In addition, gauging conducted in early 2014 suggests that limited pockets of LNAPL may be present at locations along the former Trench D area.

To obtain dissolved phase data in the former Trench D area, four groundwater monitoring wells are proposed at the locations shown on on Figure 2a and Figure 2b. Installation of monitoring wells in the former Trench D area will allow for monitoring of

LNAPL and a further assessment of current dissolved-phase COC concentrations. Phased implementation of well installations is proposed: approved access to the ROW is limited to five monitoring wells at this time, and physical conditions, including train traffic along the rail line, lend serious health and safety concerns for drilling in this area. A proposal for installation of four additional monitoring wells was presented with the Trench D Recovery System Decommissioning Summary and Recommendation for Replacement Well Installation (ARCADIS 2014a). The proposed wells are shown on Cross Sections A-A' through E-E' (where appropriate). The cross section evaluation confirms appropriate placement of the proposed wells. Additional monitoring wells may be required based on evaluation of data collected from the proposed wells.

We appreciate the opportunity to present these cross sections. If you have any questions regarding the information presented in this document, please contact Rebecca Andresen at 206.726.4717.

Sincerely,

ARCADIS U.S., Inc.

R Andresen

Rebecca K. Andresen, L.G.
Associate Vice President

Copies:
Ms. Kim Jolitz, Chevron EMC
Mr. Bernel Goldberg, Seattle Art Museum
Mr. Lee Richardson, Seattle Art Museum
Mr. Tad Shimazu, City of Seattle
Ms. Janet Knox, Pacific Groundwater Group

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Table

Table 1
Compliance Summary for Abandoned Wells

Former Unocal Seattle Marketing Terminal
3001 Elliott Avenue
Seattle, Washington

Monitoring Well	Petroleum Constituents and Sheen (BTEX, Gasoline-range, Diesel-range)	
	Current Sampling Interval	Consecutive Sampling Events in Compliance[1]
MW-8	none	23
MW-10	none	23
MW-20	none	23
MW-25	none	32
MW-27R	none	3
MW-34	none	9
MW-35	none	9
MW-42	none	5
MW-43	none	5
MW-52	none	11
MW-67	none	8
MW-43	none	5
MW-70	none	7
MW-71	none	11
MW-76	none	20

Notes:
1 - "Consecutive events" are number of consecutive sampling events prior to decommissioning. Refer to progress reports for results.

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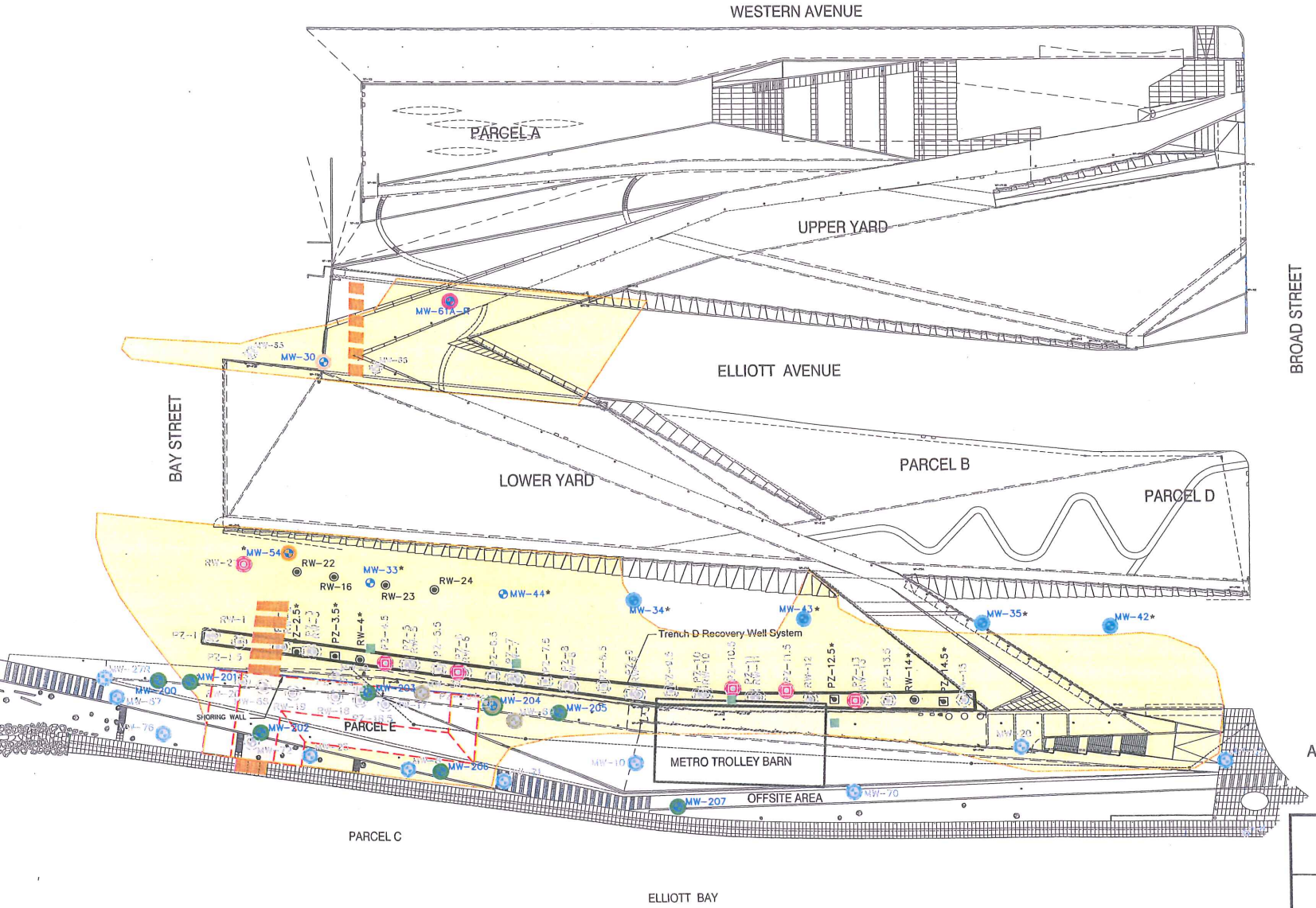
Figures



Legend

- MONITORING WELL
- RECOVERY WELL
- PIEZOMETER
- WELL DECOMMISSIONED
- UNABLE TO LOCATE
- SHORING WALL
- EXISTING PIPING CORRIDOR
- HOT SPOT SOIL EXCAVATION (2005)
- LAST 10 EVENTS GW BELOW RAL'S
- LAST 4 EVENTS GW BELOW RAL'S
- LNAPL PRESENT
- MTCA METHOD A CUL SOIL EXCEEDANCE
- 1997 AREA GEOENGINEERS IDENTIFIED AS (LOCATIONS OF PETROLEUM CONTAMINATED SOIL)
- BELOW RAL BEFORE DESTRUCTION
- DISSOLVED PHASE EXCEEDANCE
- PROPOSED WELL LOCATIONS

0 80' 160'

GRAPHIC SCALE

SOURCE: Base map provided by 'ASPECT CONSULTING', 179 Madrone Lane North, Bainbridge Island, WA (206) 780-9370. Map date February 2007, drawn full scale. Base map updated 5 /27/08 OTAK Survey.

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
TRENCH D REPORT

SITE MAP

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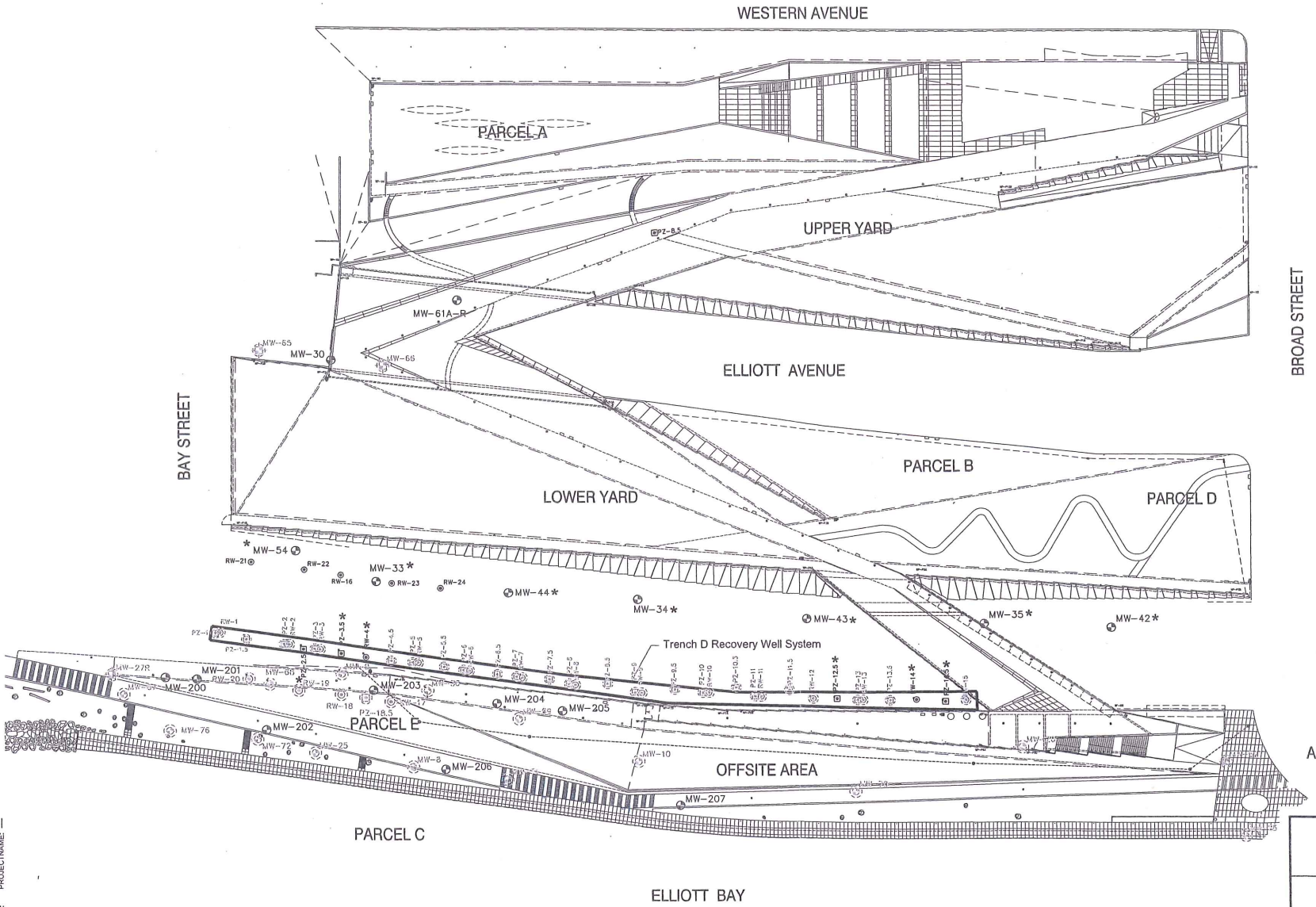
FIGURE
1



Legend

- MONITORING WELL
- RECOVERY WELL
- PIEZOMETER
- WELL DECOMMISSIONED
- * UNABLE TO LOCATE

0 80' 160'

GRAPHIC SCALE

SOURCE: Base map provided by 'ASPECT CONSULTING', 179 Madrone Lane North, Bainbridge Island, WA (206) 780-9370. Map date February 2007, drawn full scale. Base map updated 5 /27/08 OTAK Survey.

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
TRENCH D RECOVERY SYSTEM DECOMMISSION SUMMARY REPORT

SITE MAP

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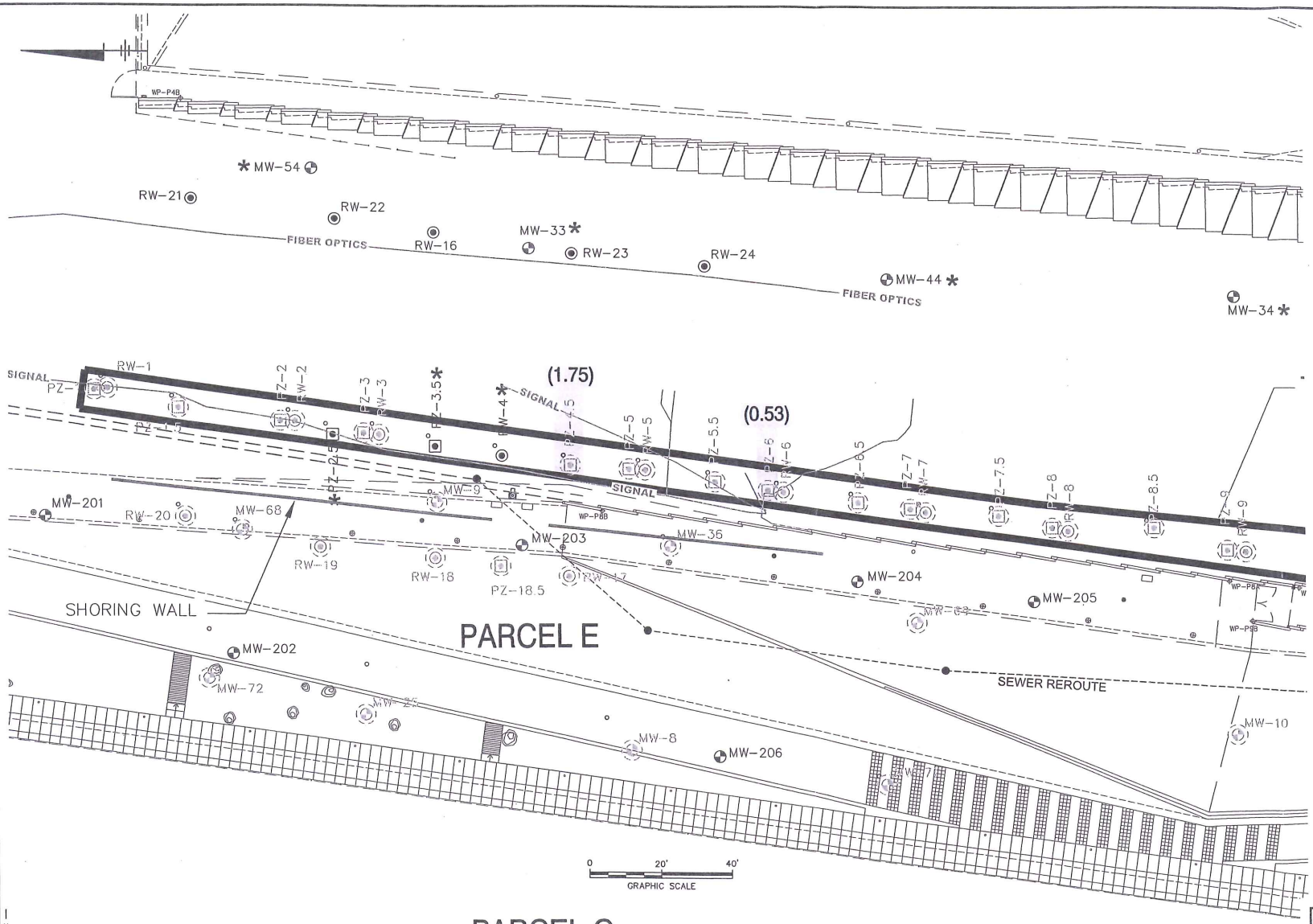
FIGURE 2

XREFS: IMAGES: PROJECTNAME:



Legend

- MONITORING WELL
- RECOVERY WELL
- PIEZOMETER
- WELL DECOMMISSIONED
- * UNABLE TO LOCATE
- (0.53) LNAPL THICKNESS MEASURED ON 2/25/14 AND 2/26/14.
- SIGNAL — RAILROAD SIGNAL LINE
- FIBER OPTICS — FIBER OPTICS LINE
- SEWER LINE
- LNAPL DETECTED - 2014

0 30' 60'
GRAPHIC SCALE

SOURCE: Base map provided by 'ASPECT CONSULTING', 179 Madrone Lane North, Bainbridge Island, WA (206) 780-9370. Map date February 2007, drawn full scale. Base map updated 5 /27/08 OTAK Survey.

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
TRENCH D RECOVERY SYSTEM DECOMMISSION SUMMARY REPORT

TRENCH D MAP WITH LNAPL THICKNESS - NORTH END

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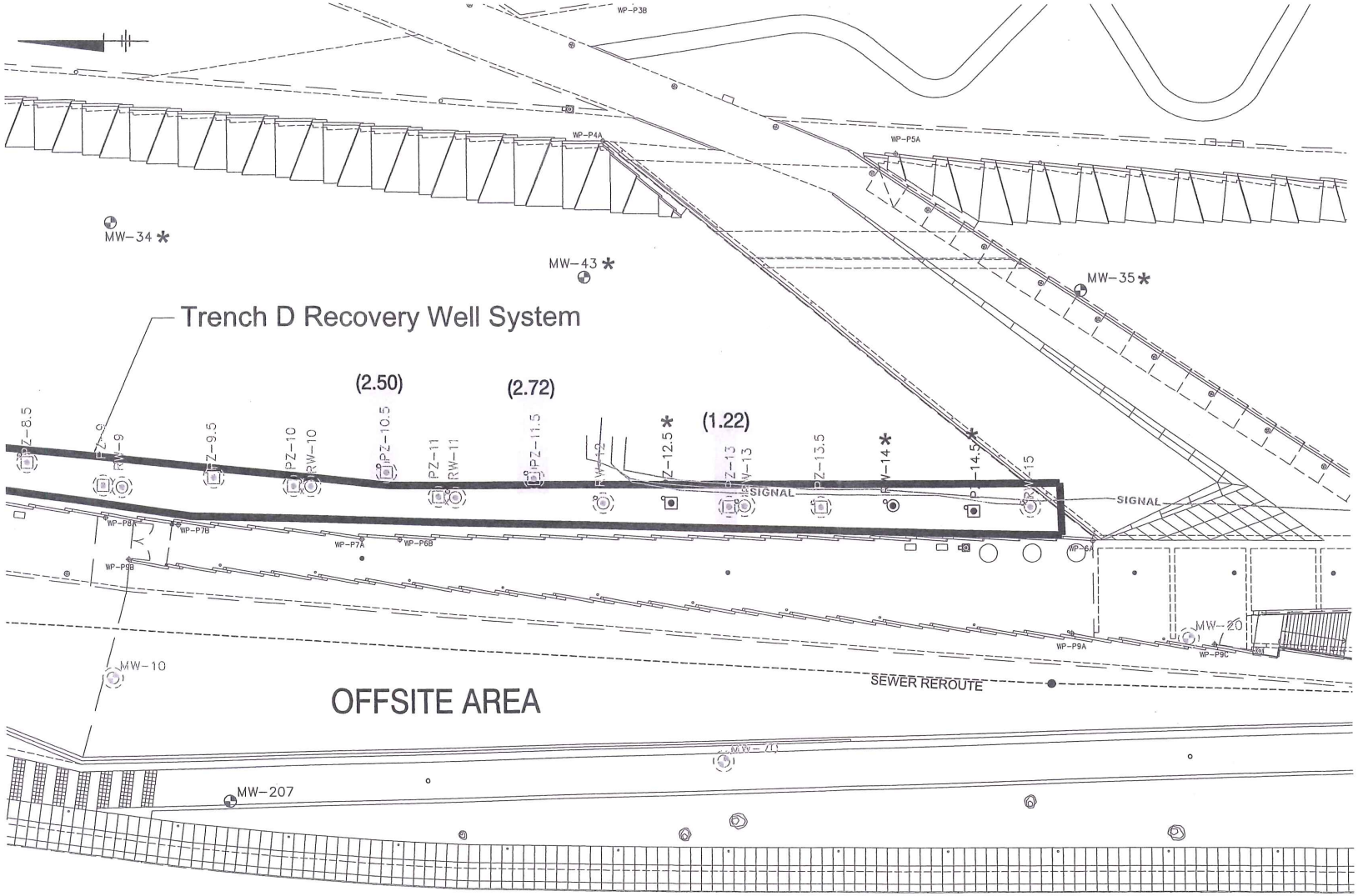
FIGURE 3a



Legend

- MONITORING WELL
- RECOVERY WELL
- PIEZOMETER
- WELL DECOMMISSIONED
- * UNABLE TO LOCATE
- (0.53) LNAPL THICKNESS MEASURED ON 2/25/14 AND 2/26/14.
- SIGNAL — RAILROAD SIGNAL LINE
- FIBER OPTICS — FIBER OPTICS LINE
- SEWER LINE
- LNAPL DETECTED - 2014

0 30' 60'

GRAPHIC SCALE

SOURCE: Base map provided by 'ASPECT CONSULTING', 179 Madrone Lane North, Bainbridge Island, WA (206) 780-9370. Map date February 2007, drawn full scale. Base map updated 5 /27/08 OTAK Survey.

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON
TRENCH D RECOVERY SYSTEM DECOMMISSION SUMMARY REPORT

TRENCH D MAP WITH LNAPL THICKNESS - SOUTH END

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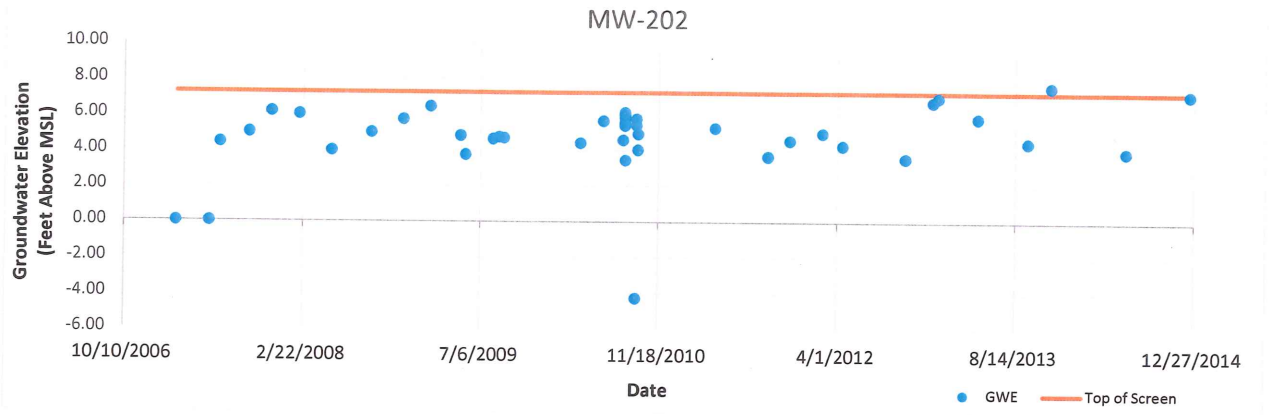
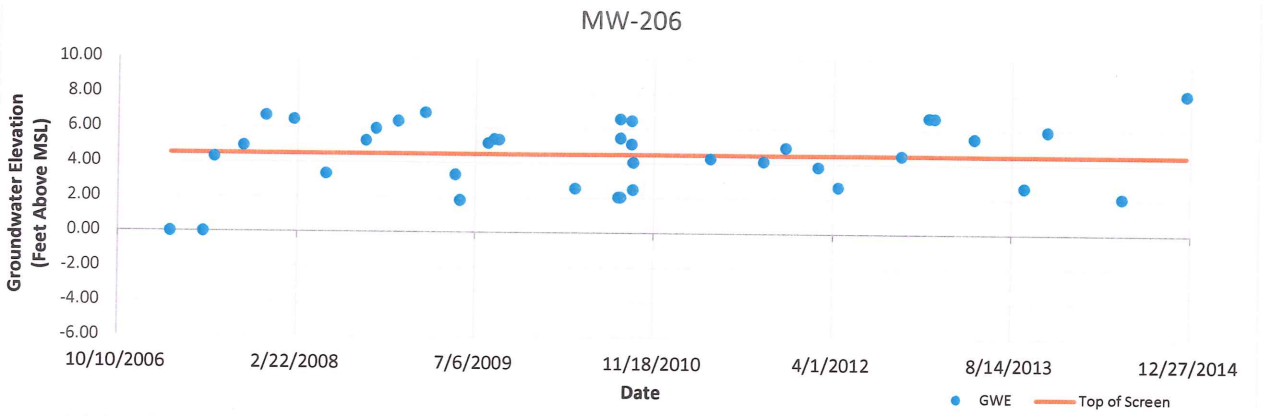
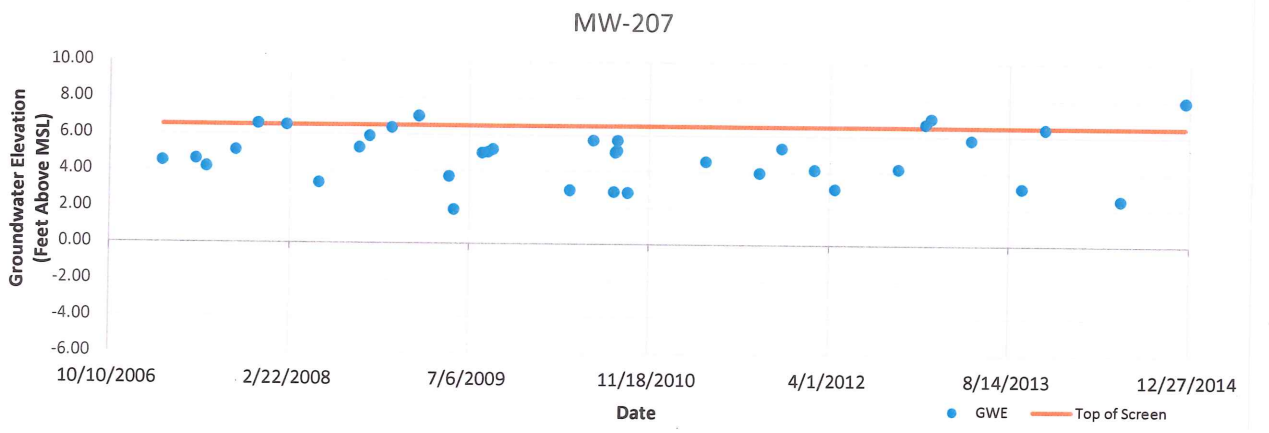
FIGURE 3b







LEGEND:

GWE = GROUNDWATER ELEVATION
MSL = MEAN SEA LEVEL

FORMER UNOCAL SEATTLE MARKETING TERMINAL
SEATTLE, WASHINGTON

OFFSITE CONDITIONS SUMMARY REPORT

MW-202, MW-206 & MW-207 HYDROGRAPHS

ARCADIS
Infrastructure Water Environment Buildings