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DEPARTMENT OF ECOLOGY
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May 5, 2020

Mike Raskin
MJR Development
6725 116th Avenue NE, Suite 100
Kirkland, WA 98033

Re: Further Action at the following Site:

- **Site Name:** Meeker Cleaners
- **Site Address:** 1317 West Meeker Street, Kent, WA 98032
- **Facility/Site No.:** 87719977
- **VCP Project No.:** NW3168
- **Cleanup Site No.**: 1177

Dear Mike Raskin:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Meeker Cleaners 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:

- Diesel- and heavy oil-range petroleum hydrocarbons (TPHd and TPHo), tetrachloroethene (PCE), and trichloroethene (TCE) into the Soil.

- TPHd, TPHo, and vinyl chloride (VC) into the 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. The Site is located on two King County parcels (number 5436200524 and 5436200526), which are currently used as Meeker Square shopping center (Property).

A second cleanup site, Meeker Gas Station Former (facility ID 44681713), is also located on the Property, approximately 170 feet east of the Site. The Meeker Gas Station Former facility is addressed separately under a VCP number NW3167. Based on the available information, the Meeker Gas Station Former facility does not affect, and is not affected by the Site.

At this time, we have no information that the parcels 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. Environmental Partners Inc. (EPI), *Groundwater Monitoring Report, Former Meeker Cleaners Site, 1301 West Meeker Street, Kent, Washington,* December 18, 2019.

2. EPI, *Remedial Investigation, Feasibility Study, and Cleanup Action Plan, Former Meeker Cleaners Site, 1301 West Meeker Street, Kent, Washington,* September 6, 2017.

3. EPI, *Interim Remedial Action Report, Former Meeker Cleaners, 1301 West Meeker Street, Kent, King County, Washington,* September 1, 2017.

4. EPI, *Technical Memorandum, Re: Summary of Investigation, Meeker Square Property, 1301 West Meeker Street, Kent, Washington,* February 25, 2016.

5. Migizi Group, Inc., *Memorandum, Meeker Square – 1301 West Meeker, Kent, WA, Re: Groundwater Sampling*, September 8, 2014.

6. SCS, *Voluntary Cleanup Program Soil Remediation Report – Soil Excavation and Disposal, PCE Remediation Project, Former Meeker Cleaners Site, Meeker Square Shopping Center, VCP NW0879*, September 2002.

Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can submit a public records request by creating an account at Public Records Request Center. If you require assistance with this process, you may contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or (360) 407-6040. A number of these documents are accessible in electronic form from the Site web page https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=1177.

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. The Site is described above and in **Enclosure A.**

- When reporting TPHd and TPHo analytical results, please compare the sum of the TPHd and TPHo concentrations in each sample to the MTCA Method A cleanup level of 2,000 milligrams per kilogram (mg/kg) for soil, and 500 micrograms per liter (µg/L) for ground water. Also, confirm with the laboratory that the sum of the detection limits for TPHd plus TPHo will be less than the soil and ground water Method A cleanup levels.
    - Please refer to the following references for this procedure:
        - *Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil, Implementation Memorandum #4, Publication 04-09-086, June 2004*; https://fortress.wa.gov/ecy/publications/SummaryPages/0409086.html

- *Guidance for Remediation of Petroleum Contaminated Sites (Petroleum Guidance), Publication No. 10-09-057, Revised June 2016*; https://fortress.wa.gov/ecy/publications/SummaryPages/1509057.html

- The soil sample collected at 3 feet below ground surface (bgs) from west sidewall (C7-WSW-1:3) contained a TPHd plus TPHo concentration at 2,110 mg/kg, above the MTCA Method A soil cleanup level.

- The ground water samples collected from monitoring well MW-1 in July and October 2018 contained TPHd plus TPHo concentrations at 840 µg/L and 540 µg/L, respectively. Also, a ground water sample collected from soil boring B-16 in October 2015 contained a TPHd plus TPHo concentration at 510 µg/L. These concentrations were above the MTCA Method A ground water cleanup level.

- Additional soil sampling is required to fully characterize the lateral extent of the residual petroleum hydrocarbon-contaminated soil at the Site.

  - Remedial excavation was conducted in 2017 to remove the petroleum hydrocarbon-contaminated soil from the Site. However, three soil samples collected from the south and west sidewalls (B17-SSW-1:3.5, B13-SSW-1:2, and C7-WSW-1:3) contained TPHd plus TPHo concentrations above the MTCA Method A soil cleanup level.

  - Additional soil sampling is needed south and west of the 2017 excavation to characterize the southern and western extent of the residual petroleum hydrocarbon-contaminated soil. Some of the additional soil samples may be collected in the West Meeker Street right-of-way south of the Property.

  - The source of the petroleum hydrocarbon contamination is unknown. In this case, soil samples should be analyzed for the required testing for unknown oil per Table 830-1 of the MTCA regulation (Chapter 173-340 WAC). The required testing includes gasoline-range petroleum hydrocarbons (TPHg), TPHd, TPHo, benzene, toluene, ethylbenzene, xylenes (BTEX), 1,2-dibromoethane (ECB), 1,2-dichloroethane (EDC), total lead, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), polychlorinated biphenyls (PCBs), and halogenated volatile organic compounds (HVOCs). If naphthalenes are found in ground water, soil samples should also be analyzed for naphthalenes. The additional soil samples collected should meet these testing requirements.

- Additional soil sampling is required to fully characterize the lateral and vertical extent of the residual HVOC-contaminated soil at the Site.

- In 2002 and 2017, remedial excavations were conducted to the maximum depth of 6 feet bgs to remove the HVOC-contaminated soil. After the remedial excavations, HVOC-contaminated soil remained at deeper depths at the following locations:
  - Soil boring DP1 at 10 feet bgs: a PCE concentration was detected at 0.18 mg/kg (above the MTCA Method A cleanup level of 0.05 mg/kg).
  - Soil boring DP4 at 7 feet bgs: a PCE concentration was detected at 1.0 mg/kg, and a TCE concentration was detected at 0.07 mg/kg (above the MTCA Method A cleanup level of 0.03 mg/kg).
  - Soil boring DP6 at 8.5 feet bgs: a PCE concentration was detected at 0.068 mg/kg, and a TCE concentration was detected at 0.24 mg/kg.
- Additional soil sampling is needed at or near these locations to determine the current soil conditions, and delineate any residual HVOC-contaminated soil laterally and vertically.

- The TPHd plus TPHo concentrations in ground water samples measured with the use of silica gel cleanup (SGC) cannot be used to demonstrate compliance, unless documentation is provided to Ecology's satisfaction that the presence of natural organic matter in ground water is biasing the total petroleum hydrocarbon (TPH) results.
  - SGC is a laboratory preparation method (i.e., sample cleanup) that can remove polar compounds from the analysis of TPH. These polar compounds can include:
    - Naturally occurring non-petroleum organic matter such as leaf litter, bark, and peat.
    - Weathered or biodegraded petroleum from chemical or microbial reactions in the environment. This process transforms petroleum components to intermediate degradation by-products (degradates), which are commonly referred to as polar metabolites.
    - Heavy fuel oils such as #6 fuel oil and Bunker-C, which contain significant amounts of polar organics.

- As stated in Ecology's 2016 *Petroleum Guidance*, the purpose of applying SGC to petroleum-contaminated samples is to minimize the potential interference caused by naturally occurring, non-petroleum organic matter. Since SGC does not distinguish between naturally occurring organics and petroleum polar organics (part of the petroleum products or petroleum degradates), the petroleum hydrocarbon concentrations that are measured with the use of SGC cannot be used to demonstrate compliance. Additional steps may be needed to distinguish naturally occurring organics from petroleum polar organics in a sample.

- The ground water samples collected from monitoring wells MW-1 and MW-2 from July 2017 to October 2018 were analyzed for TPHd and TPHo with and without the use of SGC. For multiple events, the TPHd plus TPHo concentrations were above the MTCA Method A cleanup level when analyzed without SGC, but below the laboratory quantitation limits (PQL) when analyzed with SGC.

  The ground water samples collected from monitoring wells MW-1 and MW-2 were analyzed for extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) in November 2019, and the EPH/VPH concentrations were below the PQL. However, the use of SGC is an integral part of the EPH method.

  The analytical results indicate that significant polar organics are present in the samples; but if these polar organics are naturally occurring remains unknown. Unless a demonstration to Ecology's satisfaction is provided that the polar organics (that is removed by SGC) is naturally occurring or partially naturally occurring, the TPHd plus TPHo concentrations that are measured without the use of SGC should be used to demonstrate ground water compliance.

- Please refer to the 2016 *Petroleum Guidance* for demonstration of naturally occurring organic matter in ground water.

  - The 2016 *Petroleum Guidance* states "*. . . silica gel cleanup should not be used for NWTPH-Dx analyses of groundwater samples unless uncontaminated background samples indicate that naturally occurring organic matter is a significant component of the TPH being detected in the groundwater samples. If silica gel cleanup is used, groundwater samples should be split and analyzed both with and without silica gel cleanup*."

    It also states the significance of the naturally occurring organic matter should be "*. . . determined by analyzing clean background samples to obtain an estimate of the naturally occurring organics contribution to the TPH totals*."

- Therefore, up to three background ground water samples should be collected in areas that are upgradient of the source and are not contaminated by the releases from the Site.

  Background ground water samples should be analyzed for NWTPH-Dx with and without the use of SGC. Because there should not be TPH present in the background ground water, the concentrations measured with SGC should be below the PQL. If that is the case, the concentrations measured without SGC could indicate the amount of naturally occurring organic matter.

  To provide an additional lines of evidence, background ground water samples should also be analyzed for total organic carbon (TOC) to compare with typical TOC in natural ground water. The chromatograms of the background ground water samples should be provided to demonstrate if the chromatograms match the diesel pattern.

- After obtaining the estimated amount of naturally occurring organic matter in Site ground water, this amount may be subtracted from the concentration that was measured without the use of SGC in a ground water sample. The adjusted concentration may be used to demonstrate compliance of the ground water sample.

- Ecology can provide technical assistance if needed.

- Additional ground water monitoring wells and ground water sampling is required to fully characterize the extent of the ground water contamination at the Site.

  - The concentrations of TPHd plus TPHo, measured without the use of SGC, remain above the MTCA Method A ground water cleanup level in the ground water samples collected from monitoring wells MW-1 and MW-2.

  - The concentrations of TPHd plus TPHo were above the MTCA Method A ground water cleanup level in the ground water samples collected from soil borings B-15 through B-17. Among them, soil borings B-16 and B-17 were located at the southwestern and southern edge of the Site, respectively.

- Recent ground water monitoring events suggested Site ground water flows to the south-southwest, with a component to the east. However, the ground water monitoring events on the adjacent Meeker Gas Station Former (facility ID 44681713) suggested ground water flows to the east-southeast. Additional ground water monitoring wells are needed to evaluate the variation in ground water flow directions at the Site.

- Therefore, additional ground water monitoring wells are needed south, southwest, and east of monitoring wells MW-1 and MW-2 to delineate the contaminated ground water plume and evaluate the ground water flow direction. Depending on the ground water sampling results, more ground water monitoring wells may be needed. Some of the monitoring wells may need to be installed on the West Meeker Street right-of-way south of the Property.

- The ground water samples should be analyzed for the required testing for unknown oil per Table 830-1 of the MTCA regulation, including TPHg, TPHd, TPHo, BTEX, ECB, EDC, total lead, cPAHs, PCBs, HVOCs, and naphthalenes.

- Eight ground water monitoring wells (MW1 through MW6, DP2, and DP5) were installed prior to 2003. Among them, monitoring wells MW3 through MW6 were decommissioned in 2017. The other four monitoring wells appeared to be paved over or destroyed.

  Additional work is needed to locate and decommission these monitoring wells in accordance with WAC 173-160-460, if possible. Please contact Noel Phillip at 425-649-7044 or noel.phillip@ecy.wa.gov for questions regarding locating and decommissioning the monitoring wells, or address the regulatory issues associated with the destroyed monitoring wells.

- The vapor intrusion pathway should be evaluated for the residual petroleum hydrocarbon and HVOCs contamination in soil and ground water. Please refer to the following Ecology guidance documents for conducting the vapor intrusion evaluation:

  - *Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action (Draft Guidance)*, Ecology Publication No. 09-09-047, October 2009, revised February 2016.

  - *Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion Implementation Memorandum No. 14*, Ecology Publication No. 16-09-046, March 2016.

- An Excel spreadsheet with revised groundwater, sub-slab soil gas, and deep soil gas screening levels (to replace Table B-1 in the 2009 *Draft Guidance*) available at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Vapor-intrusion-overview/Vapor-intrusion-2015-changes-to-the-2009-toxicit.

- Additional figures should be provided with the following information in a clear and readable manner and to scale:

  - A plan view map showing the Site boundary and Property boundaries (for both parcels), with the former dry cleaners layout.

  - Additional and revised cross-section(s) with the Site geologic and hydrogeologic information, including soil borings and ground water monitoring well locations, soil excavation limits and depths, soil and ground water sampling locations, depths, and analytical results. One cross-section should go through the southern Property boundary to show the residual soil and ground water contamination. The vertical scale should be elevation in feet, referenced to NAVD88 (rather than depth below ground surface).

  - Recent ground water monitoring results and ground water flow directions, with a Rose Diagram presenting all historic ground water flow directions and gradients.

- Ecology recommends submitting a work plan for additional Site characterization to ensure sufficient information will be collected to meet the substantive MTCA requirements.

2. Establishment of cleanup standards.

Soil

Cleanup levels. The Site does not meet the MTCA definition of an industrial property; therefore, soil cleanup levels suitable for unrestricted land use are appropriate. Because the Site has relatively few contaminants of concern, the MTCA Method A cleanup levels are appropriate for soil at the Site. These Method A soil cleanup levels are based on protection of ground water, per WAC 173-340-900, Table 740-1.

For contaminants that do not have a Method A cleanup level, Method B soil cleanup levels are appropriate. These contaminants include cis- and trans-1,2-dichloroethene (cis- and trans-1,2-DCE). These Method B soil cleanup levels are available in Ecology's *Cleanup Levels and Risk Calculation (CLARC)* database.

Soil cleanup levels protective of terrestrial ecological receptors are not necessary because the Site meets the terrestrial ecological evaluation (TEE) exclusion criteria in accordance with WAC 173-340-7491(1)(c). A TEE form was included in the *Remedial Investigation, Feasibility Study, and Cleanup Action Plan (RI/FS/CAP),* dated September 6, 2017, and was accepted by Ecology. There are less than 1.5 acres of contiguous undeveloped land on or within 500 feet of the Site.

Point of compliance. For soil cleanup levels based on the protection of ground water, the point of compliance is defined as Site-wide throughout the soil profile and may extend below the water table. This is the appropriate point of compliance for the Site.

Ground Water

Cleanup levels. Cleanup levels are set for ground water based on its potential use as a drinking water source. The MTCA Method A cleanup levels are appropriate for this purpose, and are selected as the cleanup levels for ground water at the Site. These Method A ground water cleanup levels are available in WAC 173-340-900, Table 720-1.

For contaminants that do not have a Method A cleanup level (e.g. cis- and trans-1,2-DCE), Method B ground water cleanup levels are appropriate. These Method B ground water cleanup levels are available in Ecology's *CLARC* database.

Point of compliance. The standard point of compliance for ground water is throughout the Site, from the uppermost level of the saturated zone extending vertically to the lowest depth which could potentially be affected. This is the appropriate point of compliance for the Site.

3. Selection of cleanup action.

Ecology has determined that the incomplete Site characterization does not allow a determination whether the cleanup action you selected for the Site meets the substantive requirements of MTCA.

The following cleanup activities been conducted at the Site, which are considered as interim actions:

- Excavation and removal of approximately 1,500 tons of PCE-contaminated soil from the Site in April and May 2002.

- Excavation and removal of a total of 2,169.33 tons of petroleum hydrocarbon-contaminated soil from the Site in February and March 2017.

- Excavation and removal of a total of 25.23 tons of PCE-contaminated soil from the Site in February and March 2017.

These interim actions appear to have removed a majority of the contaminated soil at the Site, and achieved positive effects toward a final cleanup goal. However, HVOC- and petroleum hydrocarbon-contaminated soil and ground water remain at the Site after these interim actions. The soil and ground water contamination has likely migrated beyond the southern Property boundary to the right-of-way to the south. The lateral and vertical extents of the soil and ground water contamination have not been fully delineated.

An appropriate cleanup action can be selected only after the Site is fully characterized and cleanup levels have been developed. The cleanup action selected must meet the minimum requirements in WAC 173-340-360(2), through completion of a feasibility study (FS) and disproportionate cost analysis (DCA).

4. Cleanup.

Ecology has determined that the incomplete Site characterization does not allow a determination whether the completed interim actions constitute a cleanup action and meet the substantive requirements of MTCA.

The *Groundwater Monitoring Report*, dated December 18, 2019, requested a No Further Action (NFA) determination. However, contaminated soil and ground water remain at the Site, and the lateral and vertical extents of the contamination have not been fully delineated. Additional Site characterization and cleanup actions are needed for Ecology to determine the effectiveness of Site cleanup and consider the NFA determination.

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) 649-7109 or email jing.song@ecy.wa.gov.

Sincerely,

Jing Song
Site Manager
NWRO Toxics Cleanup Program

Enclosures (1): A – Description and Diagrams of the Site

cc: Eric Koltes, TRC
Sonia Fernandez, Ecology VCP Coordinator, NWRO

Enclosure A

Description and Diagrams of the Site

Site Description

This enclosure provides Ecology's understanding and interpretation of Site conditions and forms the basis for the opinions expressed in the letter.

Site: The Meeker Cleaners Site is defined as TPHd, TPHo, PCE, and TCE released to soil, and TPHd and TPHo released to ground water at 1301 West Meeker Street in Kent, Washington (Property) (**Figure 1**). The Property consists of two King County parcels (number 5436200524 and 5436200526), which covers 9.8 acres of land on the northwest corner of the intersection of the Washington Avenue North and West Meeker Street. The Site impacted by the releases are on the southwest corner of parcel 5436200526, which may extend to the southeast corner of parcel 5436200524, and city of Kent right-of-way south of the Property (West Meeker Street). Currently the Site boundary is not fully defined.

Area and Property Description: The Property (the two parcels) are currently used as Meeker Square shopping center. The Meeker Square shopping center includes a department store (Big Lots), a pharmacy (Rite Aid), a dry cleaners (Meeker Cleaners), a self-serve garage, multiple restaurants (Ichi Teriyaki, Jimmy Johns, Egghole, and Emerald City Smoothie), and the Washington Department of Social Health and Welfare. The current Property layout is depicted on **Figure 2**.

The Property is located within a commercially zoned area in Kent. The Property is bounded to the east by Washington Avenue North. A shopping center (Crossgate Shopping Center) is located further east. The Property is bounded to the south by West Meeker Street. A Chevron-branded service station, and a few fast food restaurants (McDonald's, Burger King, and Taco Bell) are located further south. The Property is bounded to the north by West Smith Street, with multiple office buildings beyond. The Property is bounded to the west by apartment buildings and a church.

A second cleanup site, Meeker Gas Station Former (facility ID 44681713), is also located within the Meeker Square shopping center, approximately 170 feet east of the Meeker Cleaners Site. The Meeker Gas Station Former Site is addressed separately under a VCP number NW3167 and does not affect, and is not affected by, the Meeker Cleaners Site.

Property History and Current Use: The Meeker Square shopping center was constructed in 1966 with an addition in 1983. An additional two-tenant commercial building was completed in 1991 on the southern portion of the shopping center, where the former dry cleaners (Meeker Cleaners) operated from 1991 through the end of 1999. The historic address associated with the former dry cleaners are 1317 West Meeker Street, Suite H-1.

In 2000, dry cleaning operations stopped, the building was demolished, and the dry cleaner business was moved to 1313 West Meeker Street, which is also located in the Meeker Square Shopping Center. The current Meeker Cleaners operates as an active "drop stop" with no dry cleaning operation taking place on Property. The portion of the Property where the former Meeker Cleaners was located has been used for parking for the shopping center since

approximately 2000. The locations of the former Meeker Cleaners, and current Meeker Cleaners "drop off" service are depicted on **Figure 2**.

Sources of Contamination: Based on the Site investigations, two sets of contaminants of concern (COCs) are present at the Site: HVOCs (PCE, TCE, and VC) and petroleum hydrocarbons (TPHd and TPHo). The HVOC contamination was initially dissolved in 1996, and is associated with the former dry cleaning operations at the Site. The petroleum hydrocarbon contamination was initially discovered in 2014; the source of the petroleum hydrocarbon contamination is unknown.

Physiographic Setting: The Site is situated at an elevation of approximately 40 feet above mean sea level. The land surface in the immediate vicinity of the Site is relatively flat.

Surface/Storm Water System: The nearest surface water body is the Green River, located approximately 1,900 feet (0.35 miles) south of the Property. Surface water runoff on the Property is directed to catch basins across the Property, and along the southern and eastern Property boundaries on West Meeker Street and Washington Avenue North.

Ecological Setting: The area surrounding the Property is zoned for commercial uses. Land surfaces on the Property and adjacent properties are primarily covered by buildings and asphalt or concrete pavement with landscaped areas.

Geology: The Site is located in the Puget Sound Lowlands physiographic province, a broad north-south trending trough between the Olympic Mountains to the west and the Cascade Mountains to the east. Surficial geology is dominated by Pleistocene glacial alluvium with recent alluvium in river floodplains and mouths. Alluvial deposits are typically comprised of interbedded sands, silts, and gravels. The Site and the surrounding area is located within the Green River Valley, which is a low-lying valley filled with recent alluvium near the surface.

Subsurface soils encountered at the Site include gravelly sand fill material to approximately 1 to 2 feet bgs, followed by silty sand, poorly graded sand with varying amounts of silt, and silt with varying amounts of sand and gravels, to the maximum depth explored of 20 feet bgs. Soils encountered beneath West Meeker Street consist of silty sand to approximately 6 feet bgs, underlain by sandy silt to the maximum depth explored of 15 feet bgs.

Ground Water: Shallow ground water is present at the Site at depths ranging from approximately 4 to 5 feet bgs. The most recent ground water sampling events indicate ground water flows to the south-southwest, with a component to the east (**Figure 3**).

A total of 11 ground water monitoring wells have been installed at the Site. Among them, eight monitoring wells (MW1 through MW6, DP2, and DP5) were installed prior to 2003; information regarding the installation of these monitoring wells is not available for Ecology's review. The locations of these historic monitoring wells are depicted on **Figure 4**. Among them, monitoring wells MW3 through MW6 were decommissioned in 2017. The other four monitoring wells appeared to be paved over or destroyed.

Three additional monitoring wells (MW-1 through MW-3) were installed in July 2017. These monitoring wells were installed to a total depth of 15 feet bgs, and screened from 5 to 15 feet bgs (MW-1) or 3 to 13 feet bgs (MW-2 and MW-3). These monitoring wells are still present at the Site. The monitoring well locations are depicted on **Figure 3**.

Water Supply: Drinking water for the area is supplied by the City of Kent. The City of Kent obtains the drinking water from upland springs and wells located east of the Site on the Kent East Hill and from wells located in the Green River Valley north of the Site. The City of Kent also purchases water from City of Tacoma, which is sourced from the Green River watershed. None of these water supply sources are located within a 1-mile radius of the Property. The Property is also located outside of the 10-year time of travel wellhead protection area of all water supply wells.

According to Ecology's *Well Report* database, there are no water supply wells located within a 0.5-mile radius of the Property. The distance to the closest 10-year wellhead protection area (for East Hill Well 1) is approximately 1.2 miles east of the Property.

Release and Extent of Soil and Ground Water Contamination: Environmental Site investigations and remedial activities have been conducted at the Site since 1996. The soil and ground water sampling locations from 1996 to 2002 are depicted on **Figure 5**.

- **December 1996:** Five shallow soil samples were collected from four locations (1, 2, 3, and 4) inside and outside of the former dry cleaners building at depths between 2 and 5 feet bgs. A PCE concentration exceeded the MTCA Method A soil cleanup level in a soil sample collected at 2 feet bgs near the west end of the former dry cleaning machine inside the building (sample location 3).

- **February 2000:** Eight shallow soil samples were collected from six locations (SS1 through SS4, B3 and B4) inside and outside of the former dry cleaners building at depths between 0.5 and 5 feet bgs. Six out of the eight samples collected contained PCE concentrations above the MTCA Method A soil cleanup level: SS2 through SS4, B3 at 2 feet bgs, and B4 at 2 and 5 feet bgs.

- **March and April 2000:** Thirteen soil borings (DP1 through DP12, and DP15) were installed near the former dry cleaners building. Soil samples were collected from soil borings DP1, DP3, DP4, and DP6 through DP12 at depths between 3.5 and 10 feet bgs. Ground water samples were collected from all 13 soil borings. Except for DP8, soil samples collected from the other soil borings all contained PCE and/or TCE concentrations above the MTCA Method A soil cleanup levels. Ground water samples collected from soil borings DP4, DP7, DP9, and DP11 contained PCE and/or TCE concentrations above the MTCA Method A ground water cleanup levels.

- **April and May 2002:** Approximately 1,500 tons of PCE-contaminated soil was excavated and removed from the Site. Excavation was completed to a depth of 6 feet bgs, with slightly greater depths along the southern boundary and on the southeastern portion of the excavation.

A total of 38 soil samples were collected between 2 and 7 feet bgs. Two soil samples collected from the final excavation limits contained PCE and/or TCE concentrations above the MTCA Method A soil cleanup levels: C10-5' at 5 feet bgs and E10-5.5' at 5.5 feet bgs. Both soil samples were collected from the bottom of eastern portion of the excavation.

- **August 2014:** An activity was conducted to locate and survey eight previously installed monitoring wells MW1 through MW6, DP2, and DP5 (**Figure 4**). Among them, monitoring well DP2 and MW4 were found to be in poor condition. Only three monitoring wells (MW1 through MW3) were surveyed, inspected, and sampled. The ground water samples collected from monitoring wells MW1 and MW2 contained TPHd plus TPHo concentrations above the MTCA Method A ground water cleanup level. The ground water samples collected from monitoring wells MW2 and MW3 contained vinyl chloride (VC) concentrations above the MTCA Method A ground water cleanup level.

- **October and November 2015**: A total of 25 soil borings (B-11 through B-35) were installed at the Site. Among them, soil boring B-19 and B-20 are located on West Meeker Street. The soil boring locations are depicted on **Figure 6**.

  - A total of 77 soil samples were collected from these soil borings between 2 and 15 feet bgs. Soil samples were analyzed for TPHd and TPHo. Ten of the soil samples, collected from soil borings B-11 through B-20, were additionally analyzed for volatile organic compounds (VOCs).

  - A PCE concentration was detected above the MTCA Method A soil cleanup level in the soil sample collected at 5 feet bgs from soil boring B-13.

  - The TPHd plus TPHo concentrations were detected above the MTCA Method A soil cleanup level in the following soil samples: B-13, B-15, and B-16 at 5 feet bgs, B-24, B26, and B-34 at 2 and 4 feet bgs, B-28 and B-32 at 2 feet bgs.

  - A total of 13 ground water samples were collected from soil borings B-11 through B-23. All ground water samples were analyzed for TPHd and TPHo. Ten of the ground water samples, collected from soil borings B-11 through B-20, were additionally analyzed for VOCs.

  - The VC concentrations were detected above the MTCA Method A ground water cleanup level in soil borings B-15 and B-17. A cis-1,2-dichloroethene (cis-1,2-DCE) concentration was detected above the MTCA Method B ground water cleanup level in soil boring B-17.

  - The TPHd plus TPHo concentrations were detected above the MTCA Method A ground water cleanup level in soil borings B-15, B-16, and B-17.

- **February and March 2017:** Remedial excavations were performed at the Site.

  - A total of 2,169.33 tons of petroleum hydrocarbon-contaminated soil were removed from the Site. The excavation extended to 5 to 5.5 feet bgs. The remedial excavation limit and confirmational soil sampling locations for petroleum hydrocarbon contamination are depicted on **Figure 7**.

  - A total of 66 soil samples were collected during the excavation. Among them, a total of 38 soil samples were collected from the final excavation limits. All soil samples were analyzed for TPHd and TPHo. Among the final confirmational samples, three soil samples contained TPHd plus TPHo concentrations above the MTCA Method A soil cleanup level: a south sidewall sample at 3.5 feet bgs (B17-SSW-1:3.5), a south sidewall sample at 2 feet bgs (B13-SSW-1:2), and a west sidewall sample at 3 feet bgs (C7-WSW-1:3).

  - Additional excavation was conducted in two small areas to approximately 6 feet bgs to remove PCE-contaminated soil. An additional 25.23 tons of PCE-contaminated soil was removed from the Site. The excavation limit and confirmational soil sampling locations for PCE contamination are depicted on **Figure 8**.

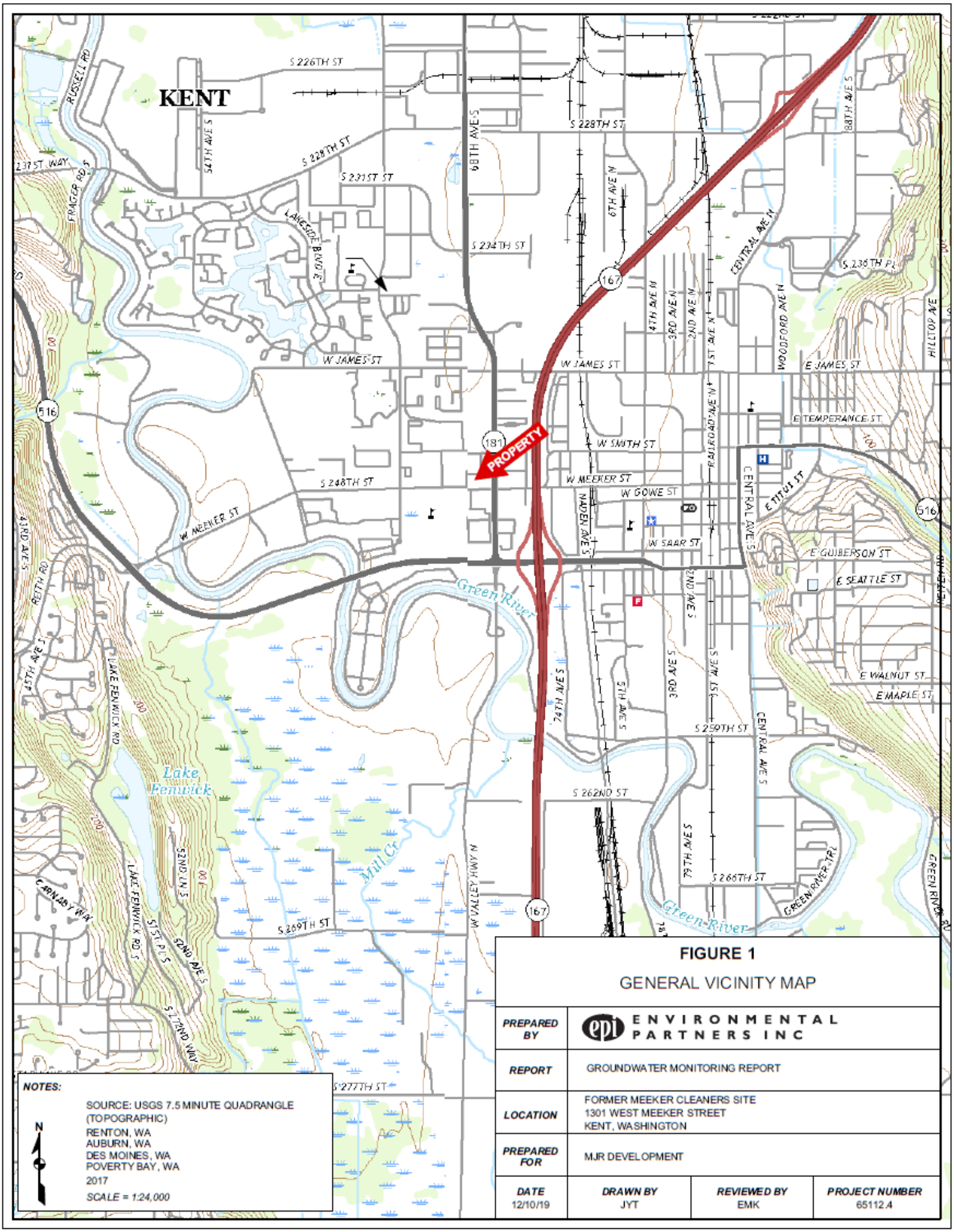
  - A total of 7 soil samples were collected from the final PCE excavation limits. All 7 soil samples were analyzed for VOCs. All VOC concentrations were below the MTCA Method A soil cleanup levels.

- **July 2017 to October 2018:** Three monitoring wells MW-1 through MW-3 were installed at the Site in July 2017 (**Figure 3**). Quarterly ground water monitoring was performed at these three monitoring wells from July 2017 to October 2018. A VC concentration exceeded the MTCA Method A ground water cleanup level in monitoring well MW-2 in October 2017. As of October 2018, HVOCs concentrations have been below the MTCA Method A ground water cleanup levels for four consecutive quarters in all three monitoring wells. However, TPHd plus TPHo concentrations were still above the MTCA Method A ground water cleanup level in monitoring wells MW-1 and MW-2.

- **November 2019:** Ground water samples were collected from monitoring wells MW-1 and MW-2. The ground water samples were analyzed for BTEX, fuel additives, total naphthalenes, EPH, VPH, and hexane. All concentrations were below the PQL.

Site Diagrams

Enclosure A: Figure 1



NOTES:

SOURCE: USGS 7.5 MINUTE QUADRANGLE (TOPOGRAPHIC)
RENTON, WA
AUBURN, WA
DES MOINES, WA
POVERTY BAY, WA
2017
SCALE = 1:24,000

N

FIGURE 1

GENERAL VICINITY MAP

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	GROUNDWATER MONITORING REPORT		
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 12/10/19	**DRAWN BY** JYT	**REVIEWED BY** EMK	**PROJECT NUMBER** 65112.4

Enclosure A: Figure 2

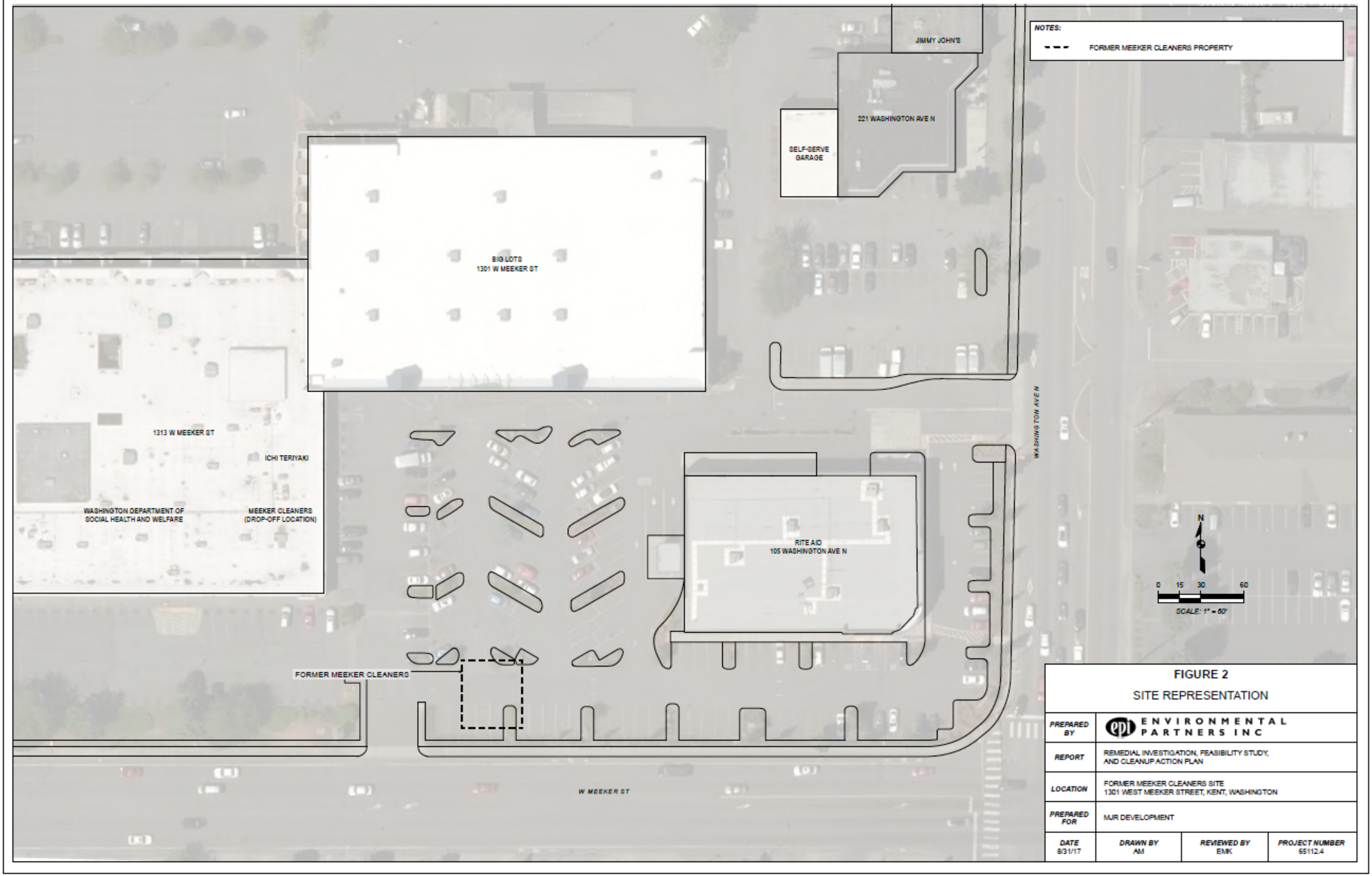


FIGURE 2

SITE REPRESENTATION

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN		
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET, KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 8/31/17	DRAWN BY AM	REVIEWED BY EMK	PROJECT NUMBER 65112.4

Enclosure A: Figure 3

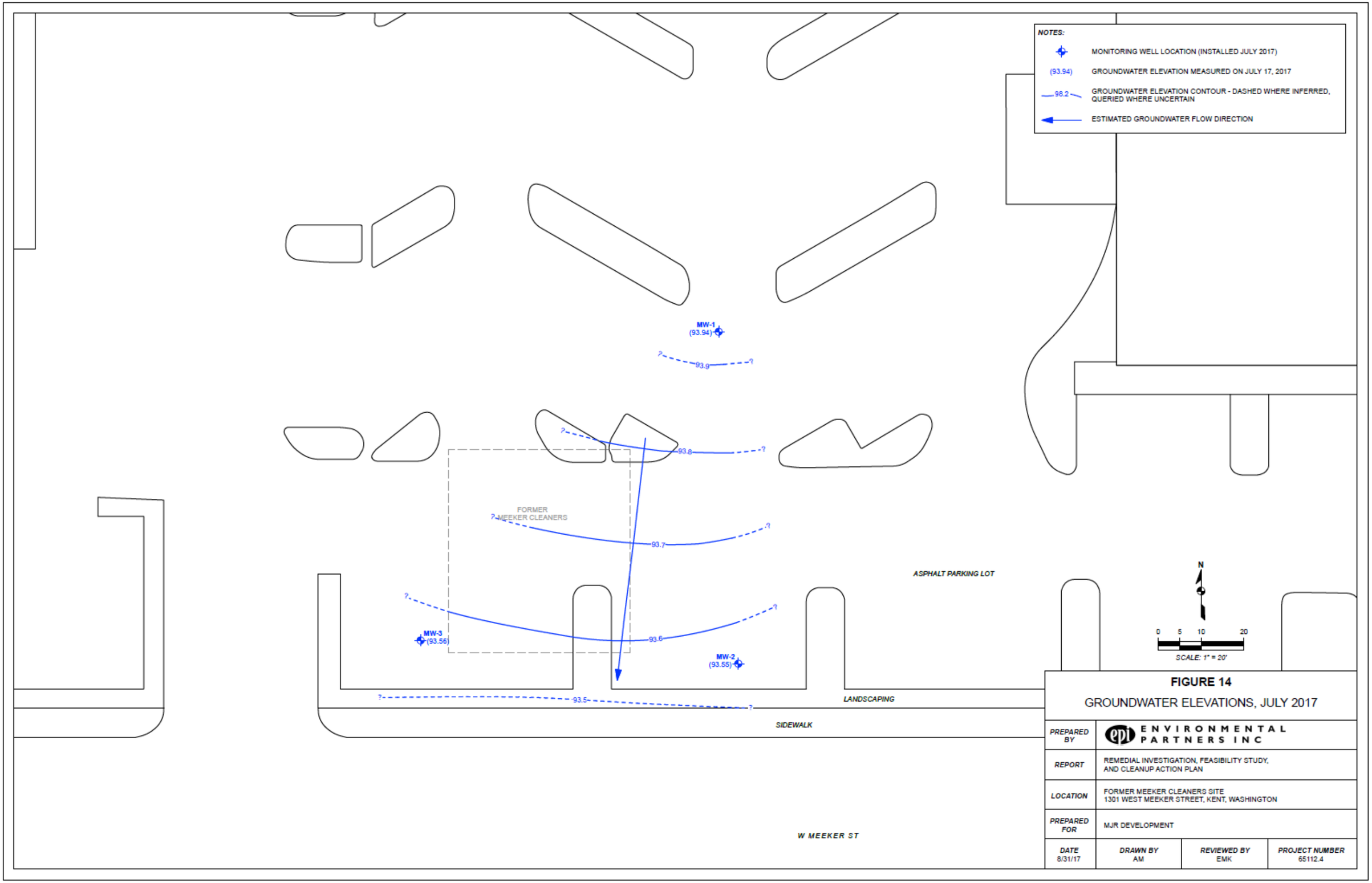


FIGURE 14

GROUNDWATER ELEVATIONS, JULY 2017

PREPARED BY	EPI ENVIRONMENTAL PARTNERS INC		
REPORT	REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN		
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET, KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 8/31/17	DRAWN BY AM	REVIEWED BY EMK	PROJECT NUMBER 65112.4

Enclosure A: Figure 4

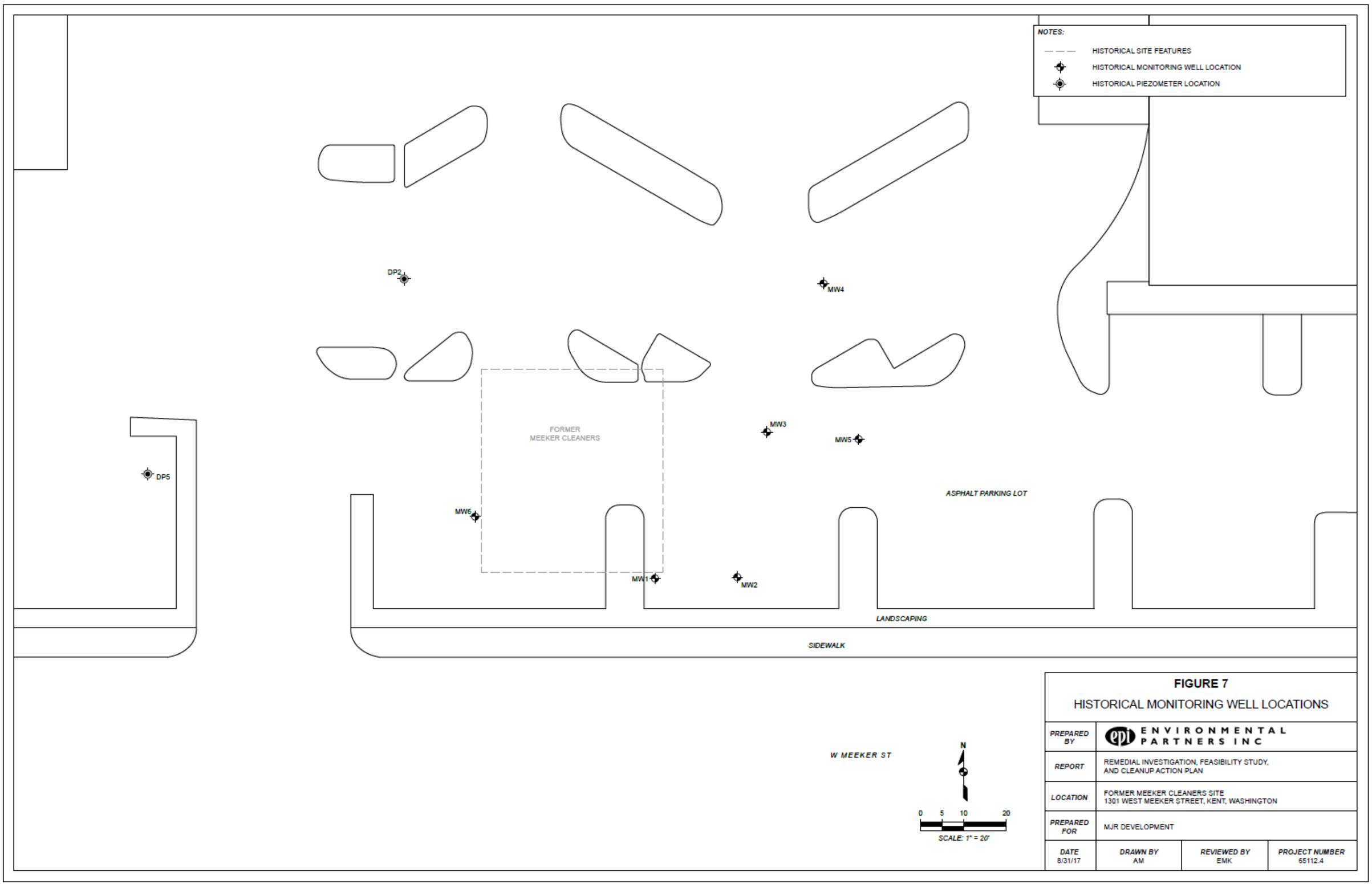


FIGURE 7

HISTORICAL MONITORING WELL LOCATIONS

PREPARED BY	epi ENVIRONMENTAL PARTNERS INC		
REPORT	REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN		
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET, KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 8/31/17	DRAWN BY AM	REVIEWED BY EMK	PROJECT NUMBER 65112.4

Enclosure A: Figure 5

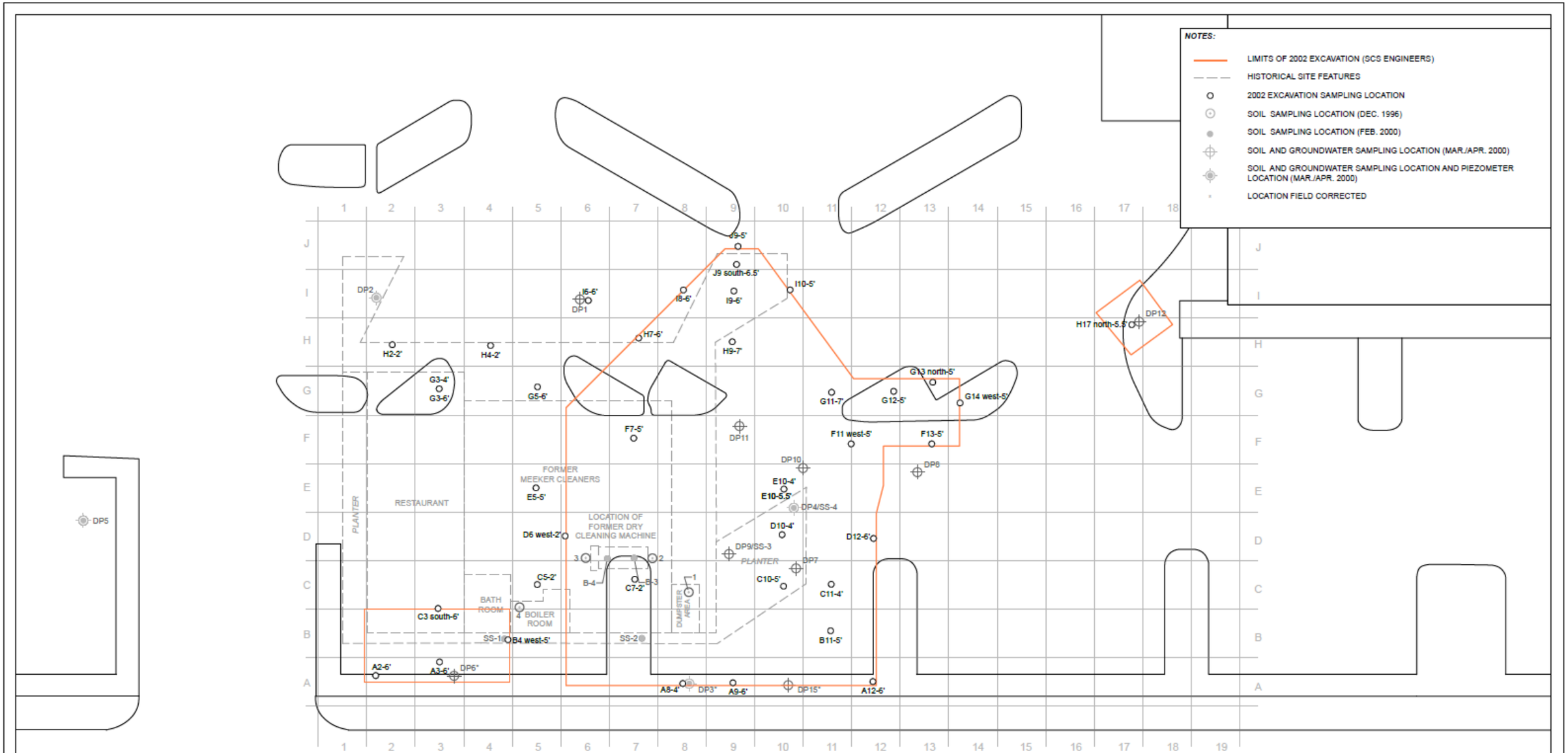


FIGURE 5
2002 REMEDIAL EXCAVATION SAMPLING LOCATIONS

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN		
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET, KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 9/6/17	DRAWN BY AM	REVIEWED BY EMK	PROJECT NUMBER 65112.4

Enclosure A: Figure 6

ICHI TERIYAKI

MEEKER CLEANERS
(DROP-OFF LOCATION)

NOTES:

- LIMITS OF 2002 EXCAVATION (SCS ENGINEERS)
- APPROXIMATE SOIL BORING LOCATIONS (2015 INVESTIGATION)
- 2002 FINAL CONFIRMATION SAMPLING LOCATION
- SOIL SAMPLING LOCATION (DEC. 1996)
- SOIL AND GROUNDWATER SAMPLING LOCATION (MAR./APR. 2000)
- SOIL AND GROUNDWATER SAMPLING LOCATION AND PIEZOMETER LOCATION (MAR./APR. 2000)
- GREEN — INDICATES SOIL SAMPLING LOCATION WITH ALL CONTAMINANT CONCENTRATIONS LESS THAN THE APPLICABLE CLEANUP LEVELS
- RED — INDICATES SOIL SAMPLING LOCATION WITH ONE OR MORE CONTAMINANT CONCENTRATIONS EXCEEDING THE APPLICABLE CLEANUP LEVELS

SAMPLE IDENTIFICATION

B-13

DEPTH	DRO	ORO	PCE
5	310 x	4,000	0.072

BOLD INDICATES COMPOUND WAS DETECTED

SHADED CELL INDICATES THAT COMPOUND WAS DETECTED AT A CONCENTRATION GREATER THAN THE CLEANUP LEVEL

X - THE SAMPLE CHROMATOGRAPHIC PATTERN DOES NOT RESEMBLE THE FUEL STANDARD USED FOR QUANTITATION.

DRO DIESEL-RANGE ORGANICS
ORO OIL-RANGE ORGANICS
PCE TETRACHLOROETHENE

ALL RESULTS PRESENTED IN MILLIGRAMS PER KILOGRAMS (mg/kg)

B-11 B-85 B-21 B-31 B-22 B-12 B-32 B-33 B-34 B-14 B-35 B-23 B-29 B-27 B-16 B-26 B-24 B-17 B-18 B-36 B-19 B-20

B-32

DEPTH	DRO	ORO	PCE
2	85 x	2,200	NA
4	<50	<250	NA
6	<50	<250	NA
8	<50	<250	NA
10	<50	<250	NA
15	<50	<250	NA

B-13

DEPTH	DRO	ORO	PCE
5	310 x	4,000	0.072

B-34

DEPTH	DRO	ORO	PCE
2	190 x	3,600	NA
4	200 x	3,600	NA
6	<50	<250	NA
8	<50	<250	NA
10	<50	<250	NA

B-15

DEPTH	DRO	ORO	PCE
5	260 x	4,700	0.026

E10-5.5' (4/11/02)

DEPTH	DRO	ORO	PCE
5.5	--	--	0.44

B-36

DEPTH	DRO	ORO	PCE
2	270 x	4,300	NA
4	290 x	4,600	NA
6	<50	<250	NA
8	<50	<250	NA
10	<50	<250	NA
15	<50	<250	NA

B-16

DEPTH	DRO	ORO	PCE
5	300 x	3,200	NA

C10-5' (4/10/02)

DEPTH	DRO	ORO	PCE
5	--	--	0.33

B-24

DEPTH	DRO	ORO	PCE
2	490 x	4,200	NA
4	330 x	4,800	NA
6	<50	<250	NA
8	<50	<250	NA
10	<50	<250	NA
15	<50	<250	NA

B-26

DEPTH	DRO	ORO	PCE
2	200 x	2,600	NA
4	<50	<250	NA
6	<50	<250	NA
8	<50	<250	NA
10	<50	<250	NA

J9-5' J9 south-5.5' I10-5' I8-6' I6-6' H7-6' H2-2' H4-2' G3-4' G3-5' G5-6' G11-7' G13 north-5' G14 west-5' F13-5' E5-5' D6 west-2' D12-6' C10-5' C3 south-6' B4 west-5' A2-6' A8-5' A9-5' A12-5' H17 north-5.5' DP2 DP8 DP5

W MEEKER ST

N

0 7.5 15 30

SCALE: 1" = 30'

FIGURE 8
SOIL SAMPLING LOCATIONS AND ANALYTICAL RESULTS, 2015 INVESTIGATION

PREPARED BY	ENVIRONMENTAL PARTNERS INC
REPORT	REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET, KENT, WASHINGTON
PREPARED FOR	MJR DEVELOPMENT

DATE	DRAWN BY	REVIEWED BY	PROJECT NUMBER
9/6/17	AM	EMK	65112.4

Enclosure A: Figure 7

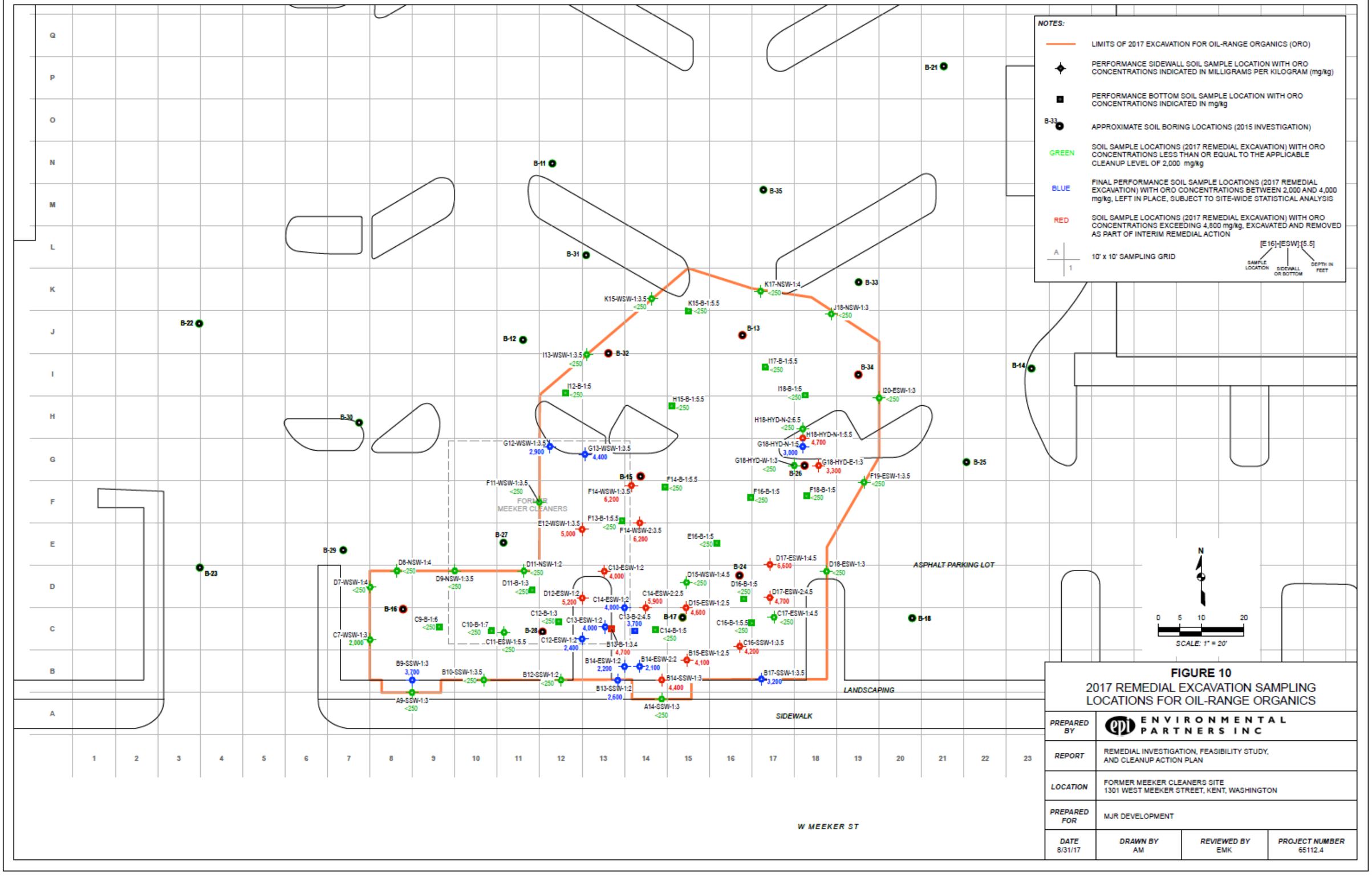


FIGURE 10
2017 REMEDIAL EXCAVATION SAMPLING LOCATIONS FOR OIL-RANGE ORGANICS

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN		
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET, KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 8/31/17	DRAWN BY AM	REVIEWED BY EMK	PROJECT NUMBER 65112.4

Enclosure A: Figure 8

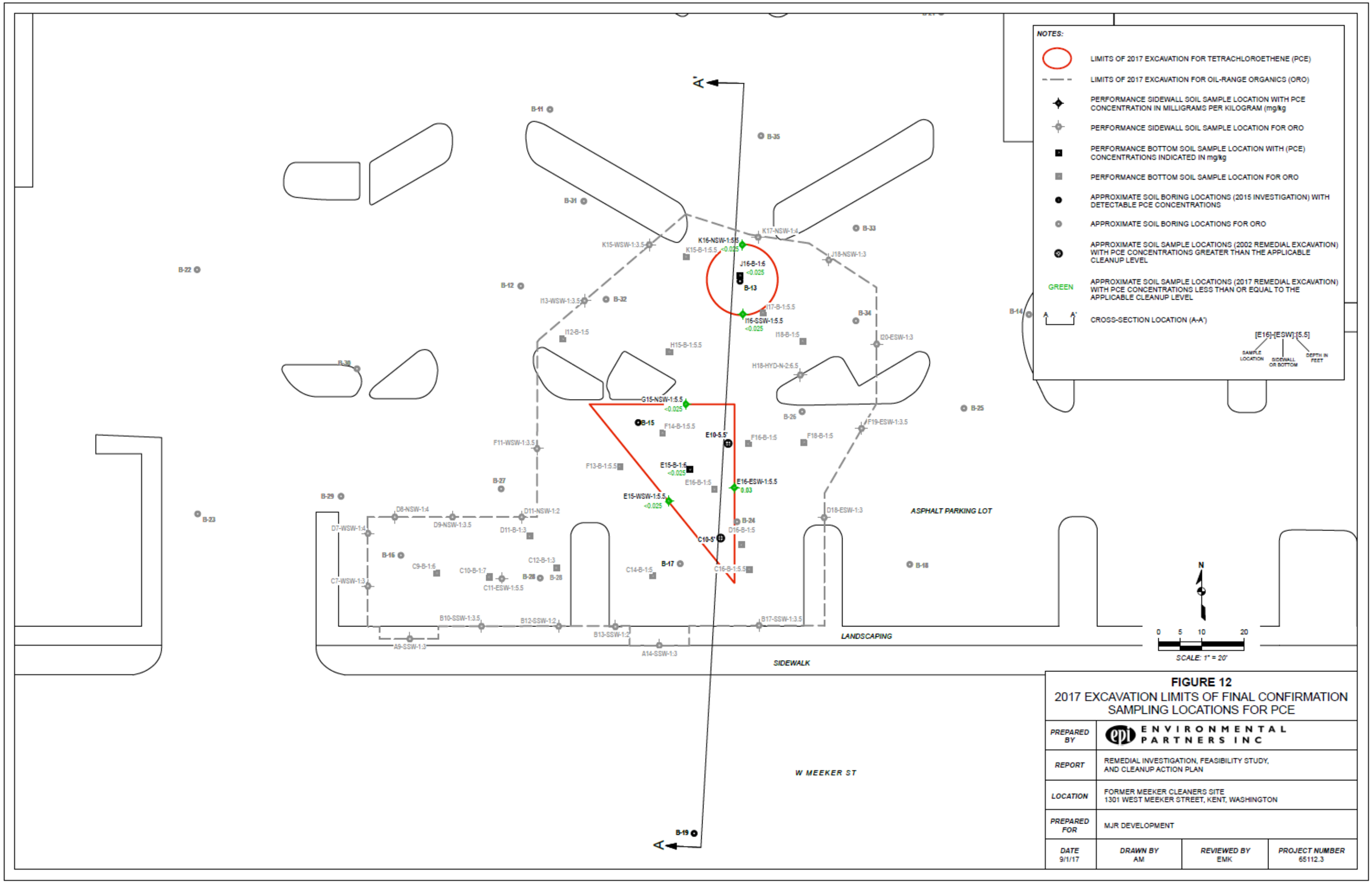


FIGURE 12
2017 EXCAVATION LIMITS OF FINAL CONFIRMATION SAMPLING LOCATIONS FOR PCE

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND CLEANUP ACTION PLAN		
LOCATION	FORMER MEEKER CLEANERS SITE 1301 WEST MEEKER STREET, KENT, WASHINGTON		
PREPARED FOR	MJR DEVELOPMENT		
DATE 9/1/17	DRAWN BY AM	REVIEWED BY EMK	PROJECT NUMBER 65112.3