



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

# **Cleanup Action Plan Amendment 1**

Hamilton Street Bridge Site

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**111 North Erie Street, Spokane**

Facility Site ID 84461527, Cleanup Site ID 3509

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## Contact Information

Washington State Department of Ecology  
Toxics Cleanup Program, Eastern Region  
4601 North Monroe Street  
Spokane, WA 99205

Christer Loftenius, site manager  
Phone: 509-329-3543  
Email: christer.loftenius@ecy.wa.gov

Erika Beresovoy, public involvement coordinator  
Phone: 509-329-3546  
Email: erika.beresovoy@ecy.wa.gov

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<sup>1</sup> <https://fortress.wa.gov/ecy/gsp/CleanupSiteDocuments.aspx?csid=3509>

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# 1 Introduction

This document is the Washington State Department of Ecology's (Ecology) first Amendment to the Cleanup Action Plan (CAP) for the Hamilton Street Bridge Site (Site).

In 2002, Ecology and two potentially liable persons (PLPs), Avista Corporation and BNSF Railway Company (BNSF) entered into Consent Decree No. 02205445-0 (Decree) to implement the CAP. Ecology issued an Enforcement Order to Spokane River Properties LP/Brown Building Materials to implement the CAP. The cleanup action consisted of streambank bioengineering, a limited soil cap, natural attenuation, groundwater monitoring, institutional controls, stormwater management, and long-term monitoring. The Site is shown in the figure found in the Consent Decree, Exhibit A.

Sagamore Spokane LLC (Sagamore) has entered into a purchase agreement to acquire property generally located at 111 North Erie Street in Spokane (Property). The Property contains a portion of the Site. The Property, with Spokane County parcel numbers and Site boundaries, is shown in Figure 1.

The preliminary redevelopment plan for the Property consists of construction of four residential buildings:

**Building 1A** is proposed to be located in the northeast quadrant of the Site. It will also be up to four stories of residential units and will have a footprint of approximately 16,000 square feet (sf). Based on subsurface conditions at the Site, Building 1A will be founded on a shallow mat foundation.

**Building 1B** is proposed to be located in the northwest quadrant of the Site. It will be up to four stories of residential units and will have a footprint of approximately 16,000 sf. Building 1B will be founded on a shallow mat foundation.

**Building 2A** is proposed to be located in the southeast quadrant of the Site. It will be up to four stories of residential units over two levels of parking and will have an approximate 33,000 sf footprint. Based on subsurface conditions at the Site, Building 2A will be founded on deep foundations. Approximately 540 piles will be installed under this building to a depth of about 40 feet below ground surface (bgs).

**Building 2B** is proposed to be located in the southwest quadrant of the Site. It will be up to seven stories of residential units with a footprint of approximately 12,000 sf and founded on deep foundations. Approximately 216 piles will be installed under this building to a depth of about 40 feet bgs.

All of the buildings will be constructed at-grade. Figure 2 shows the building footprints, and Figure 3 shows the planned pilings within the Site.

The cleanup action within the Property as described in this CAP Amendment will be performed in accordance with the Prospective Purchaser Consent Decree between the State of Washington and Sagamore. The cleanup actions detailed in this CAP Amendment

will be implemented to protect and enhance the original cleanup action and ensure that human health and the environment are protected.

## 2 Site Background

The Site (Figure 1) has an industrial history ranging from the early 1900s to the 1960s. The Site is currently an open, flat, undeveloped area with two stormwater infiltration basins to the northeast and west, respectively. Site buildings have been removed. The Site is bounded by the Spokane River to the north, Erie Street to the east, a BNSF rail line to the south, and undeveloped land to the west. The Site includes parcels owned by Brown Properties LLC, River Bend Property Owners Association, BNSF, and the City of Spokane. The Site is partially fenced, and the PLPs regularly monitor several groundwater wells as part of the cleanup action.

The ground surface within the Property consists of an engineered soil cap comprised of 2 feet of soil covered with a 0.5-foot layer of gravel. The engineered soil cap was installed at portions of the Site to prevent direct contact with contaminated soil, as part of the cleanup action specified in the CAP. Below the cap and in other areas of the Site, fill materials consisting of rubble and debris from the former manufactured gas operations range in thickness from 2.5 feet to approximately 30 feet, and are thickest on the western portion of the Site and near the river.

### 2.1 History

The Site has been used for gas manufacturing, coal tar processing, railroad operations, roads, and retail from 1905 until 2005. The Property portion of the Site consists of two parts: one formerly owned and operated by the Spokane Natural Gas Company and the other by the Chicago Milwaukee & Saint Paul Railroad (CM&SPR). Between 1905 and 1948, the Spokane Natural Gas Company operated the Spokane Gas Plant (SGP) to manufacture coal gas and carbureted water gas. In 1948, the plant began using a propane-air system for gas mixing, storage, and distribution, which operated until natural gas became available. In 1958, the Spokane Natural Gas Company merged with the Washington Water Power Company (WWP). WWP stored and dispersed natural gas at the Site until 1962 or 1963. Richard Brown leased the SGP property from 1963 to 1978 and operated Brown Building Materials at the property. He purchased the SGP portion of the Property in 1978.

CM&SPR owned the riverfront part of the Property, on which they constructed a rail line circa 1911. The rail line extended along the southern riverbank to a railroad tunnel within the basalt embankment on the west side of the Site. Records indicate that during rail line construction, fill materials were deposited into the river and the Spokane River shoreline was modified to its present configuration.

American Tar Company (ATC) operated on two parcels leased from BNSF. The coal tar operation is believed to have started concurrently with the SGP in approximately 1905 and

continued to formulate or distribute products until 1967. The C.G. Betts Company processed coal tar until the early 1930s, when ATC took over operations. They produced a variety of hydrocarbon-based products and intermediaries, including roofing tar, boat pitch, post paint, and naphthalene. ATC leased the parcels from BNSF until 1967. Mr. Richard Brown began leasing the parcels from BNSF in 1968. Mr. Eric Brown leased the parcels when the CAP was implemented between 2001 and 2003.

The Site has been vacant since 2005, and is partially fenced to the south and west. In 2013, the Spokane County Tax Assessor's Office completed a merge and segregation (#20120804) of three parcels (Tax ID nos. 35174.0575, 35174.0506, and 35174.0016), and segregated them into nine parcels. Brown Properties LLC currently owns five of these parcels (Tax ID nos. 35174.0601 through 35174.0605) and River Bend Properties Owners Association currently owns the remaining four parcels (Tax ID nos. 35174.0606 through 35174.0611). In 2016, portions of parcel nos. 35174.0605 through 35174.0608 were dedicated to the City of Spokane for the construction of Martin Luther King Junior (MLK Jr.) Drive. All of parcel no. 35174.0609 was dedicated to the City for constructing MLK Jr. Drive. In 2019, parcel segregation (#20180722) adjusted River Bend Properties Owners Association's parcel No. 35174.0608 boundaries and changed its parcel number to Tax ID No. 35174.0611.

## **2.2 Cleanup actions and contaminants**

The first cleanup action was conducted between July 5 and October 25, 2005 in general accordance with the Engineering Design Report prepared under the CAP. Current indicator hazardous substances (IHSs), cleanup levels (CULs), and points of compliance are those defined in the CAP. The main IHSs found at the Site are polycyclic aromatic hydrocarbons (PAHs), of which the most critical PAHs are those determined to be carcinogenic (cPAHs). The CAP identified a total cPAH CUL of 1.0 milligrams per kilogram (mg/kg) for the Site. The approximate extent of cPAHs exceeding the Site CUL is shown in Figure 1. The cleanup action included capping contaminated material and soils with a clean soil cap mantled with crushed rock, installing groundwater monitoring wells, and performing groundwater compliance monitoring. All contaminated materials and soils have been covered with the soil and crushed rock cap, which is still intact at the Site. Currently, semi-annual groundwater compliance monitoring is conducted at the Site.

The current Site IHSs are listed in the CAP, and consist of petroleum hydrocarbons, semi-volatile organic compounds, PAHs, and inorganic compounds including cyanide, arsenic, barium, lead, mercury, and selenium.

Since no buildings were present on the Site, indoor air was not evaluated as an exposure pathway in the CAP. With the planned development, potential indoor air exposure will be monitored and evaluated in accordance with the Ecology vapor intrusion guidance and implementation memoranda.

## **2.3 Property investigations and monitoring**

In preparation for the Property transaction, geophysical and soil vapor investigations were completed. Test pits were also dug in search of remaining building foundations.

### **2.3.1 Geophysical investigation**

A geophysical investigation was performed on the Property in June 2019 to determine whether foundations and structures from past operations remain (Aspect, 2020a). Buried foundations and structures may be locations where free tar or other contaminants are present.

The geophysical investigation included a combination of seismic, magnetic, electromagnetic, and resistivity surveys. The results from the survey indicated that buried foundations and structures are present within the Property.

### **2.3.2 Test pits**

Based on historical records and the results from the geophysical investigations, nine test pits were excavated to determine whether foundations remain at the Property (Aspect, 2020b). Excavations were performed at the locations of the two former gasholders, the pump and compressor house, and the gas condensing and purification building. The test pits revealed that all the foundations remain in place. The foundations appear to be stained and contaminated with tarry material. The engineered soil cap currently covers the foundations and overlying tar-containing material.

Soil samples collected in five test pits near the proposed northeastern stormwater infiltration basin completed as part of a separate investigation indicated soil contains IHS substances above Site CULs. The stormwater management design must account for this identified contamination.

### **2.3.3 Soil-vapor investigation**

Soil vapor was collected from four locations at approximately 9.5 feet bgs within the footprints of three of the planned buildings (Aspect, 2020b). Two other planned locations including a background location were not completed due to drilling refusal. Benzene and naphthalene soil vapor concentrations were detected above Ecology's guidance screening levels (Ecology, Jan. 2020) in two of the soil vapor samples. The potential for vapor intrusion will be addressed during construction and the identified screening levels will be used to evaluate the need for additional soil vapor mitigation.



## **3 Project Remedial Actions**

The approximate footprint of cPAH contamination on the Property as depicted in the original CAP is approximately 2.5 acres, with 0.9 of those acres being underneath the Hamilton Street Bridge. The approximate footprint of hardscape overlying the approximate cPAH contamination footprint in the preliminary development plan for the Project is 1.7 acres. The remedial actions outlined in the CAP Amendment will address and prevent potential exposure of future Property residents to contaminated soil and soil vapor.

### **3.1 Remedial action objectives**

The remedial action objectives (RAOs) are defined to protect human health and the environment by eliminating, reducing, or otherwise controlling risks associated with completed exposure pathways and are as follows:

1. Prevent human exposure (direct contact, ingestion, and inhalation) to contaminated soils and soil vapor at the Site.
2. Minimize the leaching of contaminants from soils to groundwater and surface water.
3. Prevent erosion of impacted soils to the Spokane River.
4. Prevent ingestion of and exposure to contaminated groundwater.
5. Prevent changes in hydrogeological conditions that may cause migration of contaminated groundwater to the Spokane River or to areas outside the Site.
6. Ensure stormwater does not affect the Spokane River.
7. Ensure that the planned pilings do not affect groundwater adversely.
8. Protect indoor air in residential structures from potential vapor intrusion in accordance with Ecology vapor intrusion guidance and screening levels.

Sagamore will redevelop the Property for residential use, thus an RAO for indoor air is added to this CAP Amendment.

### **3.2 MTCA threshold criteria**

The selected cleanup actions must meet minimum threshold criteria as defined in WAC 173-340-360(2)(a). These threshold criteria and the CAP Amendment adherence to these criteria are described below.

#### **3.2.1 Protection of human health and the environment**

Ecology concludes that the cleanup actions provided for in the CAP Amendment as part of the Property redevelopment are protective of human health and the environment through containment and institutional controls and conform to the objectives set forth in the CAP.

Additional cleanup actions outlined in this CAP Amendment will enhance existing cleanup components by:

- Enhancing the soil cover with hard surfaces to prevent direct exposure to soil contamination on the former SGP property.
- Increasing the Property hardscape from 0 percent to 76 percent and controlled landscaping practices such as xeriscaping to reduce water infiltration.
- Installing a passive vapor intrusion system, which can be converted to an active vapor intrusion system.
- Removing building rubble, tarry materials, lime waste, and organic waste within Building 2A and 2B footprints around planned piling locations.
- Managing stormwater to reduce infiltration into contaminated soils and minimize the potential for contaminants leaching to groundwater.
- Recording new environmental covenants to restrict future uses by protecting the cleanup action and ensuring the protection of human health and the environment.
- Using helical grout piling methods as described in the Engineering Design Report to minimize the potential for contaminant cross-contamination. Use of any other piling methods must be discussed with Ecology before piling installation starts.

The potential for vapor intrusion will be further assessed in accordance with Ecology's vapor intrusion guidance document (Ecology, 2018). The proposed residential buildings will have vapor intrusion mitigation and be monitored to protect from the potential of soil vapor intrusion.

Contaminated materials and soil encountered during construction, including soils and materials found on top of existing building slabs, will be excavated and disposed off-site at an appropriate facility in accordance with all applicable federal, state, and local regulations.

Inspections and maintenance of the soil cover and stormwater conveyance structures outside the Property are not part of this CAP Amendment and are covered in the CAP. The PLPs will continue to provide Ecology an annual oversight and maintenance report per the CAP and Decree.

Buildings 2A and 2B will be founded on grouted helical pilings. Grouted helical pilings will be emplaced in the underlying soil, and as the pile is advanced, the grout follows the pile advancement forming a grout column around the pile. This technique limits subsurface disturbance and the potential to exacerbate or cause a contaminant release. If Sagamore proposes to use other piling methods, Sagamore must first demonstrate to Ecology that the changes to piling methods will not adversely affect groundwater or other Site conditions.

The Site contaminants — metals, PAHs, and heavy petroleum hydrocarbons — have limited solubility and mobility under current geochemical conditions. The contaminants have been present at the Site for over 60 years and have not exceeded groundwater CULs at the Site boundaries. It is not anticipated that the planned development activities will cause that to change. To ensure the development activities do not exacerbate or cause contaminant migration, monitoring wells will be installed near buildings 2A and 2B to monitor groundwater conditions before, during, and after piling emplacement and building construction. Groundwater monitoring procedures are discussed in Section 3.5.

Extra care will be taken where pilings are to be installed within areas that historically have contained tar and tar residue, such as the small gasholder and the central tar sump source areas.

The material in the upper 2 feet of the current soil cap may be reused as clean fill without sampling unless the material has been impacted by contaminated material. Imported clean fill from a certified source may also be used without any prior sampling. Ecology will review and approve fill from other sources before import of the fill. Ecology may require testing of the fill and will determine the testing parameters based upon the source of the planned fill. Non-certified imported fill must be tested following the sampling frequency requirements in Table 1. The minimum analytical criteria for clean soils are based on Site CULs; other criteria may be applied depending on the fill source.

**Table 1. Typical No. of Samples to Adequately Characterize Stockpiled Soil**

Cubic Yards	No. of Samples for Chemical Analysis
0 – 100	3
101 – 500	5
501 – 1,000	7
1,001 – 2,000	10
>2,001	10 + 1 for each additional 1,000 cubic yards

Ecology, 2016: *Guidance for Remediation of Petroleum-Contaminated Sites*, Publication 10-09-057.

### 3.2.2 Compliance with cleanup standards

Soil CULs have not been met at the Site. A containment remedy was implemented for the Site consistent with the requirements of WAC 173-340-740(6)(f) for cleanup actions using containment of hazardous substances. The CAP Amendment will enhance the existing cleanup action and will continue to comply with cleanup standards.

Groundwater CULs will be met at the points of compliance as defined in the CAP. The need for additional cleanup actions, if required, would be identified in Ecology’s periodic reviews, which occur every five years.

### **3.2.3 Compliance with applicable federal and state regulations**

The Applicable, Relevant, and Appropriate Requirements (ARARs) identified in the CAP are still applicable in this CAP Amendment, including but not limited to the Shoreline Conditional Use and State Environmental Policy Act requirements. Construction will be conducted under the requirements of an Ecology National Pollutant Discharge Elimination System construction stormwater general permit. Additional local rules will be complied with through the City of Spokane's Substantial Development Permit.

Any handling and disposing of contaminated soils generated during the CAP Amendment implementation will be conducted in compliance with the disposal facility's requirements.

### **3.2.4 Provide for compliance monitoring**

The cleanup action includes long-term compliance monitoring including operations and maintenance (O&M) of any installed remedial structures. Ongoing groundwater monitoring will not be affected by the cleanup action within the Property. An O&M Plan addendum and a Compliance Monitoring Plan addendum that includes future O&M property activities, groundwater monitoring, and soil gas monitoring within the Property will be prepared in accordance with the requirements of WAC 173-340-410 and 173-340-400(4)(c).

## **3.3 Stormwater management**

The cleanup action will improve stormwater management on the Property by significantly reducing infiltration within areas of soil contamination and preventing discharge of any contaminated stormwater to the Spokane River. Stormwater from the buildings and hardscapes will be routed to new drywells or the stormwater retention pond outside areas with contaminated soil. Sagamore must demonstrate to Ecology that its stormwater retention and infiltration design will prevent stormwater contact with contaminated soil.

## **3.4 Soil-vapor mitigation**

Soil-vapor intrusion will be addressed during Property development. Based on current plans, buildings 1A, 1B, and 2B will include soil-gas venting structures to prevent soil vapors from accumulating and potentially intruding into the buildings. Because the two lower floors of Building 2A will be parking, no soil-gas diversion structures are required in Building 2A. However, the parking heating and ventilation system will be designed for an adequate air exchange rate to minimize the potential for upward vapor migration to residential floors. The final soil-vapor mitigation system will be presented in future engineering design plans submitted to Ecology.

## **3.5 Compliance-monitoring and maintenance**

A Compliance Monitoring Plan addendum will be submitted to Ecology for review and approval. The additional monitoring requirements will include:

- On-Property cover inspections and maintenance
- Inspections and maintenance of stormwater conveyance structures serving Sagamore's development
- Documentation of any changes in the cover and stormwater system serving Sagamore's development
- Property soil-vapor monitoring
- Groundwater monitoring adjacent to the piles at buildings 2A and 2B

Upon completion of the project and the subsurface vapor-mitigation structures under buildings 1A, 1B, and 2B, monitoring of the sub-slab gravel layer will take place in accordance with Ecology's soil vapor intrusion guidance (Ecology, 2018). If the monitoring indicates that the sub-slab vapor concentrations exceed Ecology's sub-slab Method B screening levels (Ecology, Jan. 2020), then active mitigation will be necessary.

A separate O&M plan addendum will also be submitted to Ecology for review and approval. The O&M plan addendum will specify the reporting requirements for the new long-term O&M of the hard surfacing, stormwater structures, and any other structures protecting human health and the environment that are part of Sagamore's development. The current long-term Site O&M requirements will continue in accordance with the CAP.

Groundwater will be monitored quarterly for Site IHSs as identified in the CAP at two wells installed adjacent to the pilings beneath buildings 2A and 2B. The monitoring will take place prior to and during the construction period and for at least two years after construction completion. The purpose is to monitor the potential effects of piling installation. Eight groundwater sampling events will be scheduled, including one baseline event before the piling installation. The analytical parameters will be the same as the Site compliance monitoring: cPAH, fourteen non-cPAH, dissolved arsenic, total arsenic, total mercury, and weak acid dissociable cyanide. In addition, beyond these parameters, groundwater will also be tested for total petroleum hydrocarbons. The sampling events will take place semi-annually in spring and early fall to coincide with the Site compliance monitoring schedule as close as possible. Based on the sampling results, Ecology may require Sagamore to develop and submit a contingency plan to address additional groundwater sampling events and potential containment measures. Following Ecology review and approval, the contingency plan will be implemented according to the schedule outlined in the approved plan.

### **3.6 Institutional controls**

Institutional controls are measures undertaken to limit or prohibit activities that may interfere with the integrity of a cleanup action or result in exposure to hazardous substances. Such measures are required to assure the continued protection of human health and the environment and the integrity of the cleanup action whenever hazardous substances remain at the Site at concentrations exceeding applicable CULs. Institutional controls can include both physical measures and legal and administrative mechanisms. WAC 173-340-440 provides information on institutional controls and the conditions under which they may be removed.

New environmental covenants must be prepared for the Site and Property in accordance with the Uniform Environmental Covenants Act (Revised Code of Washington 64.70). Ecology will establish the protective provisions in the covenants.

WAC 173-340-440(11) states that financial assurance mechanisms shall be required at sites where the selected cleanup action includes engineered and/or institutional controls. Financial assurance is required at the Site in a sufficient amount to cover all costs associated with the operation and maintenance of the cleanup action, including institutional controls, compliance monitoring, and corrective measures.

## 4 References

Aspect Consulting, 2020a: *Work Plan for Test Pit Explorations, River Bend Spokane*, Aspect Proj. No. 190210, Seattle, WA.

Aspect Consulting, 2020b: *Report, Soil Gas Investigation and Test Pit Explorations, River Bend Spokane*, Aspect Proj. No. 190210, Seattle, WA.

GeoEngineers, 1999: *Report, Focused Site Assessment, Former American Tar Company Site, Spokane, Washington*, GeoEngineers, Spokane WA, File No. 0506-105-00.

Landau, 2000: *Second Supplemental and Remedial Investigation, Hamilton Street Bridge Site, Spokane, Washington*, Landau Associates, Inc. Spokane, WA.

U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response (OSWER), 2015: *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, OSWER Publication No. 9200.2-154.

Washington State Department of Ecology, 2001: *Cleanup Action Plan: Hamilton Street Bridge Site*, Toxics Cleanup Program, Eastern Region.

Washington State Department of Ecology, 2018: *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, Toxics Cleanup Program, Publication No. 09-09-047.

Washington State Department of Ecology, Jan. 2020: [Cleanup Levels and Risk Calculation \(CLARC\) tables for vapor intrusion \(VI\)<sup>2</sup>](#).

Washington Department of Ecology vs. Avista Corporation & BNSF Railway Company, 2002: *Hamilton Street Bridge Site Consent Decree No. 02205445-0*, Filed with Spokane County Superior Court.

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<sup>2</sup> [https://www.ezview.wa.gov/Portals/\\_1987/Documents/Documents/CLARC\\_VI\\_MethodB.pdf](https://www.ezview.wa.gov/Portals/_1987/Documents/Documents/CLARC_VI_MethodB.pdf)

## 5 Figures



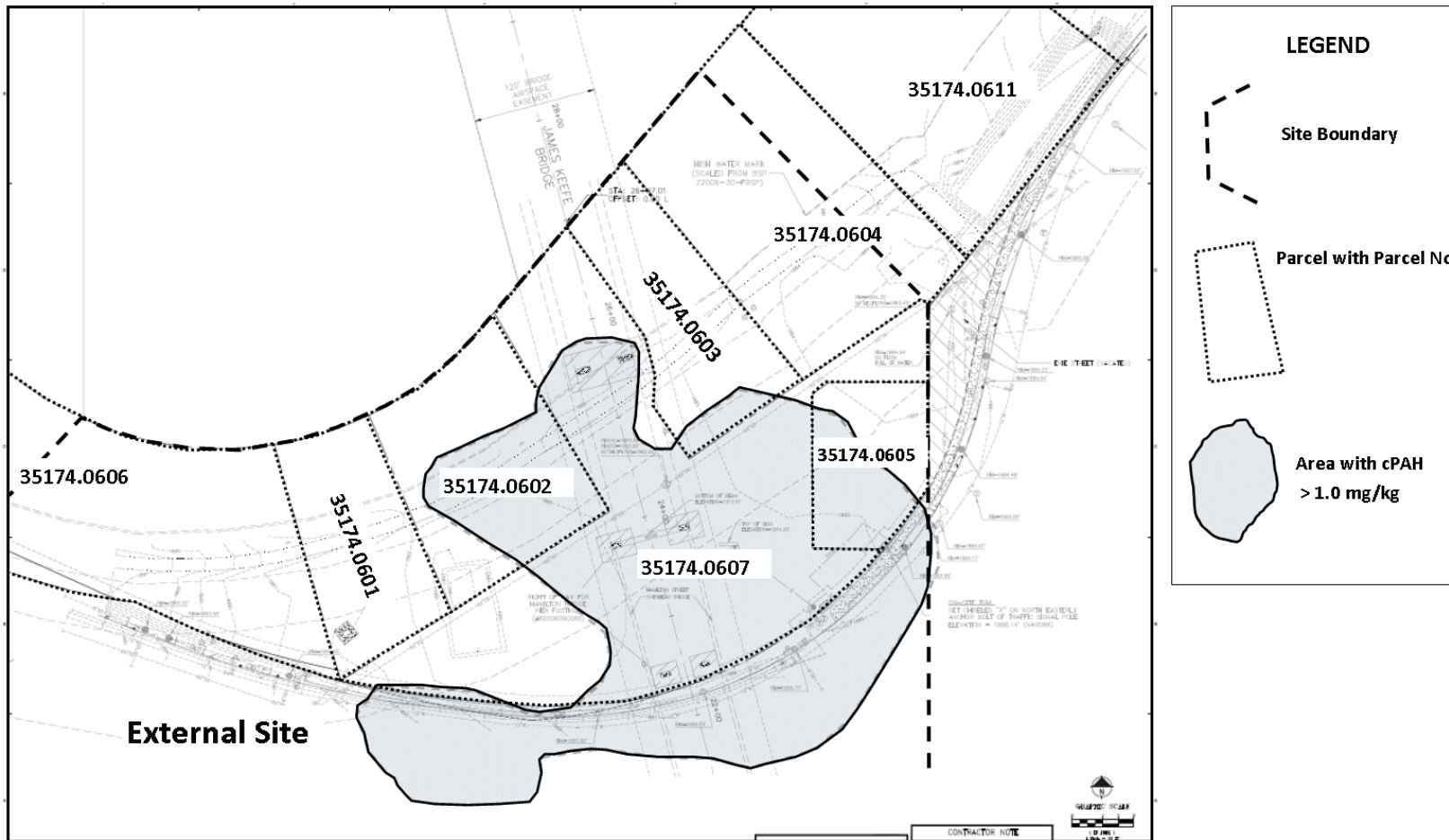


Figure 1. Property and Site layout. Extent of soil exceeding the Site cPAH cleanup level (1.0 mg/kg) as shown in the CAP.

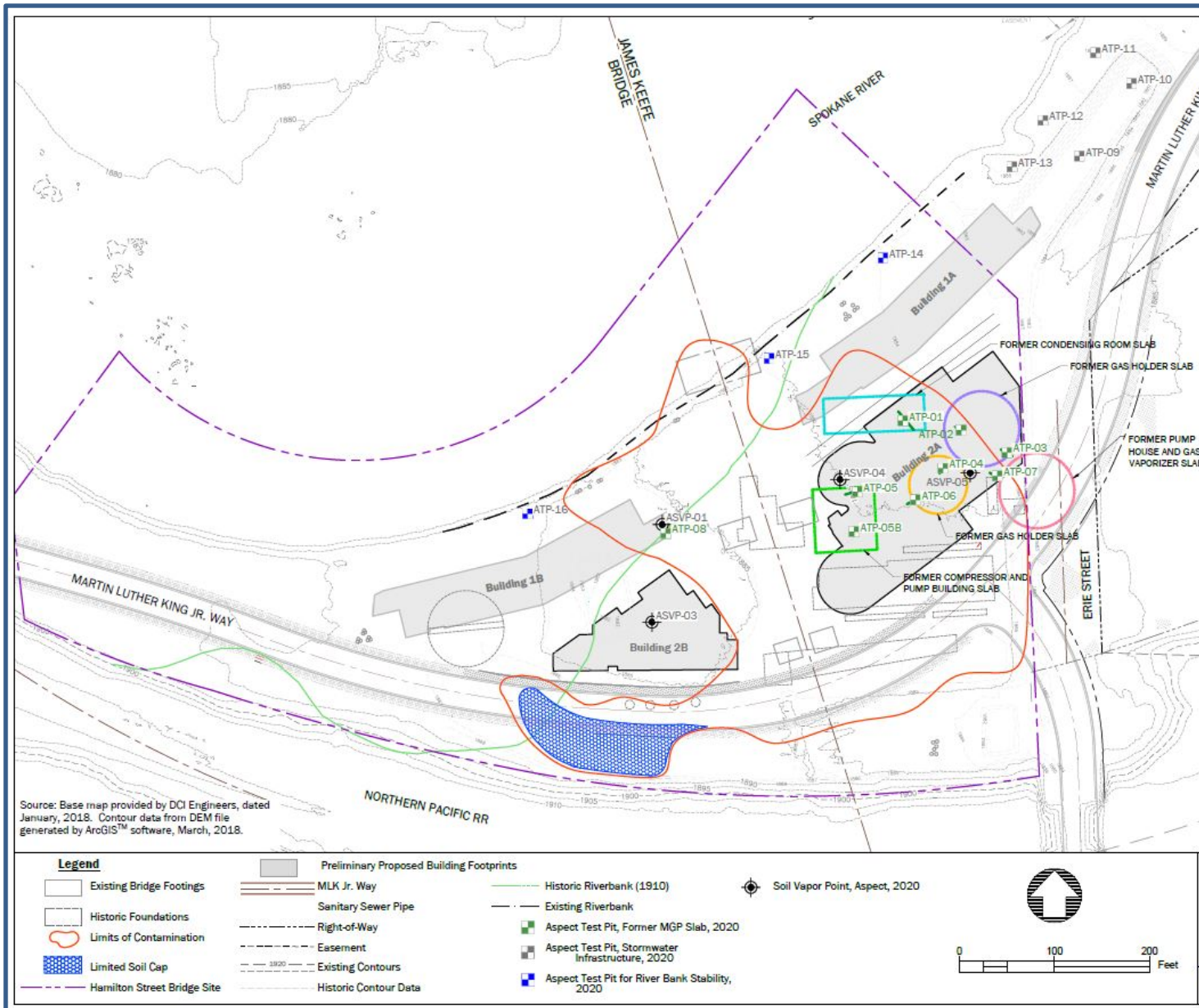


Figure 2, Property development layout. Note: the “limits of contamination” shown in the Legend is the area where cPAHs are >1 mg/kg.

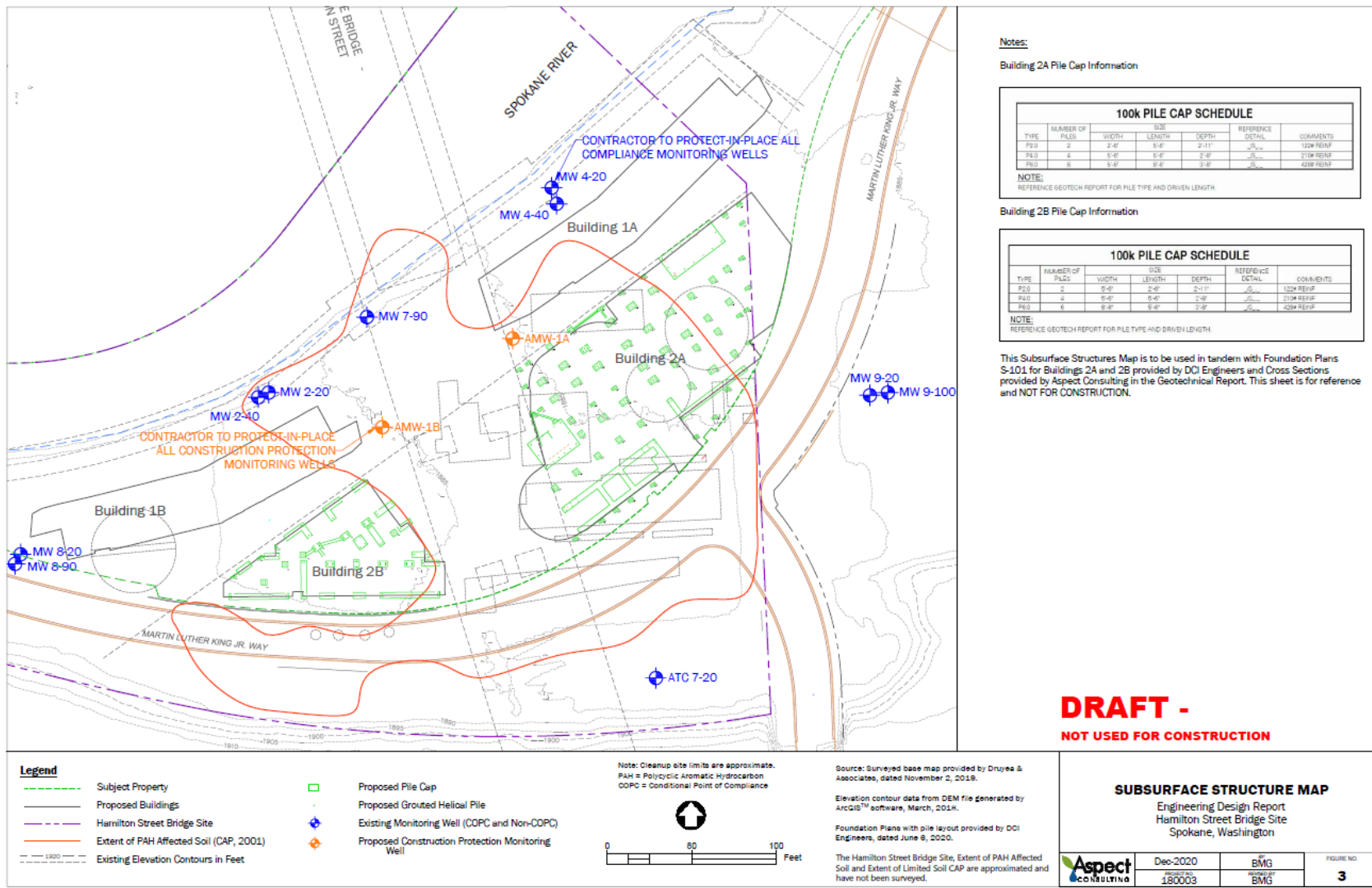


Figure 3, Building 2A and Building 2B pilings layout.