



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

March 16, 2015

Mr. Bryan White
Summit Homes of Washington, LLC
16000 Christensen Road, Suite 303
Tukwila, WA 98188

Re: No Further Action at a Property associated with the Asarco Tacoma Smelter Site:

- **Name:** Meridian Campus – Puget Meadows East
- **Property Address:** 8955 31st Dr NE, Lacey, Parcel # 11801130101
- **Facility/Site No.:** 5718
- **Cleanup Site ID:** 12459
- **VCP Project No.:** SW1432

Dear Mr. White:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of a Property associated with the Asarco Tacoma Smelter Site (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.

Issues Presented and Opinion

1. Is further remedial action necessary at the Property to clean up contamination associated with the Site?

NO. Ecology has determined that no further remedial action is necessary at the Property to clean up contamination associated with the Site.

2. Is further remedial action still necessary elsewhere at the Site?

YES. Ecology has determined that further remedial action is still necessary elsewhere 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 Property and the Site

This opinion applies only to the Property and the Site described below. This opinion does not apply to any other sites that may affect the Property. Any such sites, if known, are identified separately below.

1. Description of the Property.

The Property includes the following tax parcel in Thurston County that was affected by the Site and addressed by your cleanup:

- 11801130101

Enclosure A includes a legal description of the Property and details of the Property as currently known to Ecology.

2. Description of the Site.

The Site is defined by the nature and extent of contamination associated with the following releases:

- Arsenic into the Soil.
- Lead into the Soil.

Those releases have affected more than one parcel of real property, including the parcel identified above.

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

3. Identification of Other Sites that may affect the Property.

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

Basis for the Opinion

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

- 1) Landau Associates, Cleanup Report – Puget Meadows East, Lacey, Washington, dated February 19, 2015.
- 2) City of Lacey, Approved Grading Plans for Puget Meadows East, dated December 2, 2014.
- 3) Landau Associates, Cleanup Action Plan and Site Characterization Meridian Campus Development, dated June 16, 2005.
- 4) Landau Associates, Draft Sampling and Analysis Plan Meridian Campus Development, dated February 4, 2005.
- 5) Joyce Mercuri (Ecology), letter to Mr. Eric Weber (Landau Associates), RE: Opinion on Proposed Remedial Action for Meridian Campus Development, dated January 24, 2006.

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

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

Analysis of the Cleanup

1. Cleanup of the Property located within the Site.

Ecology has concluded that **no further remedial action** is necessary at the Property to clean up contamination associated with the Site. That conclusion is based on the following analysis:

a. Characterization of the Site.

The Site is described in **Enclosure B**.

For almost 100 years, the Asarco Company operated a copper smelter in Tacoma, Washington. Air pollution from the smelter settled on the surface soil over a vast region -- more than 1,000 square miles of the Puget Sound basin. Arsenic, lead, and other heavy metals are still in the soil as a result of this pollution. Ecology has found elevated levels of arsenic and lead as far south as Lacey and as far north as Seattle (West Seattle), and as far west as the Kitsap Peninsula and as far east as Kent and Bellevue.

Puget Meadows East is part of the 1,540-acre Meridian Campus development in Lacey, Washington. Puget Meadows East is a proposed single-family housing

development including three open space buffers. The development encompasses approximately 5.52 acres. See Enclosure A and Figures 1, 2, and 3 for more information about the Property.

Characterization sampling was performed for the entire Meridian Campus development in March 2005 (Landau Associates 2005). Of the 50 total samples from throughout Meridian Campus, 18 were above cleanup levels for arsenic. Arsenic levels ranged from 11.7 to 36.2 milligrams per kilogram (mg/kg) and lead ranged from 24 to 116 mg/kg. No characterization samples, however, were collected from the Puget Meadows East area in 2005. In October 2014, Landau Associates (Landau) conducted characterization sampling for the Puget Meadows East area. Ten surface samples at depths between 0 and 6 inches below ground surface (bgs) and two discrete duff samples were collected. The arsenic levels ranged from non-detect to 49 mg/kg and the lead levels ranged from 37 mg/kg to 100 mg/kg. Eight of the 10 surface soil samples were above the MTCA Method A cleanup levels for unrestricted land use of 20 mg/kg for arsenic. All the lead samples were below MTCA Method A cleanup levels for unrestricted land use of 250 mg/kg. The two duff samples collected reported both arsenic and lead concentrations below their respective cleanup levels. The arsenic in two duff samples was 9.4 mg/kg and 13 mg/kg and lead was 88 mg/kg and 100 mg/kg.

b. Establishment of cleanup standards for the Site.

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

As part of the Interim Action Plan for the Asarco Tacoma Smelter Site (June 2012) (IAP), Ecology completed a terrestrial ecological evaluation for properties with only Tacoma Smelter Plume contamination. Ecology determined the MTCA Method A cleanup levels for both arsenic and lead were protective of both human health and the environment. The MTCA Method A cleanup levels for soil are as follows:

- Arsenic is 20 mg/kg.
- Lead is 250 mg/kg.

The IAP determined the following cleanup levels were protective of human health and the environment for properties within the Asarco Tacoma Smelter Site:

- Average arsenic concentration detected in the soil less than 20 mg/kg.
- Average lead concentration detected in the soil less than 250 mg/kg.

OR

- No single soil sample has arsenic concentration above 40 mg/kg.
- No single soil sample has lead concentration above 500 mg/kg.

c. Selection of cleanup for the Property.

In June 2005, Landau Associates developed a cleanup action plan for the entire Meridian Campus Development. The cleanup action plan described soil mixing done through development grading activities as a way to remediate Tacoma Smelter Plume contamination. Ecology issued an opinion letter for the cleanup action plan in 2006. This letter described the number of compliance samples that should be collected to obtain a No Further Action letter.

Ecology has determined the cleanup selected for the Property meets the substantive requirements of MTCA and the IAP. The cleanup meets the minimum cleanup requirements and does not exacerbate conditions or preclude reasonable cleanup alternatives elsewhere at the Site.

d. Cleanup of the Property.

Ecology has determined the cleanup you performed meets the applicable Site cleanup standards within the Property.

The contractor scraped, mixed, and stockpiled the upper 12 inches (the average excavation depth) soil layers at Puget Meadows East single-family development area. The excavated soil was stockpiled in a single stockpile, with a total volume of approximately 4,300 cubic yards. Upon completion of the soil removal, composite soil samples were collected from the stockpile.

The Campus Meadows East single-family development area was brought to grade. After grading was completed on the Property, Landau collected at-grade confirmational samples. See Table 2 for the stockpile sampling results from Puget Meadows East area.

Stockpile sampling: On December 8, 2014, Landau sampled the stockpiled soils in accordance with the 2005 Sampling and Analysis Plan for Meridian Campus. Eleven composite stockpile samples were taken from the stockpile that was visually segregated into 11 grid pattern sections (See Figure 5). The stockpile samples included four discrete samples collected from each grid section at a depth between 2 and 18 inches bgs. An equal portion of each of the four discrete samples was composited into a single sample. Three samples were above the MTCA Method A cleanup levels for arsenic, while all the lead samples were below the cleanup levels for lead. No individual sample exceeded the point-specific cleanup level of 40 mg/kg for arsenic. The stockpiled soil will be used as topsoil to support hydroseeding for erosion control within the development.

The summary results of the sampling are shown below:

- Arsenic levels ranging from 13 to 32 mg/kg
- Lead levels ranging from 26 to 55 mg/kg

Final confirmational grading sampling: On January 14, 2015, Landau took samples from the top 6 inches of soil after grading, in accordance with the 2005 Sampling and Analysis Plan for Meridian Campus, modified to comply with recommendations in Ecology's opinion letter (Ecology 2006). Eleven discrete surface (0 to 6 inches bgs) soil samples were collected from the single-family development in Puget Meadows East. The following results for confirmational soil samples showed no further cleanup actions were needed:

- Arsenic levels ranging from non-detect to 7.7 mg/kg
- Lead levels ranging from 1.5 to 14.0 mg/kg

2. Cleanup of the Site as a whole.

Ecology has concluded that **further remedial action** under MTCA is still necessary elsewhere at the Site. In other words, while your cleanup constitutes the final action for the Property, it is only an **"interim action"** for the Site as a whole.

Listing of the Site

Based on this opinion, Ecology will update the status of remedial action at the Site on our database of hazardous waste sites. However, because further remedial action is still necessary elsewhere at the Asarco Tacoma Smelter Site, we will not remove the Site from our lists of hazardous waste sites. Furthermore, the Property will remain listed as part of the Site because the cleanup of the Property does not change the boundaries of the Site.

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 Property. This opinion **does not**:

- Change the boundaries of the Site.
- 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 proposed will be 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).

Termination of Agreement

Thank you for cleaning up your Property under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#SW1432).

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 or the termination of the Agreement, please contact me by phone at 360-407-7094 or by e-mail at Eva.Barber@ecy.wa.gov.

Sincerely,



Eva L. Barber
SWRO Toxics Cleanup Program

MLA:ES

Enclosures: Enclosure A: Legal Description, addresses, and general description of the Property
 Enclosure B: Site description of Asarco Tacoma Smelter Site
 Figure 1: Vicinity Map of Meridian Campus – Puget Meadows East
 Figure 2: Meridian Campus Master Plan
 Figure 3: Puget Meadows East Lot Map
 Figure 4: Characterization Sampling Locations Map
 Figure 5: Stockpile Sampling Locations Map

Mr. Bryan White
March 16, 2015
Page 8

Figure 6: Confirmational Sampling Location Map
Table 1: Characterization Sample Results
Table 2: Stockpile Sampling Results
Table 3: Confirmational Sample Results

By certified mail: 91 7199 9991 7034 8986 1222

cc: Christine Kimmel, Landau Associates, Inc.
Rick Walk, City of Lacey Community Development
Samra Seymour, City of Lacey Community Development
Gerald Tousley, Thurston County Public Health
Marian Abbett, Ecology
Scott Rose, Ecology
Dolores Mitchell, Ecology w/o enclosures
Carol Serdar, Ecology

Enclosure A

Legal Description of the Property

PARCEL A

Parcel B-1, record-of-survey recorded May 11, 2007, recorded under Recording No. 3925703, records of Thurston County, Washington.

TOGETHER WITH that portion of Parcel B-2 of said record-of-survey, lying Northerly of the following described line:

COMMENCING at the most Northerly, Northeast corner of said Parcel B-2;
THENCE South 01°43'32" West, 95.77 feet along the East line of said Parcel B-2 to an angle point on the Easterly line of said Parcel B-2 and the TRUE POINT OF BEGINNING of herein described line;
THENCE South 82°24'54" West, 474.48 feet to the Southwest corner of said Parcel B-1 and the terminus.

PARCEL B

Parcel B-2, record-of-survey recorded May 11, 2007, recorded under Recording No. 3925703, records of Thurston County, Washington.

EXCEPT that portion of said Parcel B-2 lying Northerly of the following described line:

COMMENCING at the most Northerly, Northeast corner of said Parcel B-2;
THENCE South 01°43'32" West, 95.77 feet along the East line of said Parcel B-2 to an angle point on the Easterly line of said Parcel B-2 and the TRUE POINT OF BEGINNING of herein described line;
THENCE South 82°24'54" West, 474.48 feet to the Southwest corner of Parcel B-1 of said record-of-survey and the terminus.

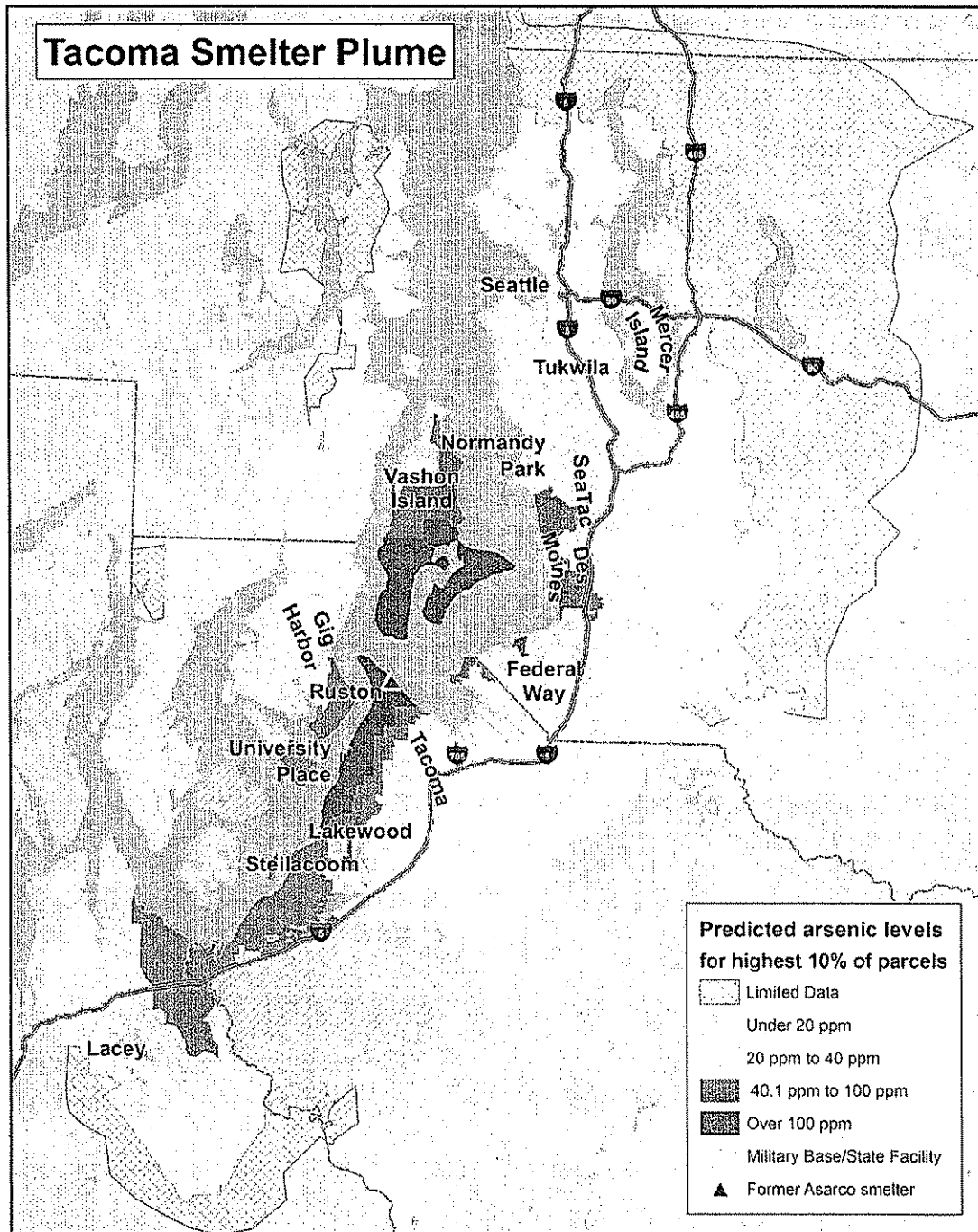
Property Description

Puget Meadows East comprises Thurston County parcel number 11801130100 and it is located in portions of Section 1, Township 18 North, Range 1 West in Lacey, Washington. Puget Meadows East is part of the 1,540-acre Meridian Campus development in Lacey, Washington. Puget Meadows East Property encompasses approximately 5.52 acres. Puget Meadows East consists of a tract of land slated for single-family residential development and includes three open space buffers (Tracts E, F and G).

Puget Meadows East is located in a residential, upland area with mildly undulating topography directly west of the Nisqually Delta. The elevation of the Property is approximately 230 feet (ft) above mean sea level (MSL). The upland area is generally underlain by recessional outwash deposits and glacial till (Drost et al. 1999). The upper soil layer corresponding to the recessional outwash deposits is mapped as Everett very gravelly sandy loam (USDA website 2015). The uppermost aquifer beneath the Property is the Qva aquifer. The elevation of the groundwater in the Qva aquifer beneath the Property was estimated to be between 125 and 150 ft MSL; over 100 ft below ground surface (BGS; Drost et al. 1999).

Enclosure B

Asarco Tacoma Smelter Site



An interactive color map can be found at <https://fortress.wa.gov/ecy/smeltersearch/>

Mr. Bryan White
March 16, 2015
Page 12

For almost 100 years the Asarco Company operated a copper smelter in Tacoma, Washington. Air pollution from the smelter settled on the surface soil over a vast region -- more than 1,000 square miles of the Puget Sound basin. Arsenic, lead, and other heavy metals are still in the soil as a result of this pollution. Ecology has found elevated levels of arsenic and lead as far south as Lacey and as far north as Seattle (West Seattle), and as far west as the Kitsap Peninsula and as far east as Kent and Bellevue.

Figure 2. Meridian Campus Master Plan

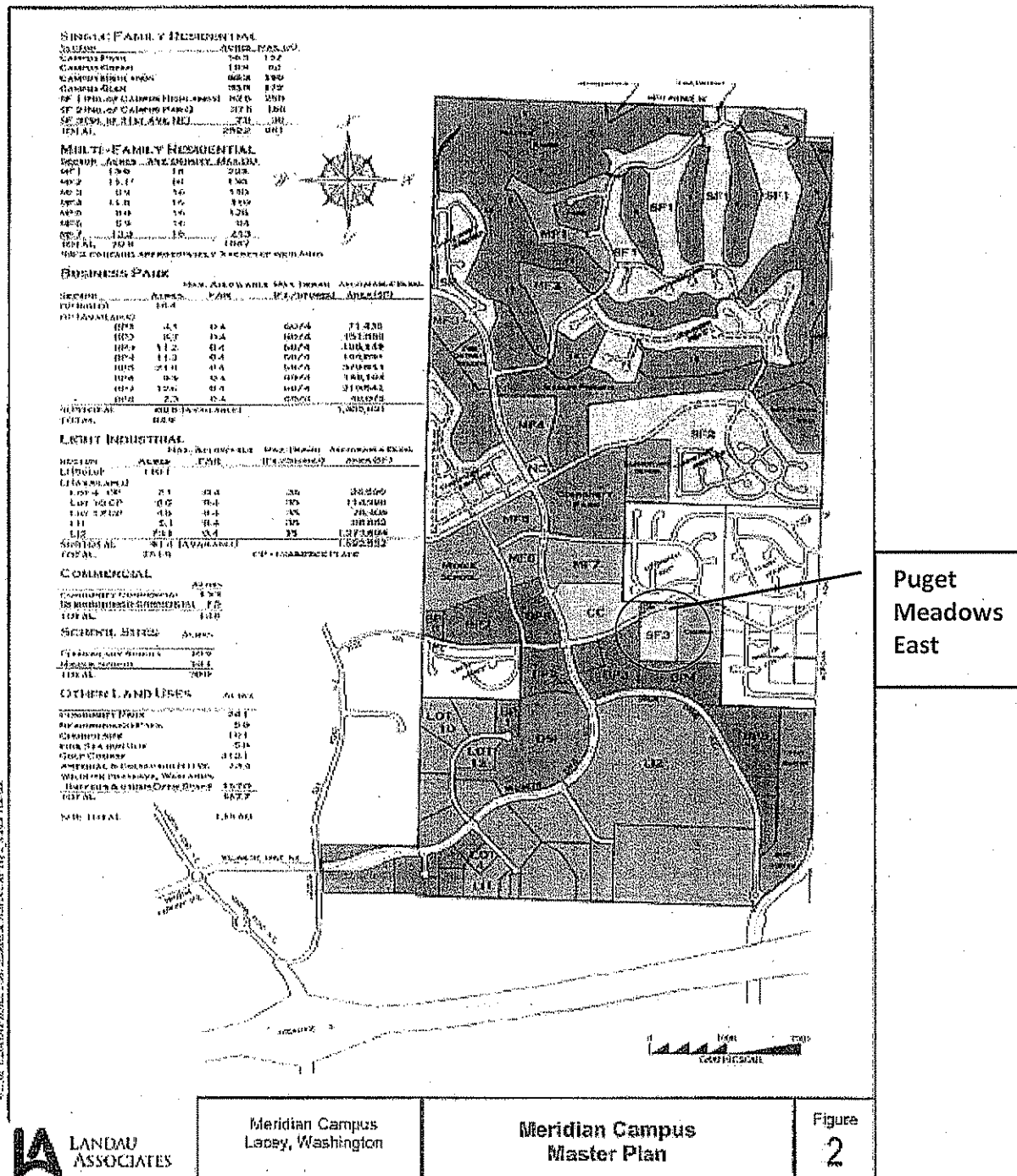


Figure 3. Lot Map

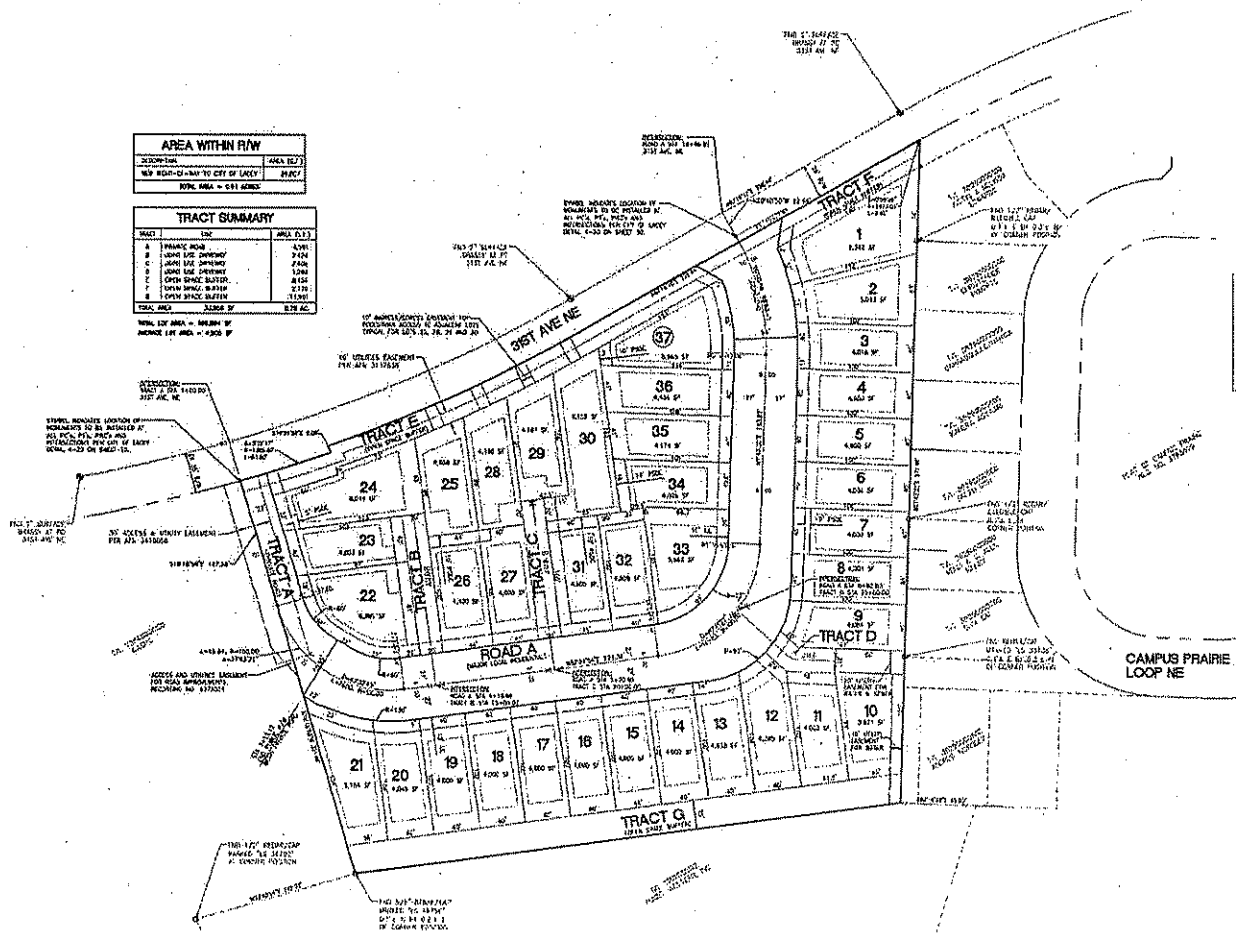


Figure 4. Characterization Sampling Locations

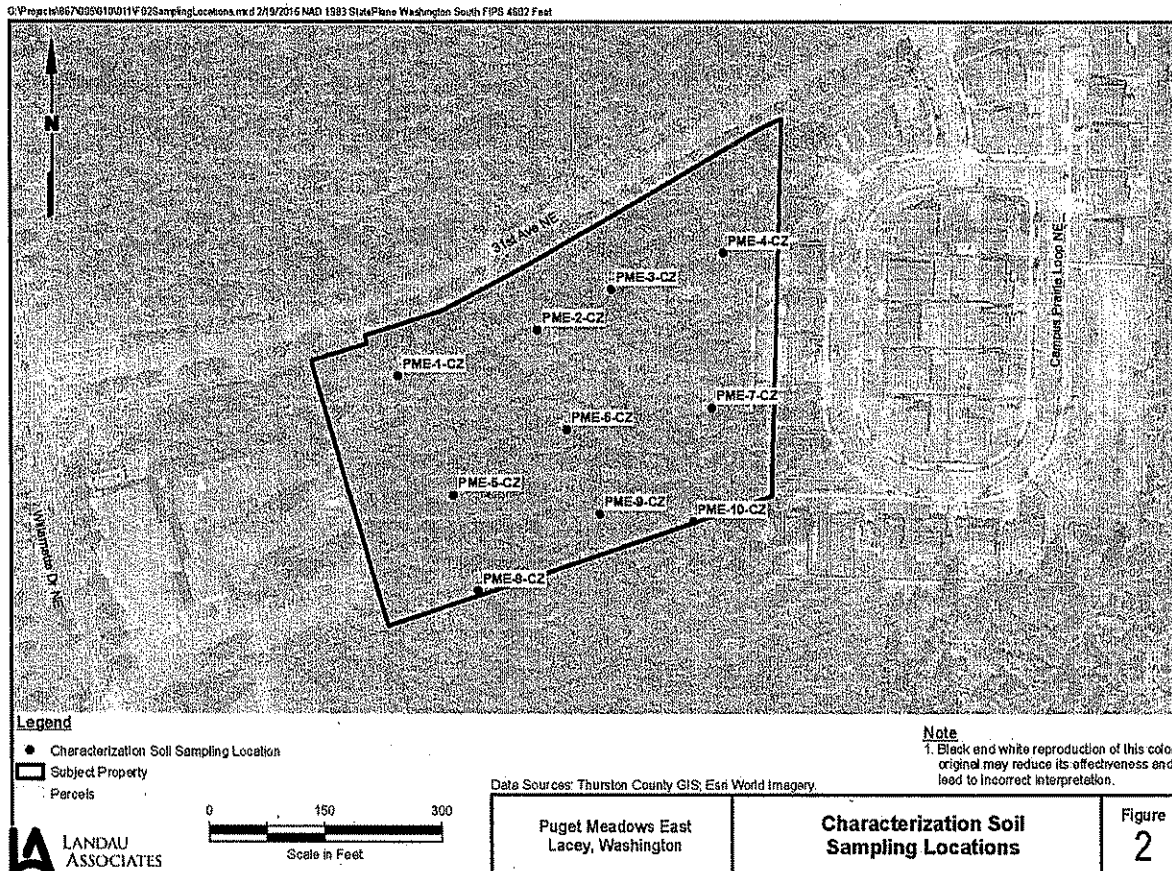


Figure 5. Stockpile Sampling Locations

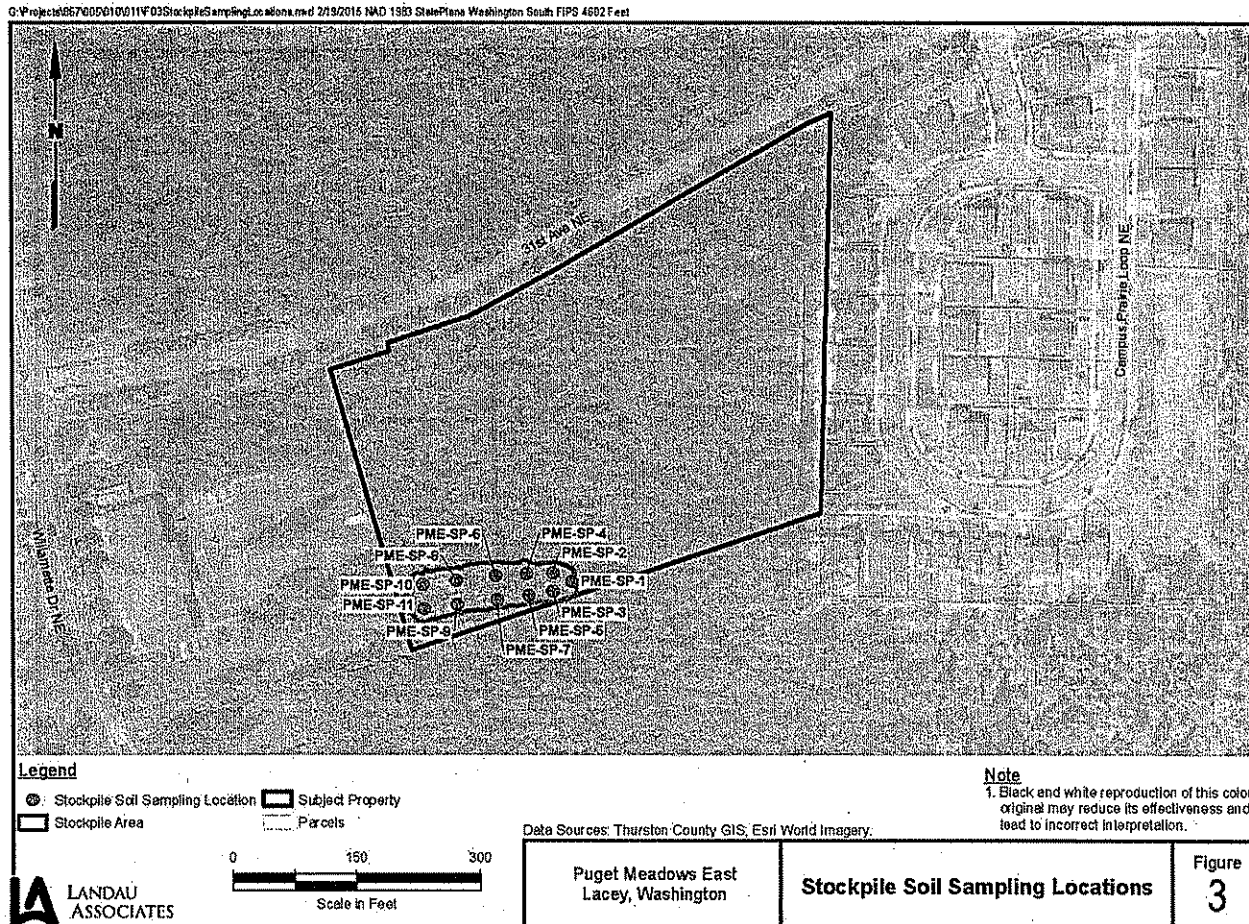


Figure 6. Confirmational Sampling Locations

G:\Projects\087005010011\F04ConfirmationalSoilSamplingLocations.mxd 2/18/2015 NAD 1983 StatePlane Washington South FIPS 4602 Feet

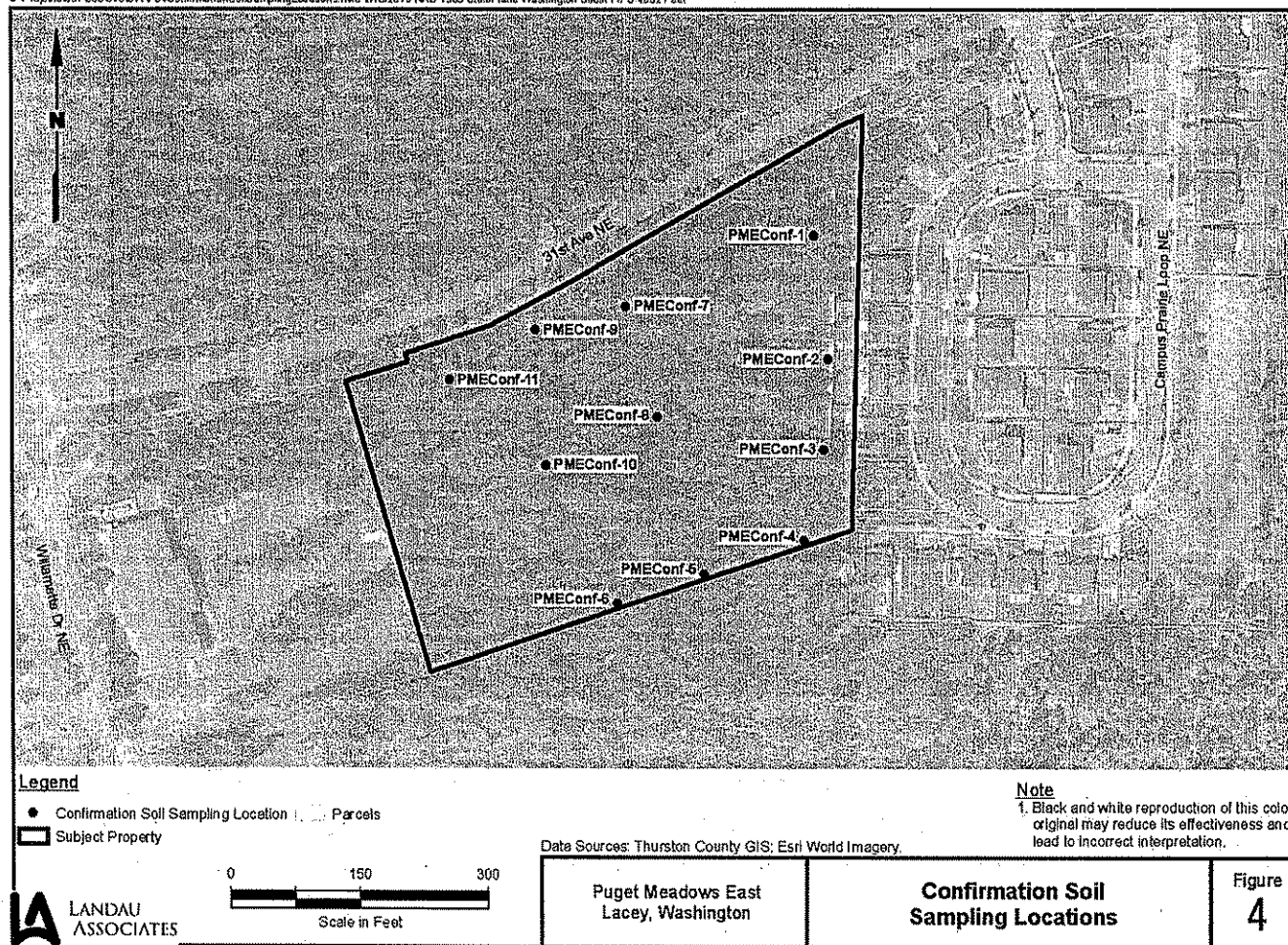


Table 1. Characterization Sampling Results

Sample ID	Lab ID	Sample Date	Arsenic EPA Method 6010B (mg/kg)	Lead EPA Method 6010B (mg/kg)
PME1-CZ-6	580-46140-10	10/29/2014	16	37
PME2-CZ-6	580-46140-7	10/29/2014	20	60
PME3-CZ-6	580-46140-4	10/29/2014	24	37
PME4-CZ-6	580-46140-9	10/29/2014	22	50
PME5-CZ-6	580-46140-3	10/29/2014	21	43
PME5-CZ-duff	580-46140-1	10/29/2014	9.4 U	100 J
PME6-CZ-6	580-46140-8	10/29/2014	41	86
PME6-CZ-duff	580-46140-5	10/29/2014	13	88
PME7-CZ-6	580-46140-6	10/29/2014	44	46
PME8-CZ-6	580-46140-2	10/29/2014	32	48
PME9-CZ-6	580-46140-11	10/29/2014	25	50
PME10-CZ-6	580-46140-12	10/29/2014	49	75
MTCA Method A Cleanup Level Unrestricted Use:			20	250

U – Indicates the compound was not detected at the reported concentrations

J – Indicates the analyte was positively identified; the associated numerical value is the approximate sample concentration

Bolded Numbers – indicate values that exceed MTCA Model A cleanup levels for unrestricted land use

Table 2. Stockpile Sampling Results

Sample ID	Lab ID	Sample Date	Arsenic EPA Method 6010B (mg/kg)	Lead EPA Method 6010B (mg/kg)
PME-SP-1	580-46649-1	12/8/2014	20	37
PME-SP-2	580-46649-2	12/8/2014	17	39
PME-SP-3	580-46649-3	12/8/2014	16	28
PME-SP-4	580-46649-4	12/8/2014	23	50
PME-SP-5	580-46649-5	12/8/2014	19	40
PME-SP-6	580-46649-6	12/8/2014	32	55
PME-SP-7	580-46649-7	12/8/2014	19	38
PME-SP-8	580-46649-8	12/8/2014	24	48
PME-SP-9	580-46649-9	12/8/2014	15	38
PME-SP-10	580-46649-10	12/8/2014	13	26
PME-SP-11	580-46649-11	12/8/2014	20	40
Average Concentration			19.8	39.9
MTCA Method A Cleanup Level Unrestricted Use			20	250

Bolded Numbers – indicate values that exceed MTCA Model A cleanup levels for unrestricted land use

Table 3. Confirmational Sampling Results

Sample ID	Lab ID	Sample Date	Arsenic EPA Method 601 (mg/kg)	Lead EPA Method 6010B (mg/kg)
PME-Conf1(0-6)	580-47043-1	1/14/2015	3.1 U	4.2
PME-Conf2(0-6)	580-47043-2	1/14/2015	5.1	5.4
PME-Conf3(0-6)	580-47043-3	1/14/2015	5.6	7.5
PME-Conf4(0-6)	580-47043-4	1/14/2015	2.9	4.2
PME-Conf5(0-6)	580-47043-5	1/14/2015	5.5	8.6
PME-Conf6(0-6)	580-47043-6	1/14/2015	7.7	14
PME-Conf7(0-6)	580-47043-7	1/14/2015	5.4	7.3
PME-Conf8(0-6)	580-47043-8	1/14/2015	7.7	9.7
PME-Conf9(0-6)	580-47043-9	1/14/2015	3.0 U	3.2
PME-Conf10(0-6)	580-47043-10	1/14/2015	2.5	2.8
PME-Conf11(0-6)	580-47043-11	1/14/2015	2.9 U	1.5
MTCA Method A Cleanup Level Unrestricted Use:			20	250

U – Indicates the compound was not detected at the reported concentrations

