SITE CHARACTERIZATION WORK PLAN

At

Baurs Greenhouse Site
1501 W. Folsom Ave.
Yakima, Washington 98902
VCP

July 16, 2024

Prepared for:

Washington Department of Ecology
Central Region Office
1250 West Alder Street
Union Gap, WA 98903-0009
Attn: Tavi Wise, Rachel Caron, and Ali Furmall

And

Justice Housing Yakima
PO Box 1097
Yakima, WA 98907-1097

Prepared by:
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And
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Blue Mountain Environmental and Consulting Company, Inc.
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Waitsburg, WA 99361
509-520-6519

TABLE OF CONTENTS

FIGURES

PROJECT SUMMARY

Client:	Justice Housing Yakima PO Box 1097 Yakima, WA 98907-1097
Property:	Baurs Greenhouse Site 1501 W. Folsom Ave. Yakima, Washington 98902
Major Activity:	Multi-family housing
Voluntary Cleanup Site ID#:	
Facility Site ID#:	100000762
Cleanup Site ID#:	17012
Consultant:	Yancy Meyer, BMEC
Report Date:	July 16, 2024

Legal Description: Parcel numbers 181324-23562 and 181324-23564, in the southwest quarter of the northwest quarter of Section 24, Township 13 North, Range 18 E.W.M.

1.0 PROJECT DESCRIPTION

1.1 Purpose And Objectives

This work plan, prepared by Blue Mountain Environmental & Consulting Co., Inc. (BMEC) for the Washington Department of Ecology (DOE) and Justice Housing Yakima, details the proposed site characterization by soil sampling to be conducted at Baurs Greenhouse Site, located at 1501 W. Folsom Ave., in Yakima, Washington (hereafter referred to as the "Site"). This proposed site characterization work plan was briefly discussed with DOE, BMEC, and Justice Housing Yakima during a conference call on July 8, 2024.

BMEC plans delineate soil contamination at the Site using push-probe soil boring and sampling according to the Schedule listed in 1.3 below. A Proposed Boring Location Map is included as **Figure 2**.

1.2 Location

Parcel numbers 181324-23562 and 181324-23564, in the southwest quarter of the northwest quarter of Section 24, Township 13 North, Range 18 E.W.M., Yakima County. The address for the Site is 1501 W. Folsom Ave., in Yakima, Washington.

1.3 Schedule

The schedule for completion of this task (site characterization by soil sampling) is as follows:

- Submit work plan to DOE for review and comment.
- Receive work plan back and address comments.
- Conduct 15 borings by hydraulic push-probe in Phase 1 to 5-8 feet below ground surface (bgs), to be sampled at 4-8 inches, 3 feet, 5 feet, and 8 feet bgs, to be analyzed by the following protocol - if COCs found above Cleanup Levels (CULs) at 4-8 inches then analyze 3-foot samples, if COCs found above CULs at 3 feet then analyze 5-foot samples, etc.
- 7 samples taken from Phase 2 by hand from 4-8 inches bgs. 2 additional borings to 8 feet bgs by hydraulic push-probe, sampled and analyzed by the protocol described above for Phase 1.
- A minimum of 40 samples, with up to approximately 20 additional analyses if needed, to be analyzed for Organochlorine Pesticides by EPA Method 8081A, Total Arsenic and Total Lead by EPA Method 6010D on a standard turnaround.
- BMEC will produce a Draft Soil Characterization Report for Ecology review.
- BMEC will produce a Final Soil Characterization Report after receiving Ecology comments on the Draft Soil Characterization Report.

1.4 Reports

The Site Characterization report will include a Site Location Map, a Boring Location Map, Soil Analysis Results tables, and a Map delineating the horizontal and vertical depth of soil contamination. The report will be reviewed and signed by a Washington State licensed hydrogeologist.

2.0 SITE BACKGROUND

2.1 Description of Provided Information

The Site was developed in 1931 with a nursery, greenhouses, and residence. Nursery operations at the Site continued into the 1970s.

BMEC conducted a Phase I site assessment in February 2018, and an updated Phase I in April of 2022 which included soil sampling for lead, arsenic, and halogenated pesticides. Sample analysis indicated levels of arsenic and halogenated pesticides above Final Protective Concentration cleanup screening levels (as indicated below) in 2 of the 4 surface soil samples taken during the initial investigation.
In a letter from DOE dated April 22, 2024, the following Results Table lists Contaminants of Concern (COCs) and Final Protective Concentration Cleanup Levels (CULs) for the Site:

Analyte	Highest Detected Value (mg/kg)	Ecology Listed Protective Value (based on soil direct contact) (mg/kg)	Ecology Listed Protective Value (based on soil protective of groundwater) (mg/kg)	Final Protective Concentration (mg/kg)
4,4'DDE	**1.6**	2.9	0.22	**0.22**
4,4'-DDD	0.05	4.2	0.34	0.34
4,4'-DDT	1.9	2.9	3.5	2.9
Dieldrin	**2.8**	0.063	0.0028	**0.0028**
gamma-BHC	**0.013**	0.91	0.0062	**0.0062**
beta-BHC	**0.12**	0.56	0.0023	**0.0023**
Arsenic	**45**	0.67	2.9	**20A**
Lead	190	250	3000	250

Note: Red results indicate contaminant exceeds one or more Ecology Listed Protective Value.
A – Cleanup level based on direct contact using Equation 740-25 and protection of groundwater for drinking water use using the procedures in WAC 173-340-747(4),6 adjusted for natural background for soil.

2.2 Physical Setting

The Site is located within the city limits of Yakima, Washington and is surrounded primarily by residential properties to the east, south, and north, with a City park adjacent to the west. The Site consists of two parcels of land with improvements and is accessible from W. Lincoln Ave., Lewis

St., and Folsom Ave. The nearest major roadway is Highway 82, approximately 2 mile east of the site. The elevation is 1107 feet above mean sea level. The nearest major roadway is Interstate I-82 which is approximately 2 miles east of the Site (**see Figure 1**). The nearest surface water body is the Yakima River approximately 2.34 miles southeast of the Site. The approximate Site elevation is 1,107 feet above mean sea level.

2.3 Geology and Hydrogeology

According to the U.S. Department of Agriculture Soil Survey of Yakima County, Washington, the Site is underlain by the Ashue Silt Loam which is considered very deep and moderately well-drained with moderately coarse textures. A typical cross-section of the Ashue Silt Loam includes a 9-inch thick surface layer of light brown to brown loam, underlain by an approximate 15-inch thick layer of light gray, gravelly sandy loam, and further underlain by light yellowish brown and pale brown very gravelly sand up to 60 inches thick.

Geologically, the Site is located in the Yakima Fold Belt east of the Cascade Range in a much dryer climate that receives between 6 to 18 inches of rainfall annually. The Yakima Fold Belt is dominated by east-west trending anticlinal ridges and synclinal valley(s). The near surface soils are formed primarily from deposition of Quaternary sediments that overlie Miocene Columbia River Basalt Group flood basalts. Fine-grained slackwater sediments characterized by rhythmically graded bedding were deposited throughout the Pleistocene atop the Miocene basalts in the area of the Columbia Gorge extending north to the Yakima Valley including the region surrounding the Site. Volcanic ash deposits and wind-blown loess deposits are also noted throughout the region. Based on groundwater data collected from monitoring wells located onsite, the groundwater flow direction is to the southeast toward the Yakima River.

3.0 PROPOSED SCOPE OF WORK

The schedule for completion of this task (Site soil characterization) is as follows:

- Submit work plan to DOE for review and comment.
- Receive work plan back and address comments.
- Conduct 15 borings by hydraulic push-probe in Phase 1 to 5-8 feet below ground surface (bgs), to be sampled at 4-8 inches, 3 feet, 5 feet, and 8 feet bgs, to be analyzed by the following protocol - if COCs found above Cleanup Levels (CULs) at 4-8 inches then analyze 3-foot samples, if COCs found above CULs at 3 feet then analyze 5-foot samples, etc.
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PROJECT ASSUMPTIONS

For purposes of preparing this work plan and cost estimate, it is assumed that:

1. The soil borings will be backfilled with bentonite and other natural earth materials. Surface restoration will consist of soil consistent with surrounding surface materials.
2. Potential workdays will be Monday through Friday.
3. Off-site access to be provided by BMEC.
4. Private utility clearance by BMEC.
5. Right-of-way access and traffic control (as necessary) by BMEC.

4.0 DATA QUALITY OBJECTIVES AND QUALITY ASSURANCE

Data quality objectives for the proposed field activities are to generate data of known and documented quality that can be used to determine whether chemicals of potential concern (i.e., DRO) are present above laboratory practical quantitation limits (PQLs) and at levels that pose an unacceptable risk to receptors. Data will be compared to Final Protective Concentration Cleanup Levels (see Section 2.1) to determine whether these levels are exceeded as BMEC pursues closure of the Site via NFA status.

Soil samples will be obtained according to standard field methods and will be prepared in accordance with protocol established by the analytical laboratory for containers, preservation, storage and transport to the laboratory. Proper chain-of-custody documentation will be prepared for all samples obtained for laboratory analysis. Appropriate decontamination procedures will be followed to prevent cross contamination during collection of groundwater samples.

5.0 INVESTIGATION-DERIVED WASTE DISPOSAL

All investigation-derived waste (IDW) such as soil shall be placed in 55-gallon drums, properly labeled, and properly secured. The drums shall be temporarily staged onsite at a location approved by the property owner and/or manager. Subsequent to laboratory analysis, the drums of IDW shall be picked up by a licensed waste hauler and disposed at a licensed waste disposal facility. All standard refuse such as nitrile gloves, plastic, peristaltic sample tubing, bailers and rope (if used), food item packaging, used personnel protective equipment (PPE), and miscellaneous trash shall be placed in onsite trash receptacles.

6.0 UNDERGROUND UTILITY LOCATE

Utility locating services, including private locating services and public utility locating services, shall be utilized prior to the commencement of any intrusive groundwork. No drilling activities shall commence prior to identification of potential underground utilities via the private utility locate services.

7.0 SOIL SAMPLING

Soil from each of the soil borings will be extracted from the subsurface via 5-foot-long acetate liners inside core tubes using a Geoprobe® 7720 DT hydraulic push-probe. Liners will be placed on the sample table and cut open by the driller, prior to visual assessment and sample collection. Drilling equipment will be decontaminated between soil borings. A fresh pair of nitrile gloves to be used for each soil sample. Soil samples will be collected in one 4-ounce glass jar with sealable Teflon lids per sample. Four soil samples will be collected from each soil boring at 4-8 inches, 3 feet, 5 feet, and 8 feet bgs. All soil samples will be immediately and properly sealed, labeled, and placed on ice in a secured cooler prior to overnight shipment to On-Site Environmental Laboratory in Redmond, Washington for analysis.

If you have any questions regarding the content of this work plan, please feel free to contact me at (509) 520-4416.

Sincerely,

Yancy Meyer, Environmental Professional
Blue Mountain Environmental and Consulting Co., Inc.

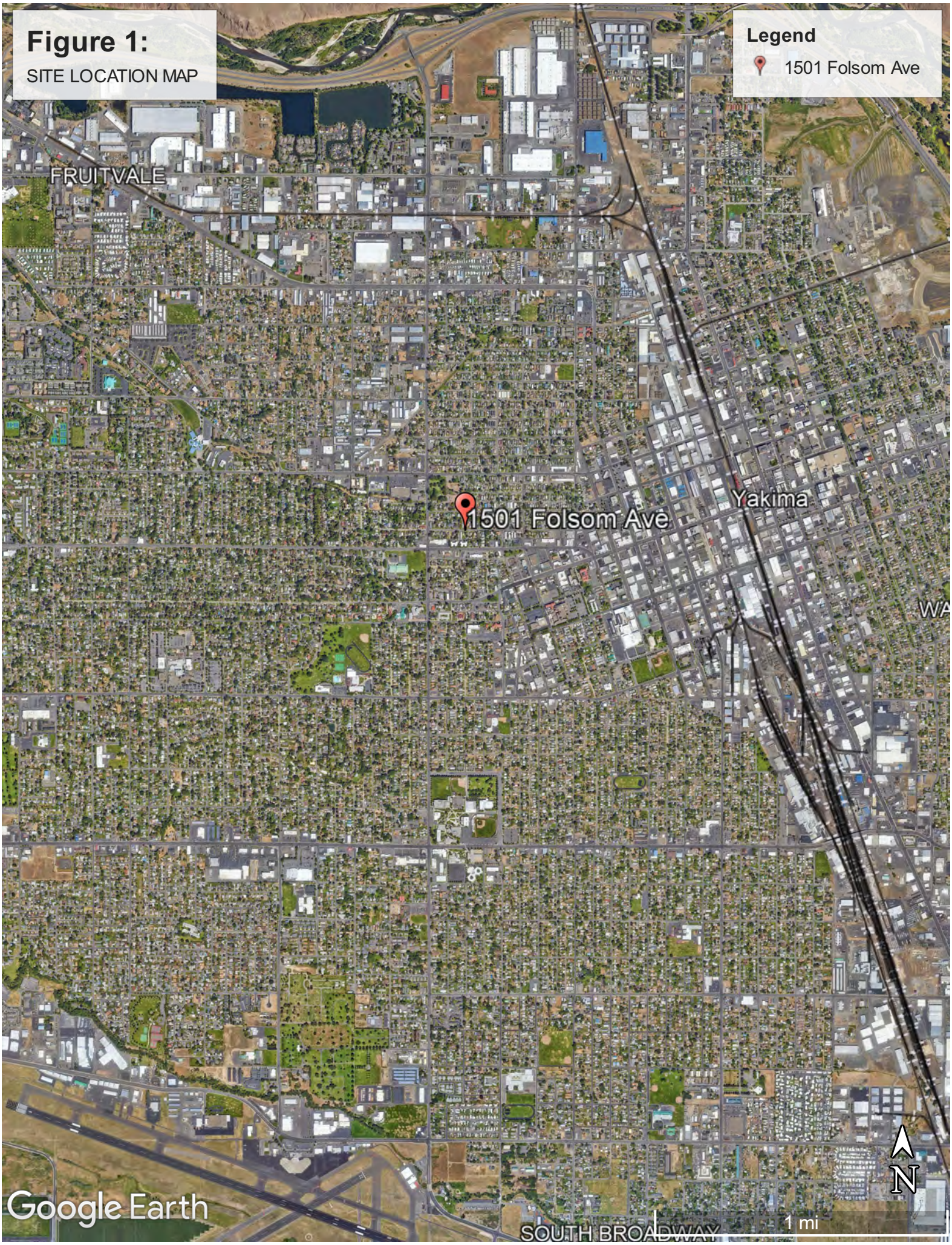
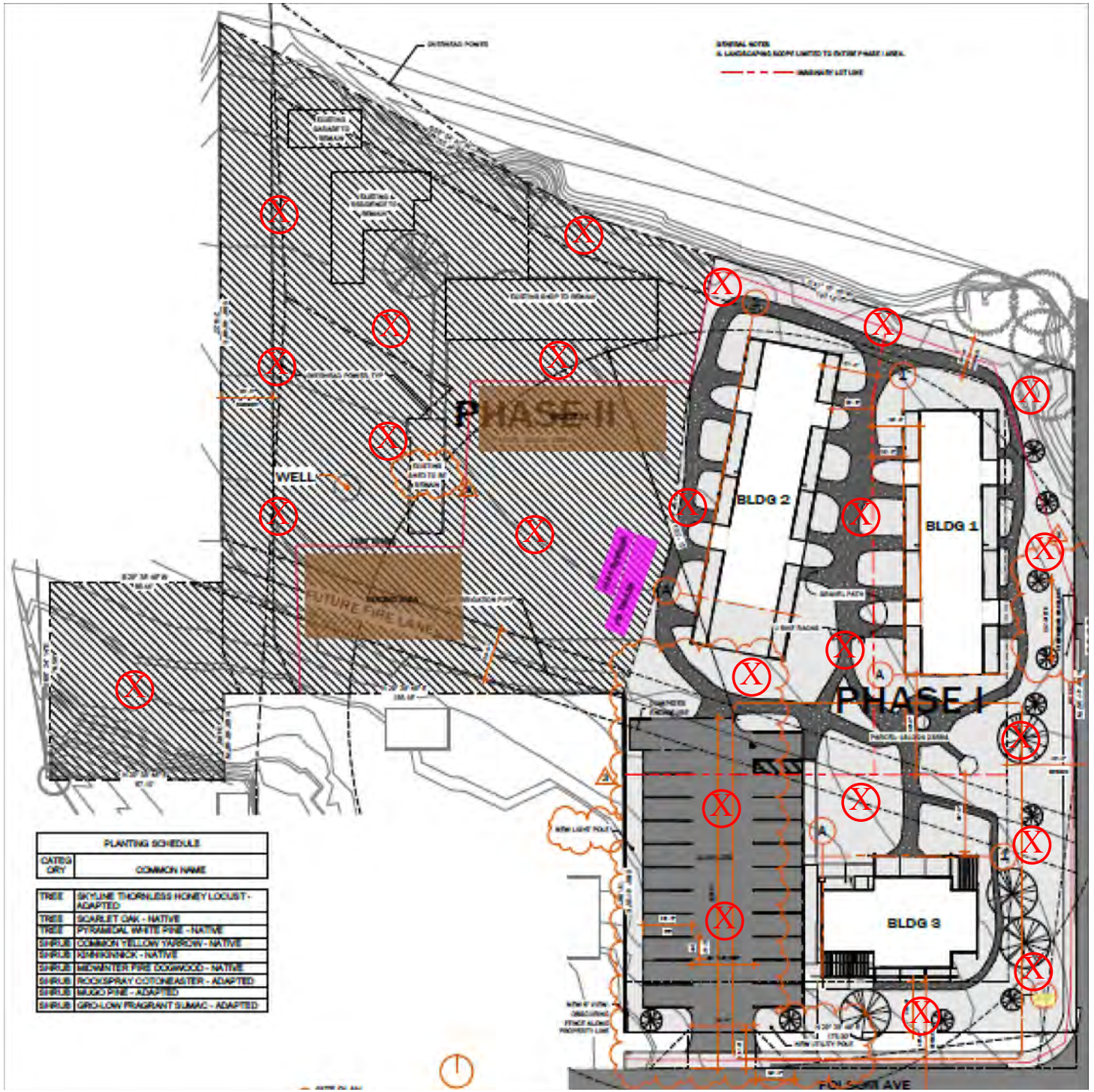


Figure 1:
SITE LOCATION MAP
Legend
1501 Folsom Ave
FRUITVALE
1501 Folsom Ave
Yakima
WA
SOUTH BROADWAY
N
1 mi
Google Earth

FIGURE 2: PROPOSED BORING LOCATIONS



X PROPOSED BORING LOCATIONS

15 BORINGS IN PHASE 1 TO 5-8 FEET BGS, TO BE SAMPLED AT 4-8 INCHES,3 FEET, 5 FEET, AND 8 FEET TO BE ANALYZED BY THE FOLLOWING PROTOCOL - IF COCs FOUND AT 4-8 INCHES THEN ANALYZE 3 FEET, IF FOUND AT 3 FEET ANALYZE 5 FEET, ETC.

7 SAMPLES FROM PHASE 2 TAKEN BY HAND FROM 4-8 INCHES. 2 ADDITIONAL BORINGS SAMPLED AND ANALYZED BY THE PROTOCOL DESCRIBED FOR PHASE 1