LAKE FOREST PARK LAKEFRONT IMPROVEMENTS
CITY OF LAKE FOREST PARK

# EXISTING CONDITIONS

## Introduction & Purpose

In July 2023, the City of Lake Forest Park retained Facet and its teaming partners—Johnston Architects, Transportation Solutions, Inc.; ASM Cultural Resource Consultants; APS Survey and Mapping; DCW Cost Management; Elcon Electrical Engineering; and, HWA GeoSciences—referred to collectively as “the design team,” in the multidisciplinary effort to develop a public lakefront from predesign through concept design, design development, construction documentation and permitting, and construction administration.

The project, known formally as “Lakefront Improvements Design, Engineering, Environmental, and Permitting” is located at the located at 17345 and 17347 Beach Dr SE (parcel 4030100035, 0040), Lake Forest Park. The project is intended to improve public waterfront access through the transition of a newly acquired single-family residential parcel into a public waterfront park. The project also seeks to unify the new acquisition parcels with an adjacent existing public open space, Lyon Creek Waterfront Preserve. Work is anticipated to extend across the parcel line into the existing preserve to create an integrated park experience for city residents and park users. Work is anticipated to include improvements to Beach Dr SE and to provide safe bicycle and pedestrian connections to the Burke Gilman Trail and the SR522 intersection.

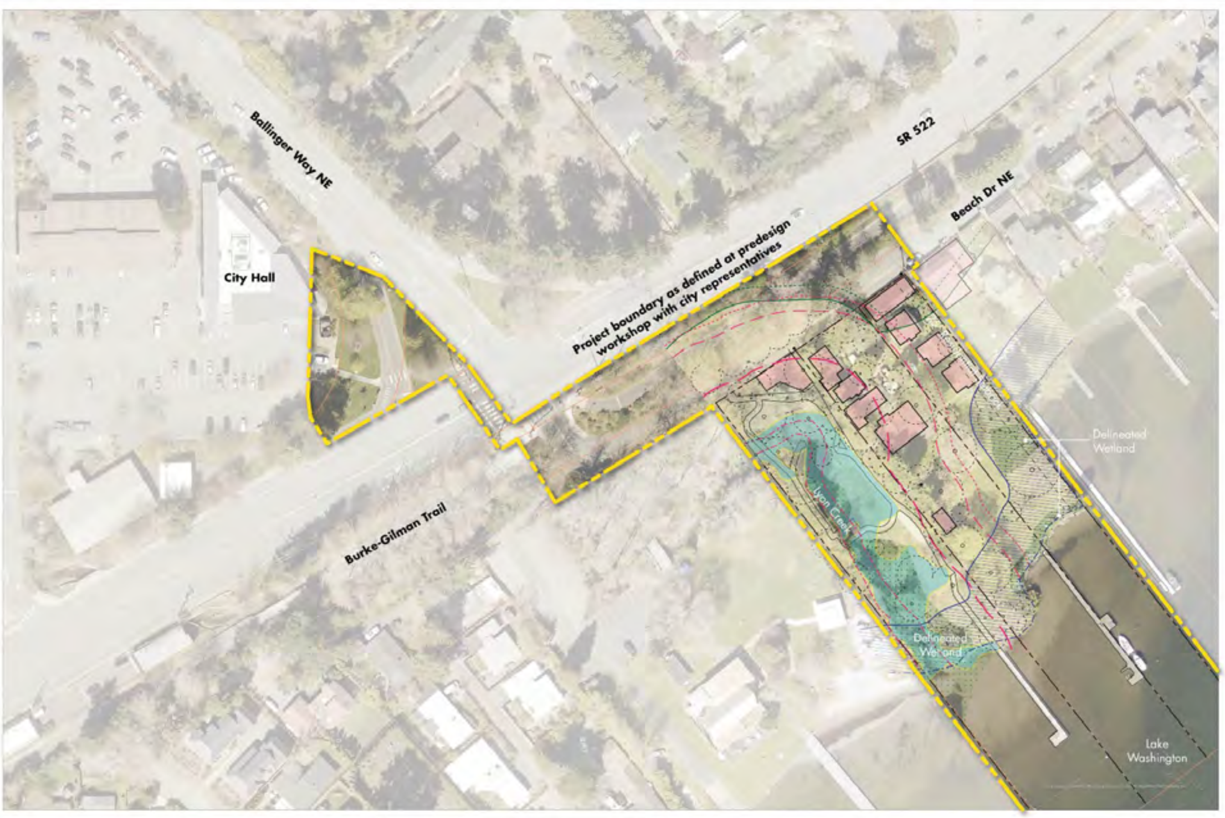



**FIGURE 1. PROJECT STUDY AREA.**

This memorandum captures a snapshot of existing conditions as observed and documented during data collection activities that took place during project Phase 1 / Predesign. A survey of the project study area is included as Appendix A.

## Site Assessment

The design team performed a thorough review of background information for the newly acquired parcels and immediate surrounding area. Specifically, in its due diligence, the design team compiled and reviewed relevant reports, studies, plans, and surveys and conducted site visits to document site conditions. Site assessment work was conducted to respond to the following focus areas:

- Landscape ecology, condition, and experience
- Site access, circulation, and traffic
- Cultural resources
- Architecture
- Regulatory requirements and considerations

### Landscape Ecology, Condition, and Experience

The project comprises three former residential parcels. The westernmost parcel, now named Lyon Creek Waterfront Preserve, was purchased by the city in 1998 and converted into a public preserve with passive nature-based recreational activities. Use of the preserve is limited by development conditions that prohibit water access from the preserve parcel. The two adjacent parcels to the east were purchased by the city in 2021 to provide public waterfront access and recreation.

#### Lyon Creek Waterfront Preserve

Lyon Creek Waterfront Preserve contains the downstream end—approximately 425 linear feet—of Lyon Creek, a salmon-bearing stream, at its outfall to Lake Washington. The preserve is heavily wooded with mostly native vegetation. Intermittent invasive vegetation is also present, including Himalayan blackberry. The species composition is influenced by the hydrology of Lyon Creek, which overtops seasonally, inundating the floodplain and wetlands east of the creek. Roughly 60% of the preserve's land area is active floodplain and experiences seasonal flooding and inundation, which occasionally limits use of the preserve. Two wetlands are present within the preserve boundaries, both within the floodplain of Lyon Creek.

The preserve fronts on Beach Drive NE, where it features a pedestrian entrance with a soft surface walking trail and locking gate. Gravel walking trails extend from the preserve entrance to a viewing platform over Lyon Creek and a dock with viewing platform. The preserve features a small asphalt parking area containing one ADA-compliant designated parking space. Additional parking for the preserve is located across SR 522/Bothell Way at Lake Forest Park City Hall.

#### New Acquisition Parcels

The two eastern parcels (formerly the 'Turner property') were programmed as a single residential lot with multiple outbuildings up until the recent acquisition by the city. The landscape features many mature trees, including several large conifers and deciduous canopy trees, mixed native and ornamental shrubs, sizable mixed-species herbaceous lawn, and other vegetated areas consistent with residential use. The property is fenced on the boundary with Lyon Creek Waterfront Preserve and along the road frontage at Beach Dr NE. A concrete masonry unit (CMU) wall is located on and just north of the property line with the adjacent residential lot to the north.

The lots contain approximately 235 linear feet of Lake Washington shoreline, including approximately 135 feet of softened shoreline facing the lake and 100 ft of armored shoreline facing the adjacent residential lot to the northeast. A wooden dock is located on the parcel line between the two lots. Two wetlands are present on the property—a linear feature at the south shoreline, which is interrupted by the existing dock, and a second wetland within the lawn area that extends onto the adjacent residential lot to the northeast.

Detailed information about the waterfront structures, existing trees and vegetation, and regulated critical areas can be found in the following appendices.

- Appendix B. Waterfront Structure Assessments
- Appendix C. Wetland Delineation Report
- Appendix D. Arborist Report

## Site Access, Circulation, and Traffic

All three lots that comprise the site are accessed via Beach Drive NE, which is located just south of the intersection of SR 522/Bothell Way and Ballinger Way. Beach Drive NE is a public dead-end street that serves approximately 25 homes along the shoreline of Lake Washington, north and east of the project site. Although no sidewalk or bike facility is present on Beach Drive NE, pedestrian and bicycle use of the roadway are common. An earthen desire-path is present on the shoulder of Beach Drive NE and extends to the existing preserve entrance.

The site is convenient to both biking-walking and transit options. Bus service is operated along SR 522/Bothell Way and Ballinger Way by King County Metro and Sound Transit. Sound Transit is in the process of upgrading transit services along SR 522/Bothell Way to bus rapid transit (BRT) service. The Burke-Gilman regional trail runs parallel to Beach Drive NE and connects to sidewalks on Ballinger Way. An earthen desire-path cuts down the short slope, connecting the trail to Beach Drive just northwest of the preserve. The proximity of the regional trail is an asset that significantly benefits the site’s connectivity to other attractions and designations.

Vehicles can access the site from Ballinger Way to Beach Drive NE. Information from site observations and stakeholder engagement indicates that traffic on Beach Drive NE is an issue. Specifically, concerns cited include excessive queuing at the intersection of SR 522/Bothell Way and Ballinger Way, turnaround (U-turn) movements using Beach Drive NE from southbound traffic on SR 522/Bothell Way, and congestion from visitors of the preserve and the Lake Forest Park Civic Club.

## Cultural Resources

The site is located in an area of known importance to Indigenous communities, and the site has extensive documentation of post-settlement activity. An investigation into the site’s history was conducted along with on-site field surveys to screen for potential for cultural resources. A detailed report of cultural resource investigation and findings can be found in the appendices.

- Appendix E. Cultural Resource Report

## Architecture

Nine buildings exist on the newly acquired parcels, including five that must be demolished as a condition of the funding the city received to acquire the properties. Early discussions with city representatives and stakeholders indicated a desire to explore the potential for reuse of structures not identified for mandatory demolition. Documentation provided by the city indicates the structures were constructed between 1930 and 1937. Modifications to several structures including additions and renovations are known to have occurred in subsequent years. Each of the structures are served by utilities (noted in the following table) that are reported to be in working order. Because the current service reflects the properties former use as a residential site, it is unclear if the connections are sufficient to meet the potential demand of a public park. Therefore, reuse potential of the utilities will require further investigation after design.

A summary of structures is provided in the table below. A site plan and key to building numbering is included as Appendix E.

| Building Number | Description | Dispensation |
|---|---|---|
| Cabin 1 / Carport | Open-air timber carport structure, no foundation, uninsulated, electrical connection, 3 parking bays and a storage bay | Demolition required |
| Cabin 2 | One-bedroom guest cabin, timber structure, suspected CMU foundation, water/sewer/electric service | Demolition required |
| Cabin 3 | One-bedroom guest cabin, timber structure, suspected CMU foundation, water/sewer/electric service | Demolition required |
| Cabin 4 | One-bedroom guest cabin, timber structure, suspected CMU foundation, water/sewer/electric service | Demolition required |
| Cabin 5 | Two-bedroom guest cabin with attached storage area/garage, timber structure, suspected CMU foundation, water/sewer/electric service | Potential for reuse; estimated as fair to poor condition |
| Cabin 6 | One bedroom guest cabin, timber structure, suspected CMU foundation, water/sewer/electric service | Potential for reuse; estimated as fair condition |
| Cabin 7 / Garage | Enclosed garage structure with boiler room, bathroom, and attached greenhouse, water/sewer/electric service | Potential for reuse; estimated as poor condition |
| Cabin 8 / Big House | Two-story 10-room house with attic storage, timber structure, suspected CMU foundation, water/sewer/electric service, timber and CMU deck on south side | Potential for reuse; estimated as good to fair condition |
| Cabin 9 / Lakefront Shelter | One bedroom guest cabin, timber structure, suspected CMU foundation, water/sewer/electric service | Demolition required |

Based on the age of the structures and the building materials known to be common at the time, a hazardous materials survey was conducted to determine the extent of abatement that will be required prior to demolition or renovation and reuse of onsite structures.

More information about the structures to remain can be found in the following appendices.

- Appendix F. Cultural Resource Report
- Appendix G. Hazardous Materials Assessment Report

## Regulatory Requirements and Considerations

The project is within the local jurisdiction of the City of Lake Forest Park. Due to the presence of regulated features on the site, proposed improvements are anticipated to require permitting on the local, state, and federal levels.

Further, due to the proximity and intersection of the project with lands owned by other entities, coordination with outside agencies may also be required. Specifically, a potential connection to or interface with the Burke-Gilman Regional Trail would require coordination with King County. If proposed, improvements to the roadways or intersection of SR 522/Bothell Way and Ballinger Way, would require coordination with WSDOT. Intersection or overlap with the project limits of the proposed BRT improvements would require coordination with Sound Transit.

A regulatory analysis was conducted to outline specific standards and considerations that will inform and project implementation, which is provided below.

## Current Zoning and Shoreline Master Program (SMP) provisions:

- Zoning:
  - 4030100050 (Waterfront Preserve), 4030100040, & 4030100035 – RS-7,200
- Zoning Dimensional Standards:
  - Minimum lot area (excludes area covered by water): 7,200 SF
  - Minimum lot width (measured at front and rear setback lines): 60’
  - Maximum lot coverage: 35%
  - Front yard setback: 20’
  - Side yard setback: 5’ per side, minimum 15’ combined
  - Rear yard: 15’
  - Building height: 30’
  - Maximum impervious surface: 45%
- Critical Areas:
  - Wetland A & B – Category III; 75’ buffer + 15’ setback
  - Wetland C – Category III; 125’ buffer + 15’ setback
  - Lyon Creek – Type 1; 115’ buffer + 15’ setback
- Shoreline Environment Designation:
  - 4030100050 (Waterfront Preserve) – Urban Conservancy (UC)
  - 4030100040 & 4030100035 – Shoreline Residential (SR)
- Shoreline Setback (SMP 7.1):
  - UC and SR: 50’

## Summary of Existing Constraints:

### Zoning

All three parcels subject to the proposed park redevelopment plan are located within the RS-7,200 zoning district. Pursuant to Lake Forest Park Municipal Code (LFPMC) 18.54.048, a (zoning) Conditional Use Permit (CUP) is required for the establishment of a public recreational facility within a residential zoning district. Compliance with the CUP criteria can be met, as was done with the Waterfront Preserve parcel when it was redeveloped in 2013.

### Critical Areas

A significant majority of the subject parcels are located within overlapping stream and wetland buffers. While these buffers can be modestly reduced (25% for the wetland buffers and approx. 40% for the stream buffer), the code offers more flexibility for proposals that will enhance or protect critical area buffer functions (SMP 330.A and 360.A). These provisions could allow for the placement of desired elements within portions of the critical area buffers, provided that it can be demonstrated that an alternative design with less impact is not feasible, and that adequate mitigation will be included that results in an overall enhancement of wildlife habitat, water quality, and other important buffer functions. All new plantings within buffers must be a native variety.

### Shoreline

Developments associated with public access are not required to meet the minimum shoreline setback, in either the UC or SR environment. However, such development shall be limited to the minimum necessary or the successful operation of the use (SMP 5.3.D.1.b and 5.4.H.2).

## Mitigation:

Any proposed redevelopment that includes wetland and/or stream buffer impacts or impacts to shoreline jurisdiction or within Lake Washington will require mitigation.

Impacts subject to City of Lake Forest Park critical area and shoreline provisions must be compensated for to ensure:

- that there is no loss of wetland or wetland buffer functions;
- a maintained level of stream, habitat, and riparian corridor functions; and
- that there is no net loss of shoreline ecological functions.

Additionally, SMP 330.A and 360.A offer flexibility for proposals that will enhance or protect critical area buffer functions. Thus, proposed mitigation measures may help to ensure regulatory flexibility when seeking to place improvements within wetland and stream buffers.

Impacts subject to state and federal jurisdiction must be compensated for pursuant to provisions that ensure the protection of fish habitat, with an emphasis on improving nearshore (those areas within 30' of the OHWM) habitat conditions relative to the existing condition.

Collectively, the overarching local, state, and federal mitigation provisions can likely be accomplished through a combination of the following actions:

- Restoration of Wetland A (see Appendix C), and portions of its buffer;
- a net reduction of compacted trails within the stream buffer;
- use of grated decking throughout new moorage facility;
- the addition of new native plantings adjacent to the stream;
- removal of existing armoring near the northern dock;
- removal of existing armoring within Wetland B (see Appendix C);
- restoration of portions of Wetland B; and
- purchase of mitigation credits from the King County Mitigation Reserves Program.

### Regulatory Summary

The proposed park redevelopment project will require a Zoning CUP in order to convert the two existing residential parcels to a public recreational facility. As mentioned, a Zoning CUP was previously granted for improvements to the Waterfront Preserve parcel. Additionally, a Shoreline CUP will likely be required, as multiple project components are likely to trigger the need for this permit. As with the Zoning CUP, a Shoreline CUP was also previously issued for improvements to the Waterfront Preserve parcel. Criteria for a Shoreline CUP generally involves a demonstration that the project will not interfere with the public's use of the shoreline and that no significant adverse impacts will occur. Depending upon the final selected dock configuration, a Shoreline Variance may also be necessary. A Shoreline Variance requires significantly strict criteria, including a demonstration that denial of the variance would preclude, or significant interfere, with reasonable use of the property.

The multiple required permits described above, plus SEPA review, would be reviewed by City Planning staff for compliance with the various provisions of the LFPMC and SMP. Following a staff recommendation, Hearing Examiner approval would be required. Following a Hearing Examiner decision, the Washington Department of Ecology would review the Shoreline CUP and/or the Shoreline Variance.

The city is currently in the process of updating their SMP. As part of this update, there is an opportunity for changes to be made to the SMP, consistent with the proposed redevelopment project. While the Waterfront Preserve parcel is currently designated as Urban Conservancy, the two other parcels retain a Shoreline Residential designation. The UC designation is much more appropriate for the entire park property. Additionally, the city could also consider changes to the SMP related to public dock structures, as the current code is not well-suited to regulate comprehensive public moorage structures. Such a code revision could potentially allow for larger overall square footage, wider walkways, wider fingers/ell, etc. and could negate the need for a Shoreline Variance.

State and federal approval will be required for any in-water (or direct wetland) work. State and federal provisions are generally less use-related or dimensionally specific, as compared to the City, but a demonstration that less impactful alternatives are not available will be necessary.

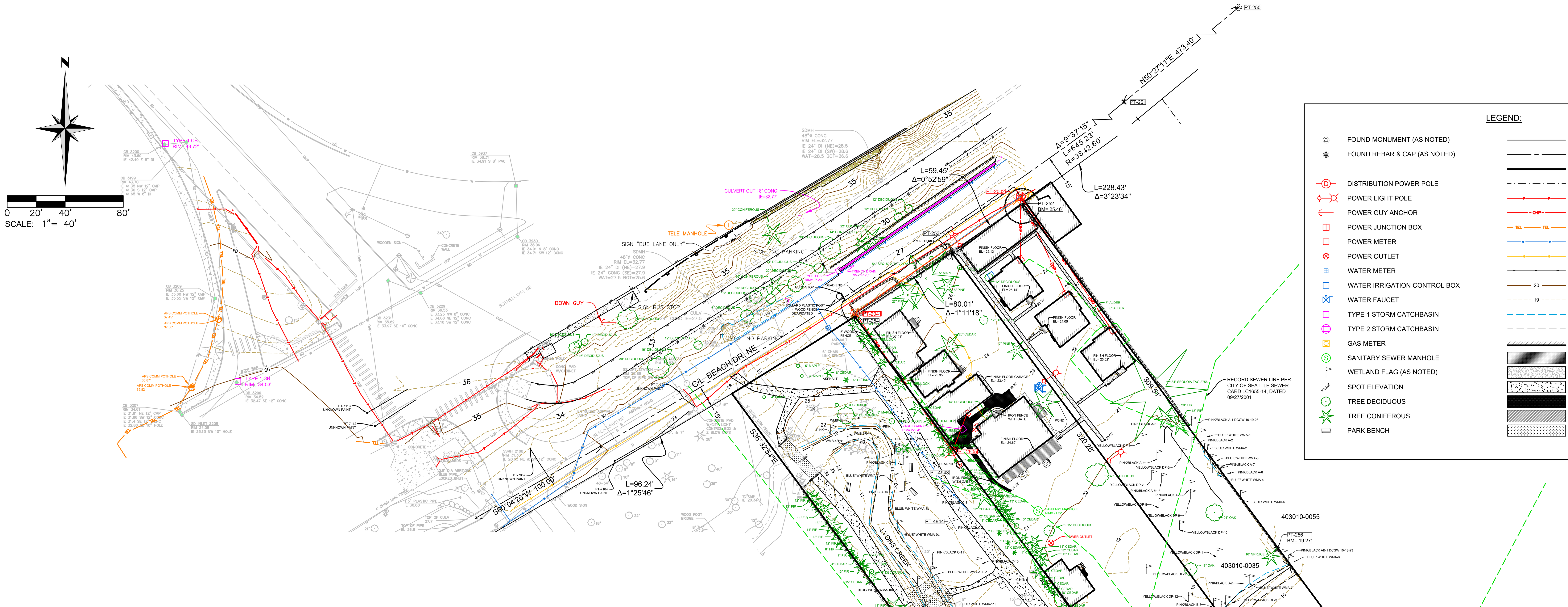
Finally, early consultation with City Planning staff is recommended in order to gain consensus on some of the more subjective code criteria likely to be involved. This discussion could also entail the aforementioned changes to the SMP code.

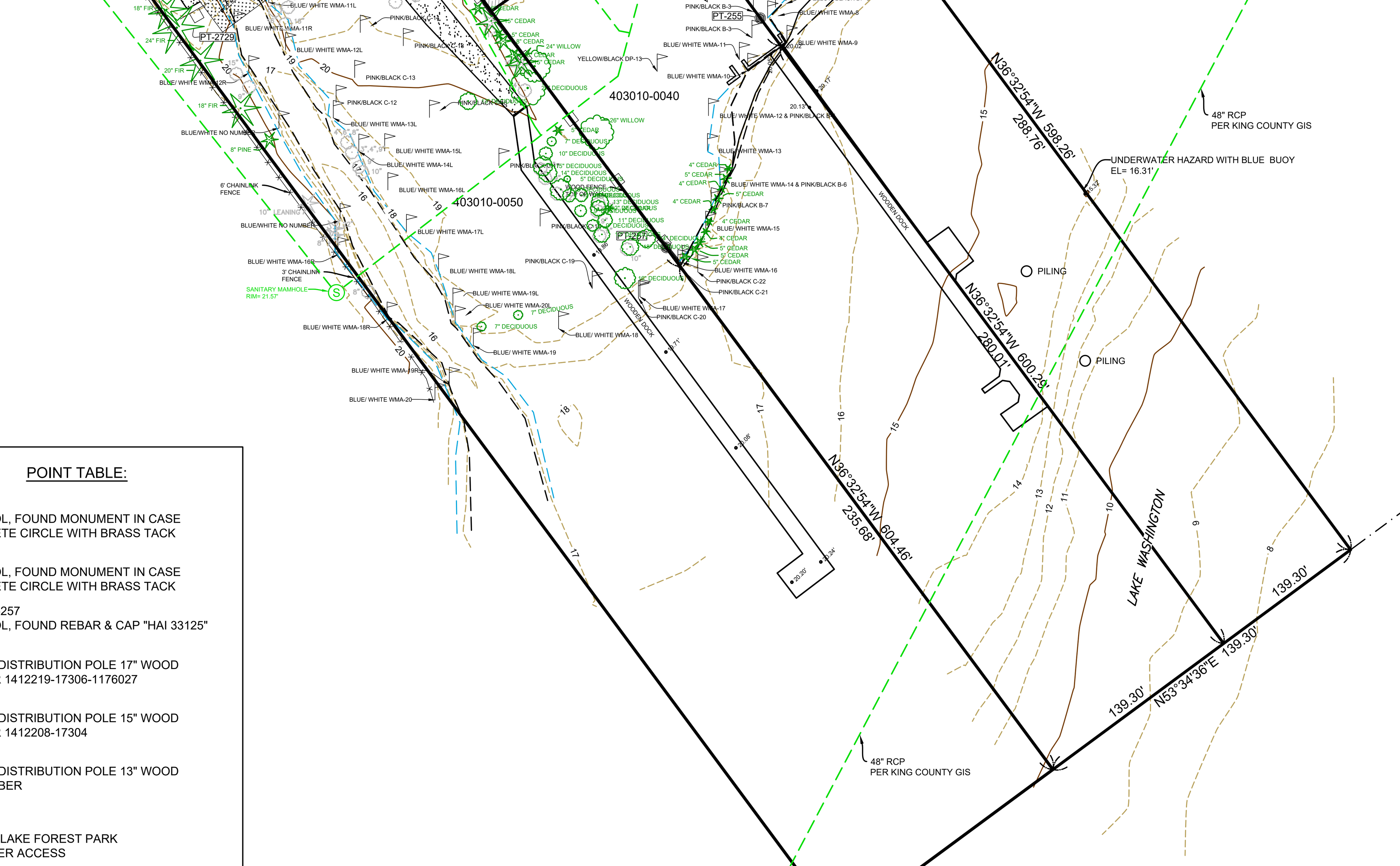
Appendix A.

# BOUNDARY AND TOPOGRAPHIC SURVEY

## A PORTION OF LOT 1, BLOCK 2, LAKE FOREST WATERFRONT

## WITHIN THE NE1/4 OF THE SE1/4 OF SECTION 10, TOWNSHIP 26 NORTH, RANGE 04 EAST, W.M., KING COUNTY, WASHINGTON




| LEGEND: | |
|---|---|
| FOUND MONUMENT (AS NOTED) | RIGHT-OF-WAY |
| FOUND REBAR & CAP (AS NOTED) | CENTER RIGHT-OF-WAY |
| DISTRIBUTION POWER POLE | BOUNDARY LINE |
| POWER LIGHT POLE | PROPERTY LINE |
| POWER GUY ANCHOR | UNDERGROUND POWER LINE |
| POWER JUNCTION BOX | OVERHEAD POWER LINE |
| POWER METER | UNDERGROUND PHONE LINE |
| POWER OUTLET | UNDERGROUND WATER LINE |
| WATER METER | UNDERGROUND GAS LINE |
| WATER IRRIGATION CONTROL BOX | EDGE OF ASPHALT |
| WATER FAUCET | MAJOR CONTOUR |
| TYPE 1 STORM CATCHBASIN | MINOR CONTOUR |
| TYPE 2 STORM CATCHBASIN | GROUND TOP |
| GAS METER | GROUND TOE |
| SANITARY SEWER MANHOLE | BUILDING LINE |
| WETLAND FLAG (AS NOTED) | CONCRETE WALL |
| SPOT ELEVATION | CONCRETE |
| TREE DECIDUOUS | GRAVEL |
| TREE CONIFEROUS | BRICK PAVERS |
| PARK BENCH | BUILDING DECK |
| | BRIDGE DECK |

### BASIS OF BEARINGS:

THE BASIS OF BEARINGS IS PER WASHINGTON STATE PLANE COORDINATES, NORTH ZONE, AS DETERMINED BY TIES TO WASHINGTON STATE REFERENCE NETWORK USING THE OBSERVED BEARING OF NORTH 50°27'11" EAST BETWEEN THE FOUND MONUMENTS MARKING THE CENTERLINE OF BEACH DRIVE NE, AS SHOWN HEREON.

### VERTICAL DATUM:

NAVD 88 AS DETERMINED BY TIES TO WASHINGTON STATE REFERENCE NETWORK.

### CONTOUR INTERVAL-1 FOOT:

THE CONTOURS SHOWN HEREON WERE COMPUTER GENERATED FROM DIRECT FIELD OBSERVATIONS WITH RESULTING ACCURACY THAT MEETS OR EXCEEDS NATIONAL MAPPING STANDARDS, ONE-HALF THE CONTOUR INTERVAL.

### PROJECT BENCHMARKS:

TOP OF REBAR & CAP "HAI 33125" MARKING THE NORTHEAST CORNER OF TAX PARCEL 403010-0035
ELEVATION = 25.46'

TOP OF REBAR & CAP "HAI 33125" ON THE BOUNDARY LINE TAX PARCELS 403010-0035 AND 403010-0055
ELEVATION = 19.27'

### GENERAL NOTES:

1. THE PURPOSE OF THIS SURVEY IS TO SHOW THE EXTERIOR BOUNDARY LINES, EXISTING SITE IMPROVEMENTS, NATURAL FEATURES AND EXISTING TERRAIN FOR KING COUNTY TAX PARCEL NUMBERS 403010-0040, 403010-0035, AND 403010-0050, FOR THE INTENDED USE OF ARCHITECTURAL AND CIVIL ENGINEERING DESIGN.
2. THIS SURVEY WAS PERFORMED USING A TRIMBLE R12I GNSS RECEIVER IN CONJUNCTION WITH A TRIMBLE S SERIES, 3" TOTAL STATION WITH RESULTING ACCURACY THAT MEETS OR EXCEEDS STANDARDS PER WAC 332-130-090.
3. THE INFORMATION ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE IN DECEMBER 2023 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
4. ALL MONUMENTS SHOWN AS FOUND WERE LOCATED DURING THE COURSE OF THIS SURVEY.
5. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT. EASEMENTS, ENCUMBRANCES AND RESTRICTIONS MAY EXIST ON THIS PROPERTY THAT ARE NOT SHOWN HEREON.
6. FOR SECTION SUBDIVISION, CORNER DOCUMENTATION AND ADDITIONAL SURVEY INFORMATION, SEE PLAT OF LAKE FOREST WATERFRONT ADDITION AS RECORDED IN VOLUME 22 OF PLATS, PAGES 39-44 AND THE SURVEYS REFERENCED THEREON, RECORDS OF KING COUNTY, WASHINGTON.

### LEGAL DESCRIPTION:

PER DEED OF RIGHT TO USE LAND FOR PUBLIC OUTDOOR RECREATION PURPOSES
AFN:20230214000499

THAT PORTION OF LOT 1, BLOCK 2, LAKE FOREST WATERFRONT ADDITION, RECORDED IN VOLUME 22 OF PLATS, PAGE 39, RECORDS OF KING COUNTY, WASHINGTON, SITUATE IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 26 NORTH, RANGE 4 EAST, W.M., DESCRIBED AS FOLLOWS:

THE NORTHEASTERLY 139.45 FEET OF THE SOUTHWESTERLY 239.45 FEET OF SAID LOT 1 AS MEASURED ALONG THE SOUTHEASTERLY LINE OF BEACH DRIVE;

TOGETHER WITH SECOND CLASS SHORELANDS ADJOINING.

EXCEPT THAT PORTION OF SAID LOT 1 DESCRIBED AS FOLLOWS;

BEGINNING AT THE WESTERLY MOST POINT OF THE ABOVE DESCRIBED PARCEL;
THENCE NORTH 61°53'34" EAST 47.06 FEET;
THENCE SOUTH 36°20'00" EAST 45.52 FEET;
THENCE NORTH 53°40'00" EAST 10.13 FEET;
THENCE SOUTH 36°20'00" EAST 51.00 FEET;
THENCE NORTH 53°40'00" EAST 30.25 FEET;
THENCE SOUTH 36°20'00" EAST 62.21 FEET;
THENCE NORTH 53°40'00" EAST 86.95 FEET TO THE SOUTHWEST LINE OF SAID LOT 1;
THENCE NORTH 36°20'00" WEST 165.46 ALONG THE SOUTHWEST LINE OF SAID LOT 1 TO THE POINT OF BEGINNING.

### REFERENCES:

R1. PLAT OF LAKE FOREST WATERFRONT ADDITION
AFN: 1153331

R2. RECORD OF SURVEY
AFN: 20021021900009

R3. RECORD OF SURVEY
AFN: 20220201900005

### POINT TABLE:

PT-250
CONTROL, FOUND MONUMENT IN CASE
CONCRETE CIRCLE WITH BRASS TACK

PT-251
CONTROL, FOUND MONUMENT IN CASE
CONCRETE CIRCLE WITH BRASS TACK

PTS-252-257
CONTROL, FOUND REBAR & CAP "HAI 33125"

PT-2002
POWER DISTRIBUTION POLE 17" WOOD
NUMBER 1412219-17306-1176027

PT-2041
POWER DISTRIBUTION POLE 15" WOOD
NUMBER 1412208-17304

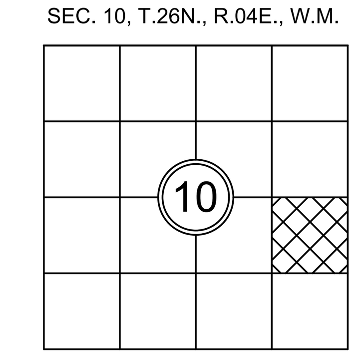
PT-2605
POWER DISTRIBUTION POLE 13" WOOD
NO NUMBER

PT-2729
SIGN
CITY OF LAKE FOREST PARK
NO WATER ACCESS

PT-4943
SIGN
WELCOME TO LYON PARK

PT-4945
SIGN
SMART WATERING SAVES
OUR WATER AND KEEPS IT
CLEAN FOR PEOPLE, FISH
AND OTHER WILDLIFE

INDEX LOCATION
SEC. 10, T.26N., R.04E., W.M.

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SAMUEL R. WARD
STATE OF WASHINGTON
LS 52843
REGISTERED PROFESSIONAL LAND SURVEYOR
2/16/2024

# BOUNDARY AND TOPOGRAPHIC SURVEY

LAKE FOREST PARK, 17345 & 17347 BEACH DR. NE, LAKE FOREST PARK
TAX PARCEL NUMBERS 403010-0035, 403010-0040, AND 403010-0050
FOR
DCG/WATERSHED
CITY OF LAKE FOREST PARK WASHINGTON

SCALE: 1"=40' | DATE: 2/16/24 | APSSM PROJECT NO.: 3126.040 | ACAD NAME: 3126040T.dwg

SURVEYED BY: JC CHECKED BY: VW
DRAWN BY: CR/SM APPROVED BY: SW

| DATE | BY | REVISION | CK'D | APPR. |
|---|---|---|---|---|
| | | | | |

SHEET 1 OF 1

DRAWING FILE NAME: E:\APS Survey & Mapping Dropbox\Jobs Folder\APS Jobs\2019\3126 - Davido Consulting Group\3126.040 - 17345 Beach Dr. NE, Lake Forest Park\DWG\3D\3126040T.dwg PLOTTED: Feb 16, 2024 - 11:29:54am

Appendix B.

# Lake Forest Park – Lakefront Park & Lyon Creek Waterfront Preserve Timber Pier Condition Assessment

for the

## City of Lake Forest Park

November 2023


Prepared for:
City of Lake Forest Park
17425 Ballinger Way NE, Lake Forest Park, WA 98155

Prepared by:
DCG/Watershed, Inc.
9706 4th Ave NE, Suite 300
Seattle, Washington 98115
(206) 523-0024
www.dcgwatershed.com

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# 1 EXECUTIVE SUMMARY

The following report summarizes the condition of the Lyon Creek & Lakefront Park Timber Piers located in Lake Forest Park, Washington. DCG/Watershed Engineers, Inc. (DCGW) inspected the structures in September 2023. Both pier structures are pile supported throughout and are restricted to pedestrian traffic only with tie-up locations for small watercraft. The following condition assessment report documents the current condition of the structures and identifies any required repairs, construction deficiencies, and general maintenance requirements.

Steve Robert, P.E., Drew McDonald, P.E and Erik Dahl, E.I.T. from DCGW performed the condition assessment from the structure's surface. Photographs were taken to document the condition of the facility. Those are presented in Appendix I & II.

Generally, both timber pier structures are in serious condition with the current condition of the structure deemed to be unsafe for public use. Full replacement and pier closure is recommended.

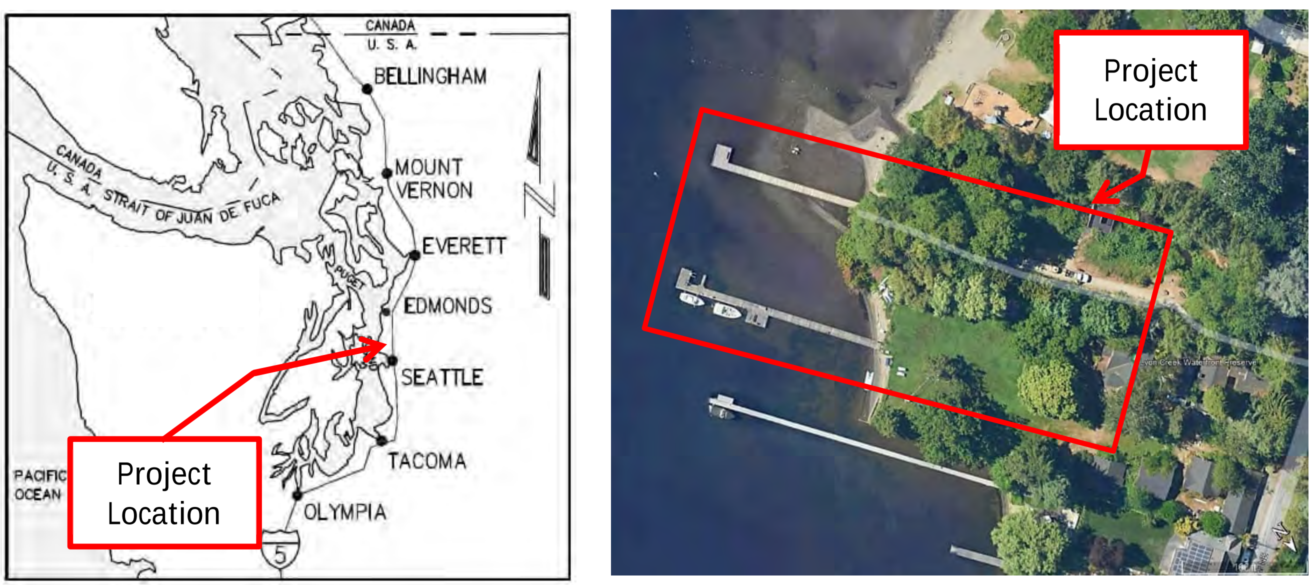



*Figure 1. Vicinity and Site Maps*

# 2 INTRODUCTION

## 2.1 Scope of Work

Structural components of the piers inspected included: timber piles, timber cap beams and timber decking. Current physical conditions generally included in the inspection were:

- Evaluation of structural details; and
- Overall condition;

## 2.2 Description

### **2.2.1** LFP Lakefront Park - Timber Pier

The Lakefront park timber pier structure is approx. 1200 SF and is supported by 35 total timber piles at a total of (15) pile bents. The pier deck width is approx. 6 FT wide along the main walk and includes two 16 FT wide bump-out regions and one 10 FT wide finger bump out at the far end of the structure. The total length of the structure was measured at 168' 6". At the shore end, the pier deck elevation is situated at the surrounding grade elevation of the grass lawn and is supported by a concrete slab. For the Lakefront Park Pier a Level III inspection was completed per ASCE MOP 130; Waterfront facilities inspection and Assessment.

### 2.2.1 LFP Lyon Creek Waterfront Preserve – Timber Pier

The Lyon Creek timber pier structure is approximately 580 SF and is supported by approximately 22 total timber piles at a total of (15) pile bents. The pier deck width is approximately. 6 FT wide along the main walk and includes one 16 FT wide bump-out region at the far end of the structure. The total length of the structure is approximately. 80 LF. At the shore end, the pier deck elevation is situated at the surrounding grade elevation of the grass lawn and is supported by a timber abutment. For the Lakefront Park Pier a Level I inspection was completed per ASCE MOP 130; Waterfront facilities inspection and Assessment.

## 2.3 List of Pertinent Documents

- ASCE Manuals and Reports on Engineering Practice No. 130 (MOP 130); Waterfront Facilities Inspection and Assessment.

## 2.4 Inspection Methodology and Rating System

A condition assessment for each timber pier was conducted as outlined in the ASCE Manuals and Reports on Engineering Practice No. 130 (MOP 130); Waterfront Facilities Inspection and Assessment. A Level I is an inspection of all structural vertical and batter piles and structural cantilevered components. Level I effort is limited to a visual examination that is detailed enough to detect obvious major damage or deterioration due to overstress or other severe deteriorations. A Level III inspection provides a means to detect hidden or interior damage and includes nondestructive or minimally destructive testing such as split depth probing and timber coring to determine the quality of the pile interior. Level III inspection techniques were used on the timber piles and cap beam components as a matter of due diligence at locations easily accessible and/or with visual indications of deficiencies.

### 2.4.1 Condition Rating System

Each major component is assigned a rating based on the observed condition during the time of inspection and a priority for replacement or repair, if necessary. A description of the condition assessment rating system is summarized in Table 1.

*Table 1. Condition Assessment Ratings*

| Rating | Description |
|---|---|
| 6 – Good | No visible damage or only minor damage noted. Structural elements may show very minor deterioration, but no overstressing observed. No repairs are required. |
| 5 – Satisfactory | Limited minor to moderate defects or deterioration observed but no overstressing observed. No repairs are required. |
| 4 – Fair | All primary structural elements are sound but minor to moderate defects or deterioration observed. Localized areas of moderate to advanced deterioration may be present but do not significantly reduce the load-bearing capacity of the structure. Repairs are recommended, but the priority of the recommended repairs is low. |

| | |
|---|---|
| 3 – Poor | Advanced deterioration or overstressing observed on widespread portions of the structure but does not significantly reduce the load-bearing capacity of the structure. Repairs may need to be carried out with moderate urgency. |
| 2 – Serious | Advanced deterioration, overstressing, or breakage may have significantly affected the load-bearing capacity of primary structural components. Local failures are possible, and loading restrictions may be necessary. Repairs may need to be carries out on a high-priority basis with urgency. |
| 1 – Critical | Very advanced deterioration, overstressing, or breakage has resulted in localized failure(s) of primary structural components. More widespread failures are possible or likely to occur, and load restrictions should be implemented as necessary. Repairs may need to be carried out on a very high-priority basis with strong urgency. |

## 2.5 Personnel Qualifications

### 2.5.1 Steve Robert, P.E.

Mr. Robert has more than sixteen years of experience in the engineering field, primarily focused on design, construction administration, fabrication inspection, and on-site inspection. His design experience includes structural, civil, Arctic, and geotechnical engineering for projects that include piers, floating structures, docks, pile-supported structures, and civil layout. He is an AWS-Certified Welding Inspector. Mr. Robert has provided regular field inspection and condition assessments of marine structures for ports and cities in Western Washington. His work included evaluation of timber, steel and concrete members and connections, revetments, and slope stability.

### 2.5.2 Erik Dahl, E.I.T.

Mr. Dahl is an engineer at DCGW with three years of experience in civil engineering design and construction support for marine/waterfront structures. His expertise includes foundation design, structural analysis, condition assessments, fabrication inspection, project and construction management. Erik has field engineering experience in marine structures condition assessment as well as providing quality control inspection during construction of multiple marine structures projects in Western Washington.

### 2.5.3 Drew McDonald, P.E.

Mr. McDonald is an engineer at DCGW with more than ten years of experience in civil engineering design and construction support for marine/waterfront structures. His expertise includes Project management, foundation design, structural analysis, condition assessments, fabrication inspection, and construction management. Drew has field engineering experience in marine structures condition assessment as well as providing quality control inspection during the construction of multiple marine structures.

# 3 EXISTING CONDITIONS - LAKEFRONT PARK TIMBER PIER

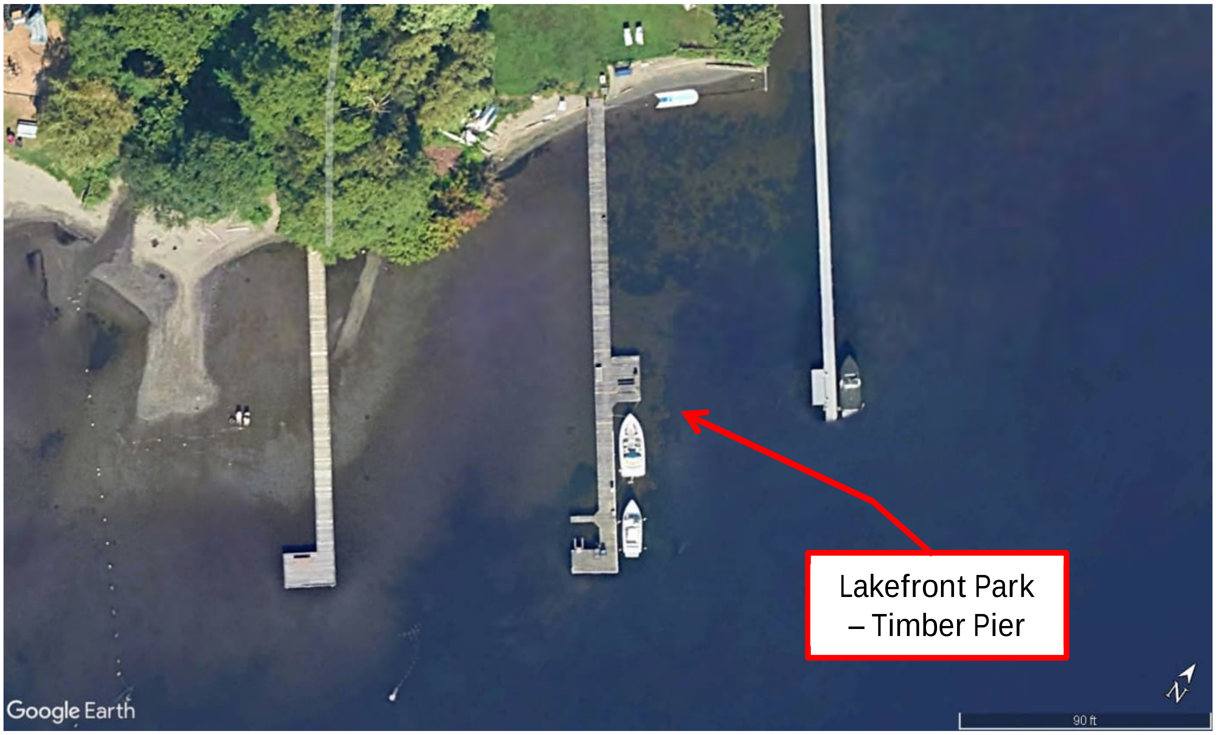



*Figure 2 Aerial view of the LFP Lakefront Park timber pier*

Steve Robert, P.E. and Erik Dahl, E.I.T. were on site on September 11, 2023. The primary focus of the assessment was to inspect the key structural components of the pier which includes the pile supports, pile caps, pier stingers and decking. Overall, most of the timber piles were identified to have section loss and splits. Pile caps have significant rotting and section loss, timber decking is in critical condition with significant rotting and holes being present. Timber stingers have noticeable marine growth and rot present. Notable sagging between bents was also observed. Detailed observations and nondestructive testing of pier structural components were carried out on pier bents #1-5 starting at the shoreside side of the structure. The following is a general list of observations based on the visible portions of the pier above water (bents 1-5); the sections are grouped by major structural components. Inspection photos are shown in Appendix A, Photo Log.

| Pier Bent | North Pile | South Pile | Pile Cap |
|---|---|---|---|
| Bent 1: | o 12” Dia.<br>o Rot present, Screwdriver penetrates 4”<br>o Serious Condition | o 8” Dia.<br>o Rot present, Screwdriver penetrates 2”<br>o Serious Condition | o 6” x 6” Sawn Lumber Cap<br>o Poor condition |
| Bent 2: | o 12” Dia.<br>o Critical Condition, w/ total section loss | o 8” Dia.<br>o Rot present, Screwdriver penetrates easily<br>o Serious Condition with severe rot | o 6” x 6” Sawn Lumber Cap<br>o Poor condition, screwdriver penetrates ½”<br>o Marine vegetation/growth present |

| Pier Bent | North Pile | South Pile | Pile Cap |
|---|---|---|---|
| Bent 3: | o 12” Dia.<br>o Critical Condition, w/ total section loss, 7” deep hole observed. | o 8” Dia.<br>o Poor condition, rot present<br>o Screwdriver penetrated ½” | o 6” x 6” Sawn Lumber Cap<br>o Serious condition, severe rot, 1” diameter hole present<br>o Marine vegetation/growth |
| Bent 4: | o 12” Dia.<br>o Serious Condition, w/ 1” diameter holes present.<br>o Vertical split in pile | o 8” Dia.<br>o Serious condition, rot present<br>o 50% section remains.<br>o 1- ½” dia. holes present | o 6” x 6” Sawn Lumber Cap<br>o Poor condition w/ 1” diameter hole present<br>o Marine vegetation/growth present |
| Bent 5: | o 14” Dia.<br>o Satisfactory Condition (likely recent replacement)<br>o Dry condition, screwdriver does not penetrate. | o 10” Dia.<br>o Critical condition, severe rot present<br>o 50% section remains. | o 6” x 6” Sawn Lumber Cap<br>o Poor condition w/ 1” diameter hole present<br>o Marine vegetation/growth present |

## 3.1 Lakefront Park - Concrete Slabs & Walls

In addition to assessing the timber pier structures at the lakefront park property, the existing concrete slab bulkhead and other upland concrete walls were visually inspected for structural integrity during the DCGW site visit.

### 3.1.1 Concrete Abutment Slab

A concrete slab serves as the primary structural support for the timber pier on the shoreside landing area. The slab ranges between Poor to Serious condition in its current state. Undermining of sediment material exists on the toe side of the slab. It also appears that significant weathering and loss of section is present on the toe side of the slab where it has been exposed to waves and debris impact. Finally significant spalling is noticeable on exposed edges. (See Photo Log)

### 3.1.2 Concrete Bulkhead/Wingwall

A concrete bulkhead exists on the northern edge of the parcel which is aligned perpendicular to the shoreline along the property line. The Bulkhead is Poor Condition with Significant spalling present on exposed sections of wall. (See Photo Log)

### 3.1.3 Upland Concrete Barrier Wall

An upland concrete barrier wall exists on the northern edge of the parcel along the property line. The barrier wall is Fair condition with some cracking observed. (See Photo Log)

# 4 EXISTING CONDITIONS – LYON CREEK PARK TIMBER PIER


*Figure 3 Aerial view of the Lyon Creek Park timber pier*

Steve Robert, P.E. and Drew McDonald, P.E. were on site on September 25, 2023. The primary focus of the assessment was to visually inspect the key structural components of the pier which includes the pile supports, pile caps, pier stingers and decking. Overall, most of the timber piles were identified to have section loss and splits. Pile caps have significant rotting and section loss. Timber decking ranged between Poor to Satisfactory condition and looked to have been replaced in last 10 – 20 years. Timber stingers have noticeable marine growth and rot present. Notable sagging between bents was also observed. Inspection photos are shown in Appendix A, Photo Log.

# 5 EVALUATION AND ASSESSMENT

## 5.1 Condition Assessment

After a thorough on-site inspection and condition assessment, a rating has been assigned to each major structural component. In general, it was observed that both pier structures are mostly in Serious condition with some components being in Poor condition The rating assigned to each component is as shown in Table 2 & 3. Full replacement and pier closure is recommended.

*Table 2. ASCE Structural Condition Assessment (Lakefront Park Pier)*

| Major Structural Component | Rating |
|---|---|
| Timber Pier Piles | Serious |
| Timber Pier Caps | Serious |
| Timber Pier Decking | Critical |
| Timber Pier Stingers | Poor |

*Table 3. ASCE Structural Condition Assessment (Lyon Creek Pier)*

| Major Structural Component | Rating |
|---|---|
| Timber Pier Piles | Serious |
| Timber Pier Caps | Serious |
| Timber Pier Decking | Poor |
| Timber Pier Stingers | Poor |

# Appendix I – Photo Log (Lakefront Park Timber Pier)

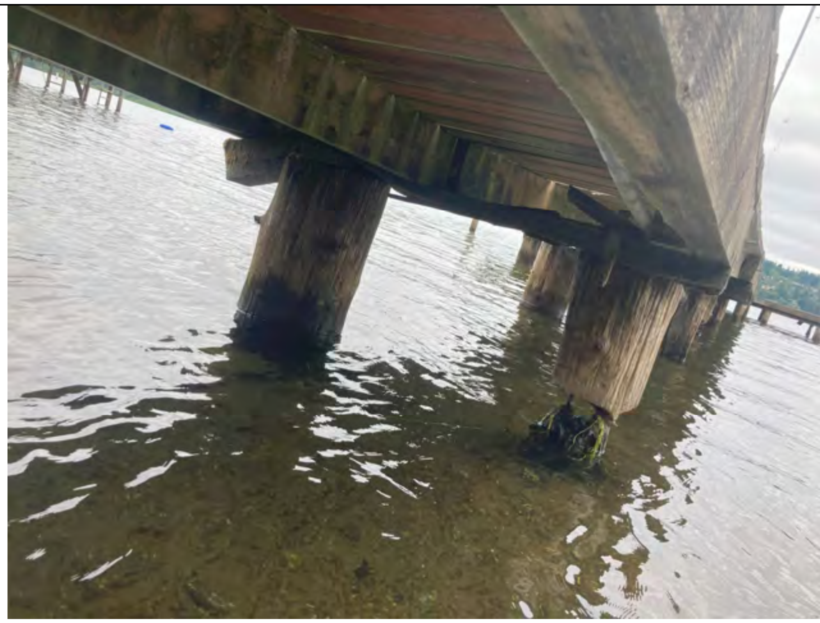
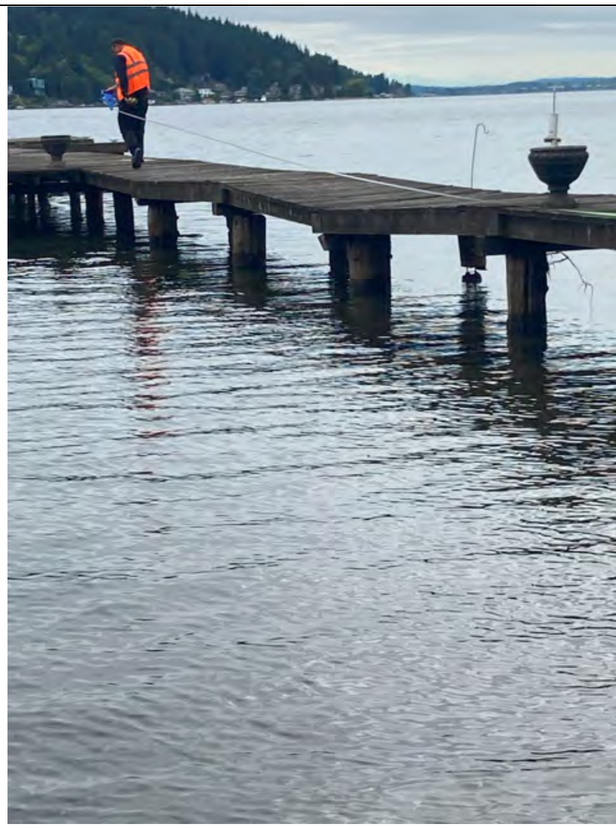
| | |
|---|---|
| Lakefront Image 1.<br><br>- Overview of timber pier taken from far waterside end |  |
| Lakefront Image 2.<br><br>- Profile view of timber pier taken from Lyon Creek Park |  |

<table>
<tr>
<td>Lakefront Image 3.<br><br>- Pier Shoreside landing area slab</td>
<td></td>
</tr>
</table>

| | |
|---|---|
| Lakefront Image 4.<br><br>- Pier Shoreside landing area slab (section loss, spalling and undermining occurring at exposed areas) |  |
| Lakefront Image 5.<br><br>- Severe section loss rotting on pier pile and cap beam |  |

| | |
|---|---|
| Lakefront Image 6.<br><br>- Severe rotting on pier pile cap and splitting timber pile |  |
| Lakefront Image 7.<br><br>- Pile and Pile Cap in serious/critical Condition (50% section loss observed) |  |

| | |
|---|---|
| Lakefront Image 8.<br><br>- Timber Decking in critical Condition, significant rot and holes observed. |  |
| Lakefront Image 9.<br><br>- Pile in Serious Condition, (loss of section/rot observed) |  |

| | |
|---|---|
| Lakefront Image 10.<br><br>- Pile in Critical Condition, |  |
| Lakefront Image 11.<br><br>- Pier profile view, sagging observed between bents |  |

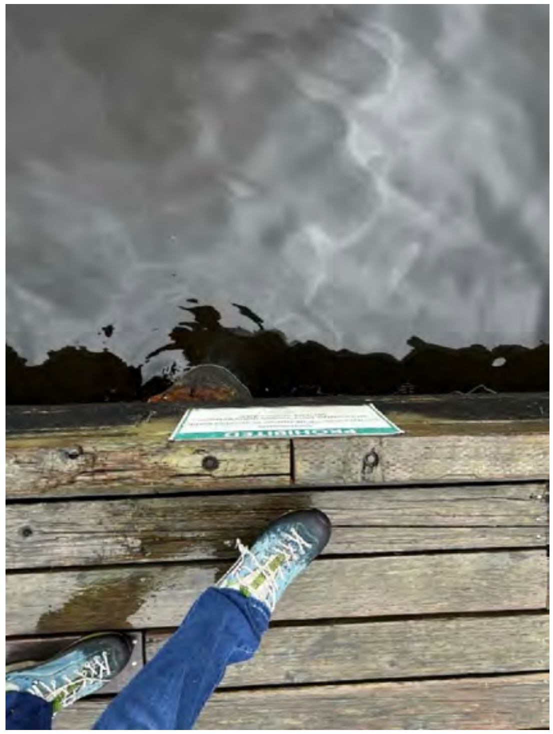
| | |
|---|---|
| Lakefront Image 12.<br><br>- Bulkhead/Wingwall on North property line |  |
| Lakefront Image 13.<br><br>- Closeup view of Bulkhead concrete spalling |  |

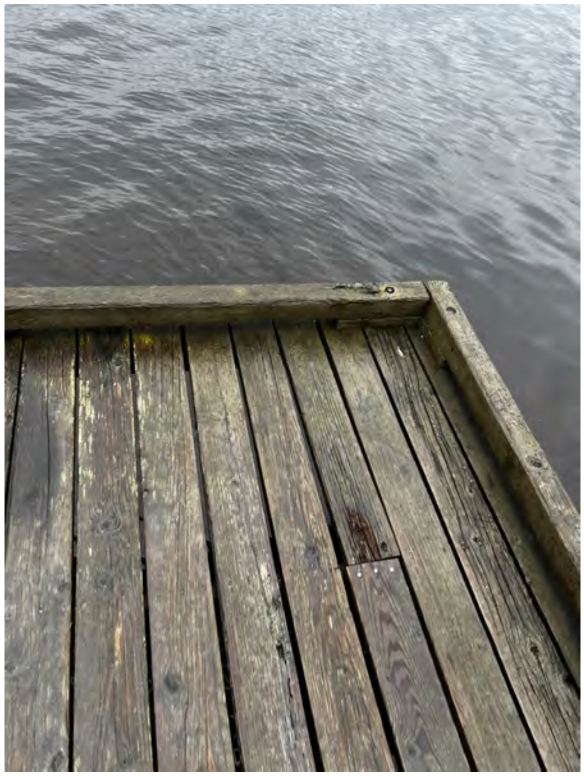
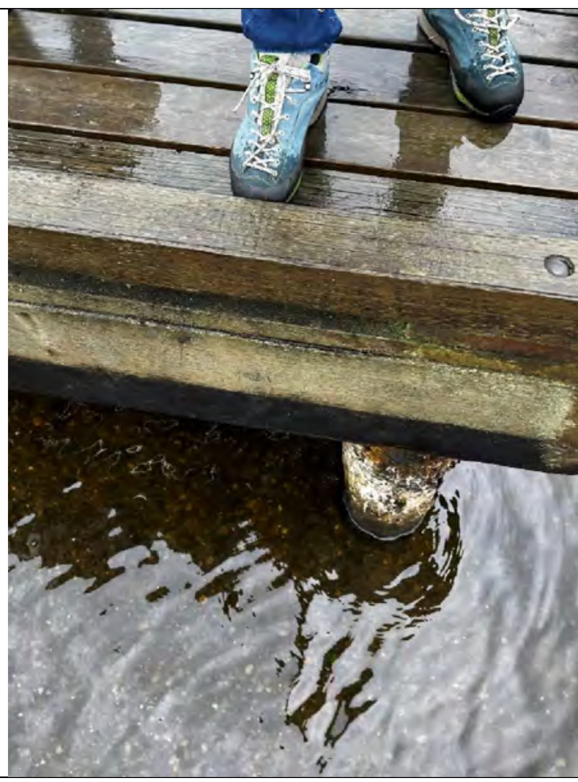
<table>
<tr>
<td>Lakefront Image 14.<br><br>- Upland Concrete Barrier Wall (some cracking observed)</td>
<td></td>
</tr>
</table>

# Appendix II – Photo Log (Lyon Creek Park Timber Pier)

| | |
|---|---|
| Lyon Creek Image 1.<br><br>- Overview of timber pier taken from far waterside end |  |
| Lyon Creek Image 2.<br><br>- Profile view of timber pier taken from Lyon Creek Park Shoreline (noticeable sagging observed) |  |

| | |
|---|---|
| Lyon Creek Image 3.<br><br>- Pier Shoreside landing area |  |
| Lyon Creek Image 4.<br><br>- Severe section loss rotting on pier pile and cap beam |  |

<table>
<tr><td>Lyon Creek Image 5.<br><br>- Severe rotting on pier pile cap and timber pile</td><td></td></tr>
<tr><td>Lyon Creek Image 6.<br><br>- Pile and Pile Cap in serious/critical Condition (50% section loss observed)</td><td></td></tr>
</table>

| | |
|---|---|
| Lyon Creek Image 7.<br><br>- Timber Decking in Moderate to Poor Condition. |  |
| Lyon Creek Image 8.<br><br>- Pile in Serious Condition |  |

| | |
|---|---|
| Lyon Creek Image 9.<br>- Pier profile view, sagging observed between bents, rotting observed on pier pile cap and timber piles |  |
| Lyon Creek Image 10.<br>- rotting on pier pile cap and timber pile |  |

| | |
|---|---|
| Lyon Creek Image 11.<br>- Piles in serious condition, section loss observed near cap connection (only drift pins/steel rods remain intact) |  |

DCG WATERSHED Appendix C.

December 4, 2023

Cory Roche
City of Lake Forest Park
206-957-2814
Via email: croche@cityoflfp.gov

# Lakefront Property / Lyon Creek Waterfront Preserve Wetland and Stream Delineation Report

DCG/Watershed Reference Number: 230336

## Summary

This report has been prepared to present the findings of a wetland and stream delineation study in the City of Lake Forest Park. Three City-owned properties located at 17245 and 17347 Beach Drive NE (parcels 403010-0035 & -0040, and -0050) are included in the study. In addition to the information and findings presented in this report, the following documents are enclosed:

- Wetland and Stream Delineation Sketch
- Wetland Determination Forms
- Wetland Rating Forms and Figures

Three wetlands (Wetlands A, B, and C), one stream (Lyon Creek, Stream A) and one lake shoreline (Lake Washington) were identified and delineated within the study area. A summary of critical area classifications, categories, and required buffer widths is provided in Table 1.

Table 1. Summary of critical areas and required buffers per Lake Forest Park Shoreline Master Plan.

| Feature Name | Classification | Category | Habitat Score | Buffer (ft) | Setback (ft) |
|---|---|---|---|---|---|
| Wetland A | Lake-Fringe | III | 5 (<19*) | 75 | 15 |
| Wetland B | Lake-Fringe | III | 5 (<19*) | 75 | 15 |
| Wetland C | Riverine | III | 6 (20-28*) | 125 | 15 |
| Lyon Creek | Type 1 | n/a | n/a | 115 | 15 |
| Lake Washington | Type S | n/a | n/a | n/a | 50 |
| *Habitat score translated per the State of Washington Department of Ecology guidelines. | | | | | |

## Study Area

The study area is defined as parcels 403010-0035, -0040, and -0050, totaling approximately 3.3-acres in size (Figure 1). It is located in the City of Lake Forest Park in Section 10 of Township 26 North, Range 04 East. The subject parcels are located in the Lake Washington-Sammamish River drainage basin of the Cedar-Sammamish Water Resource Inventory Area (WRIA 8). Adjacent public or private property within 200 feet was screened from the edge of the parcel or nearest publicly accessible land; no private property was accessed without permission.


Figure 1. Study area, outlined in yellow (source: King County iMap).

# Methods

Field investigations were conducted on October 19 and 31, 2023, by ecologists Sage Yuasa and Roen Hohlfeld. The study area was evaluated for streams based on the presence or absence of an ordinary high water mark (OHWM) as defined by Section 404 of the Clean Water Act, the Washington Administrative Code (WAC) 220-660-030, and the Revised Code of Washington (RCW) 90.58.030 and guidance documents including *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson 2016) and *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Mersel and Lichvar 2014).

The study area was evaluated for wetlands using methodology from the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (U.S. Army Corps of Engineers 2010). Presence or absence of wetlands was determined on the basis of an examination of vegetation, soils, and hydrology. These parameters were sampled at several locations along the wetland boundary to determine the approximate wetland edge. Wetlands were classified using the Washington State Department of Ecology's (Ecology) *Wetland Rating System for Western Washington:* (Hruby 2014).

Characterization of weather conditions for precipitation in the Wetland Determination Data Forms were determined using the WETS table methodology (USDA, NRCS 2015). The "Seattle Tacoma Intl AP" station from 1991-2020 was used as a source for precipitation data (http://agacis.rcc-acis.org/). The WETS table methodology uses climate data from the three months prior to the site visit month to determine if normal conditions are present in the study area region.

Public-domain information on the subject properties was reviewed for this delineation study. Resources and review findings are presented in Table 2 of the "Findings" section of this letter.

# Findings

## Desktop Review

Public-domain information reviewed for the site is summarized below (Table 2).

Table 2. Summary of online mapping and inventory resources.

| Resource | Summary |
|---|---|
| USDA NRCS: Web Soil Survey | *Urban land – Alderwood complex, 0 to 5 percent slopes. No hydric soil rating, drainage class: moderately well drained.* |
| USFWS: NWI Wetland Mapper | *One lake habitat (L1UBHh), Lake Washington, and one stream (R4SBC), Lyon Creek, mapped within subject parcels.* |
| WDFW: PHS on the Web | *Coho and sockeye occurrence; resident coastal cutthroat and steelhead occurrence/migration; sockeye and coho breeding area mapped in Lyon Creek within subject parcels. Little brown bat mapped at township scale.* |
| WDFW & NWIFC: Statewide Washington Integrated Fish Distribution | *Gradient Accessible, Presence: mapped for Chinook in Lyon Creek.*<br>*Documented Spawning: mapped for coho, sockeye in Lyon Creek.*<br>*Documented presence: mapped for steelhead and coastal cutthroat trout in Lyon Creek.* |
| WA-DNR: Forest Practices Application Mapping Tool | *Lake Washington (Type S) and one stream (Lyon Creek, Type U) mapped within subject parcels.* |
| King County iMap | *One lake (Lake Washington) and one stream (Lyon Creek) mapped within subject parcels.* |
| City of Lake Forest Park Open Data Portal | *One riverine wetland and one lake wetland mapped within subject parcels.* |
| WETS Climatic Condition | *Normal conditions (October)* |

## Study Area Overview

The study area includes Lyon Creek Waterfront Preserve and two additional City-owned properties located adjacent to the east. Lyon Creek Waterfront Preserve is characterized by a natural area with mitigation plantings along Lyon Creek, located centrally on the parcel. The park includes a pedestrian trail with two creek crossings as well as a dock structure extending into Lake Washington. A small parking area is located at the park entry at the northwest end of the parcel.

The adjacent City-owned parcels currently have several cabins and a garage structure clustered around the northwest portion of the site. These parcels are characterized by a large, maintained lawn area and ornamental vegetation, including several large, mature trees. A bulkhead is located along Lake Washington in the southeastern part of the site; the parcels also include a dock structure.

Site topography is generally flat, with Lake Washington located at the relative low elevation point along the southeast boundary of the study area. The surrounding area is characterized by high-intensity residential land use.

## Shorelines

Lake Washington, a shoreline of statewide significance, is located in the southern portion of the study area. The ordinary high water mark was flagged within the study area.

Photo 1. Lake Washington, near the mouth of Lyon Creek.

## Streams

One stream (Lyon Creek) is located in the western portion of the study area. The ordinary high water mark along left and right banks was flagged within the study area.

The stream enters the northwest corner of subject parcels and flows south to Lake Washington along the western boundary of the study area. OHWM indicators such as flowing water, defined bed and bank characteristics, scour, sorted sediments, and hydrophytic vegetation were observed along the stream channel. Lyon Creek is a low gradient stream with a channel width of approximately 10-feet. The streambed is composed of fine sediments, cobble, and small boulders. Riparian vegetation, including a forested canopy and understory vegetation overhangs the stream banks throughout the study area. Large woody debris is present, however stream channel complexity, such as pools and braiding, is limited.

Photo 2. Lyon Creek, in the northwest portion of the study area.

## Wetlands

Three wetlands (Wetland A, B, and C) were identified and delineated within the study area as summarized in Tables 3, 4, and 5.

Table 3. Wetland A assessment summary.

| DCG WATERSHED | **WETLAND A – Assessment Summary** |
|---|---|
| Location: | Parcels #403010-0035 & -0040; Lake Forest Park |
| WRIA / Sub-basin: | Cedar-Sammamish watershed (WRIA 8) / Lake Washington- Sammamish River sub-basin |

| | | |
|---|---|---|
|  | 2014 Western WA Ecology Rating: | Category III |
| | Buffer Width and Buffer Setback: | 75-foot standard buffer and 15-foot setback |
| | Wetland Size: | Approx. 2,500 SF |
| | Cowardin Classification(s): | Palustrine Emergent<br>Palustrine Forested |
| | HGM Classification(s): | Lake-Fringe |
| | Wetland Data Sheet(s): | DP-2 |
| | Upland Data Sheet (s): | DP-6, DP-7, DP-9 |

| | | |
|---|---|---|
| Vegetation | Tree stratum: | *Alnus rubra, Salix matsudana* |
| | Shrub stratum: | *Rubus bifrons* |
| | Herb stratum: | *Poa* sp., *Lysimachia vulgaris, Phalaris arundinacea, Hedera helix* |
| Soils | Soil survey: | Urban land – Alderwood complex, 0 to 5 percent slopes |
| | Field data: | Redox Dark Surface (F6) |
| Hydrology | Source: | Lake-fringe, high water table |
| | Field data: | Geomorphic Position (D2), FAC-Neutral Test (D5) |

**Wetland Functions**

| | Improving Water Quality | | | Hydrologic | | | Habitat | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Potential | H | **M** | L | H | M | **L** | H | M | **L** | |
| Landscape Potential | **H** | M | L | **H** | M | L | H | M | **L** | |
| Value | H | **M** | L | **H** | M | L | **H** | M | L | **TOTAL** |
| Score Based on Ratings | | 7 | | | 7 | | | 5 | | 19 |

Table 4. Wetland B assessment summary.

| | |
|---|---|
| DCG WATERSHED | **WETLAND B – Assessment Summary** |
| Location: | Parcels #403010-0035 & -0040; Lake Forest Park |
| WRIA / Sub-basin: | Cedar-Sammamish watershed (WRIA 8) / Lake Washington- Sammamish River sub-basin |

| | | |
|---|---|---|
|  | 2014 Western WA Ecology Rating: | Category III |
| | Buffer Width and Buffer Setback: | 75-foot standard buffer and 15-foot setback |
| | Wetland Size: | Approx. 1,125 SF |
| | Cowardin Classification(s): | Palustrine Emergent |
| | HGM Classification(s): | Lake-Fringe |
| | Wetland Data Sheet(s): | DP-3 |
| | Upland Data Sheet (s): | DP-11, DP-12, DP-13 |

| | | |
|---|---|---|
| Vegetation | Tree stratum: | *n/a* |
| | Shrub stratum: | *n/a* |
| | Herb stratum: | *Poa* sp., *Iris pseudacorus, Lotus coniculatus, Phalaris arundinacea, Persicaria maculosa* |
| Soils | Soil survey: | Urban land – Alderwood complex, 0 to 5 percent slopes |
| | Field data: | Sandy Redox (S5) |
| Hydrology | Source: | Lake-fringe, high water table |
| | Field data: | Geomorphic Position (D2), FAC-Neutral Test (D5) |

**Wetland Functions**

| | Improving Water Quality | | | Hydrologic | | | Habitat | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Potential | H | **M** | L | H | M | **L** | H | M | **L** | |
| Landscape Potential | **H** | M | L | **H** | M | L | H | M | **L** | |
| Value | H | **M** | L | H | **M** | L | **H** | M | L | **TOTAL** |
| Score Based on Ratings | 7 | | | 6 | | | 5 | | | 18 |

Table 5. Wetland C assessment summary.

| DCG WATERSHED | **WETLAND C – Assessment Summary** |
|---|---|
| Location: | Parcels #403010-0050; Lake Forest Park |
| WRIA / Sub-basin: | Cedar-Sammamish watershed (WRIA 8) / Lake Washington- Sammamish River sub-basin |

| | | |
|---|---|---|
|  | 2014 Western WA Ecology Rating: | Category III |
| | Buffer Width and Buffer Setback: | 125-foot standard buffer and 15-foot setback |
| | Wetland Size: | Approx. 0.25 acres |
| | Cowardin Classification(s): | Palustrine Emergent<br>Palustrine Scrub-shrub<br>Palustrine Forested |
| | HGM Classification(s): | Riverine, Lake-Fringe |
| | Wetland Data Sheet(s): | DP-4 |
| | Upland Data Sheet (s): | DP-5 |

| | | |
|---|---|---|
| Vegetation | Tree stratum: | *Alnus rubra, Thuja plicata, Fraxinus latifolia* |
| | Shrub stratum: | *Acer circinatum, Cornus sericea, Physocarpus capitatus, Rubus bifrons* |
| | Herb stratum: | *Persicaria maculosa, Solanum dulcamara, Carex obnupta, Phalaris arundinacea, Impatience capensis* |
| Soils | Soil survey: | Urban land – Alderwood complex, 0 to 5 percent slopes |
| | Field data: | Redox Dark Surface (F6) |
| Hydrology | Source: | Lyon Creek, lake-fringe |
| | Field data: | Geomorphic Position (D2), FAC-Neutral Test (D5) |

**Wetland Functions**

| | Improving Water Quality | | | Hydrologic | | | Habitat | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Potential | H | **M** | L | H | **M** | L | H | **M** | L | |
| Landscape Potential | **H** | M | L | **H** | M | L | H | M | **L** | |
| Value | H | M | **L** | H | M | **L** | **H** | M | L | **TOTAL** |
| Score Based on Ratings | | 6 | | | 6 | | | 6 | | 18 |

### Non-Wetland Areas

The central and northeast portions of the study area do not meet wetland criteria. Vegetation in non-wetland areas includes native restoration plantings with species typical of non-wetland areas such as common snowberry (*Symphoricarpos albus*) tall Oregon grape (*Mahonia aquifolium*), and sword fern (*Polystichum munitum*). Maintained lawn and ornamental trees, shrubs and groundcovers are also common in non-wetland areas.

Photo 3. Typical non-wetland area conditions.

## Local Regulations

### Shorelines

Lake Washington is a shoreline of statewide significance and regulated under the Lake Forest Park Municipal Code (LFPMC) Chapter 16.18 Shoreline Master Program (SMP). The SMP currently classifies the subject parcels' shoreline environment designations as Shoreline Residential and Urban Conservatory. Per SMP Chapter 7.1, on Shoreline Residential lots with a depth of 100-feet of greater, a standard shoreline setback of 50-feet is required; Urban Conservancy lots also require a 50-foot standard setback.

SMP Chapter 7 provides specific details on shoreline use policies and regulations. Specifically, SMP section 7.10 outlines policies related to recreational uses in the shoreline jurisdiction. New recreational structures, other than those that are accessory or water-dependent, shall be set back 50-feet from the OHWM (SMP 7.10A).

### Streams

The lower reach of Lyon Creek is located within Shoreline Jurisdiction and is therefore regulated under the City of Lake Forest Park's SMP. Per SMP Appendix A - *Environmentally Sensitive Areas Regulations in Shoreline Jurisdiction*, Section 40X, "streams that are fish passable from Lake Washington are presumed to be Type 1." Generally, Type 1 streams are fish-bearing streams, used by fish for spawning, rearing, or migration. Per WAC 22-16-031, stream segments with defined a channel of two feet in width or greater and with a gradient of 16% or less are presumed to have fish use. Lyon Creek meets these parameters and is therefore a Type 1 stream. The City of Lake Forest Park requires Type 1 streams located within the shoreline jurisdiction to have a standard 115-foot buffer (SMP Section 350A). Additionally, all buildings and structures must also have a 15-foot setback from the edge of the stream buffer (SMP Section 350M).

### Wetlands

Wetland A and Wetland B are both located within Shoreline Jurisdiction and are therefore associated wetlands regulated under the City of Lake Forest Park's SMP. The SMP states that "Wetlands shall be rated according to the *Washington State Wetland Rating System for Western Washington* (Department of Ecology 2004, or as revised)" (SMP Section 40AA). As such, the wetland delineated in this study have been classified using the *2014 Update to the Western Washington Rating System* (Publication #14-06-029) (Rating System). However, Lake Forest Park's SMP was adopted in 2013, and utilizes the 2004 *Western Washington Rating System* scoring; as such, scoring has been translated per the State of Washington Department of Ecology guidelines to determine required buffer widths.

According to SMP Section 320A, wetlands are rated as one of four categories based upon the Rating System and wetland buffers are determined based upon a combination of the wetland category and habitat score. Wetlands A, B, and C are each Category III wetlands. Wetland A and Wetland B have habitat scores of 5 points each; Wetland C has a habitat score of 6 points. Per SMP Section 320A, Wetland A and Wetland B each require a standard buffer width of 75-feet; Wetland C requires a standards buffer width of 125-feet. Similar to streams, a minimum 15-foot setback from the wetland buffer is also required (SMP Section 320G).

### Stream and Wetland Buffer Alterations

Generally, alterations of streams, wetlands and associated buffers are prohibited. However, buffer averaging and reduction may be allowable with conditions outlined in SMP Section 320D, 320E, 350F, and 350G. Lyon Creek's buffer may be reduced up to a minimum width of 70-feet with application of conditions outlined in SMP Section 350G. Similarly, Wetlands A, B, and C may be reduced to not less than 75% of the standard buffer width with conditions provided in SMP Section 320E.

Additionally, per SMP Section 330A, standard wetland requirements may allow for exceptions if "the development site proposal will enhance or protect the wildlife habitat, natural drainage or other functions and will be consistent with the purposes of these regulations and this Master Program." Crossings through a wetland may be allowed when no possible alternative exists. In such a case, impacts must be minimized and mitigation for unavoidable impacts shall be provided. Additionally, wetland hydrology should not be altered, habitat functions should not be disturbed, and construction shall be scheduled during periods of low water tables (SMP Section 230G).

## State and Federal Regulations

### Federal Agencies

Most wetlands and streams are regulated by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act. Any proposed filling or other direct impacts to Waters of the U.S., including wetlands (except isolated wetlands), would require preconstruction notification and permit authorization from the Corps. A Jurisdictional Determination from the Corps would be required to confirm the wetland's jurisdictional status. Unavoidable impacts to jurisdictional wetlands are typically required to be compensated through implementation of an approved mitigation plan. If activities requiring a Corps permits are proposed, a Joint Aquatic Resource Permit Application (JARPA) could be submitted to obtain authorization.

Federally permitted actions that could affect endangered species may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Compliance with the Endangered Species Act must be demonstrated for activities within jurisdictional wetlands and the 100-year floodplain. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology and a cultural resource study in accordance with Section 106 of the National Historic Preservation Act.

### Washington Department of Ecology (Ecology)

Similar to the Corps, Ecology is charged with reviewing, conditioning, and approving or denying certain federally permitted actions that result in discharges to state waters under Section 401 of the Clean Water Act. However, Ecology review under the Clean Water Act would only become necessary if a Section 404 permit from the Corps was issued. Ecology also regulates wetlands, including isolated wetlands, under the Washington Water Pollution Control Act, but only if direct wetland impacts are proposed. Therefore, authorization from Ecology would not be needed if filling activities are avoided.

A JARPA may also be submitted to Ecology in order to obtain a Section 401 Water Quality Certification and Coastal Zone Management Consistency Determination if filling is proposed. Ecology approvals are either issued concurrently with the Corps approval or within 90 days following the Corps approval.

In general, neither the Corps nor Ecology regulates wetland and stream buffers, unless direct impacts are proposed. When direct impacts are proposed, buffers are applied based on Corps and Ecology joint regulatory guidance.

### Washington Department of Fish and Wildlife (WDFW)

Chapter 77.55 of the RCW (the Hydraulic Code) gives WDFW the authority to review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of state waters." This provision includes any in-water work, the crossing or bridging of any state waters and can sometimes include stormwater discharge to state waters. WDFW will issue a Hydraulic Project Approval (HPA) if a project meets regulatory requirements.

WDFW can also restrict activities to a particular timeframe through the conditions of approval on an HPA. Work is typically restricted to late summer and early fall, however, WDFW has in the past allowed crossings that don't involve in-stream work to occur at any time during the year.

## Disclaimer

The information contained in this letter is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria referenced above. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

RH

Roen Hohlfeld
Ecologist, ISA Certified Arborist

## References

Anderson, P.S. et al. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. (Publication #16-06-029). Olympia, WA: Shorelands and Environmental Assistance Program, Washington Department of Ecology.

Department of Ecology (Ecology). 2018. July 2018 Modifications for Habitat Score Ranges. Modified from Wetland Guidance for CAO Updates, Western Washington Version. (Publication #16-06-001). Accessed 8/16/18: https://fortress.wa.gov/ecy/publications/parts/1606001part1.pdf.

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Hruby, T. 2014. Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.

Mersel, M.K. and Lichvar, R.W. 2014. A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States. ERDC/CRREL TR-14-13.

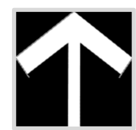
U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). ed. J. S. Wakely, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2015. National Engineering Handbook, Part 650 Engineering Field Handbook, Chapter 19 Hydrology Tools for Wetland Identification and Analysis. ed. R. A. Weber. 210-VI-NEH, Amend. 75. Washington, DC.

# Wetland Delineation Sketch – Lakefront Property

| | | | |
|---|---|---|---|
| Site Address: | 17345 & 17347 Beach Dr NE; Lake Forest Park, WA | Prepared for: | Cory Roche |
| Parcel Number: | 403010-0035, -0040, and -0050 | TWC Ref. No.: | 230336 |
| Site Visit Date: | 11/19 and 11/31, 2023 | | |


**Note**: Field sketch only. Features depicted are approximate and not to scale. Wetland boundaries are marked with pink- and black-striped flags. Stream boundaries are marked with blue- and black-striped flags. Data points are marked with yellow- and black-striped flags. All observations were made from within the study area; adjoining private properties were not entered.



**LEGEND**

- Study area
- Delineated OHWM
- Non-Delineated OHWM
- Delineated Wetland Boundary
- Non-Delineated Wetland Boundary
- Data Point (DP)

DCG WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 1**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050) City/County: Lake Forest Park/ King County Sampling date: 10/18/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 1

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): terrace/slope Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | Yes | No |
|---|---|---|
| Hydrophytic Vegetation Present? | ☐ | ☒ |
| Hydric Soils Present? | ☐ | ☒ |
| Wetland Hydrology Present? | ☐ | ☒ |

**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 5-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| = Total Cover | - | | |
| Sapling/Shrub Stratum (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | - | | |
| Herb Stratum (Plot size: 1-m diameter) | | | |
| 1. *Poa* sp. | 55 | Y | *FAC |
| 2. *Prunella vulgaris* | 25 | Y | FACU |
| 3. *Ranunculus repens* | 15 | N | FAC |
| 4. *Carex obnupta*** | 5 | N | OBL |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| = Total Cover | 100 | | |
| Woody Vine Stratum (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| = Total Cover | - | | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 5 | x 1 = | 5 |
| FACW species | - | x 2 = | - |
| FAC species | 70 | x 3 = | 210 |
| FACU species | 25 | x 4 = | 100 |
| UPL species | - | x 5 = | - |
| Column Totals: | 100 | (A) | 315 (B) |

Prevalence Index = B/A = 3.15

**Hydrophytic Vegetation Indicators:**

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 – Dominance Test is > 50%
☐ 3 – Prevalence Index is ≤ 3.0[1]
☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 – Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ☐ **No** ☒

Remarks: *Presumed FAC. **Appears to be a cultivar.

## SOIL

Sampling Point: DP-1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 4-11 | 2.5Y 2.5/1 | 100 | | | | | Sand | |
| 11-19 | 2.5Y 2.5/1 | 70 | 2.5Y 4/4 | 10 | C | M | Sand | |
| 11-19 | | | 5Y 5/2 | 20 | D | M | | Depleted inclusion |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ______

Depth (inches):

**Hydric soil present?** **Yes** ☐ **No** ☒

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

D|C|G WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 2**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050) City/County: Lake Forest Park/ King County Sampling date: 10/18/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 2

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | ☒ | No | ☐ | **Is the Sampled Area within a Wetland?** **Yes ☒ No ☐** |
| Hydric Soils Present? | Yes | ☒ | No | ☐ | |
| Wetland Hydrology Present? | Yes | ☒ | No | ☐ | |

Remarks: **Drier than normal August and September. Wetland A – in pit.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | - = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | - = Total Cover | | |
| **Herb Stratum** (Plot size: 1-m diameter) | | | |
| 1. *Poa* sp. | 50 | Y | *FAC |
| 2. *Ranunculus repens* | 30 | Y | FAC |
| 3. *Carex obnupta*** | 20 | Y | OBL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| | - = Total Cover | | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | (A) | | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 – Dominance Test is > 50%
☐ 3 – Prevalence Index is ≤ 3.0[1]
☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 – Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes ☒ No ☐**

Remarks: *Presumed FAC. **Appears to be a cultivar.

## SOIL

Sampling Point: DP-2

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 10YR 3/2 | 95 | 10YR 3/6 | 5 | C | N | Sandy loam | |
| 5-12 | 2.5Y 3/1 | 100 | | | | | Sand | |
| 12-16 | 10YR 4/3 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: __________

Depth (inches):

**Hydric soil present?** **Yes** ☒ **No** ☐

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | Yes | No | Depth (in): |
|---|---|---|---|
| Surface Water Present? | ☐ | ☒ | - |
| Water Table Present? | ☐ | ☒ | - |
| Saturation Present? (includes capillary fringe) | ☐ | ☒ | - |

**Wetland Hydrology Present?** **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Geomorphic position is a depression.

D|C|G WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 3**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050) City/County: Lake Forest Park/ King County Sampling date: 10/18/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 3

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): terrace Local relief (concave, convex, none): convex Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes ☒** | **No ☐** |
| Hydric Soils Present? | Yes ☒ | No ☐ | | | |
| Wetland Hydrology Present? | Yes ☒ | No ☐ | | | |

Remarks: **Drier than normal August and September. Wetland B – in pit.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| = Total Cover | - | | |
| **Sapling/Shrub Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | - | | |
| **Herb Stratum** (Plot size: 1-m diameter) | | | |
| 1. *Poa* sp. | 70 | Y | *FAC |
| 2. *Lotus coniculatus* | 55 | Y | FAC |
| 3. *Carex obnupta*** | 20 | Y | OBL |
| 4. *Iris pseudacorus* | 5 | N | OBL |
| 5. *Calystegia* sp. | 5 | N | *FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| = Total Cover | 155 | | |
| **Woody Vine Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| = Total Cover | - | | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species that are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across all Strata: | 2 | (B) |
| Percent of Dominant Species that are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes ☒** **No ☐**

Remarks: *Presumed FAC. **Appears to be a cultivar.

## SOIL

Sampling Point: DP-3

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-7 | 2.5Y 3/1 | 95 | 7.5YR 4/6 | 5 | C | M | Sand | |
| 7-16 | 2.5Y 3/1 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric soil present?** **Yes** ☒ **No** ☐

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Geomorphic position is lake fringe.

D|C|G WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 4**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050) City/County: Lake Forest Park/ King County Sampling date: 10/18/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 4

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Stream bank Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes ☒ No ☐** |
| Hydric Soils Present? | Yes ☒ | No ☐ | | |
| Wetland Hydrology Present? | Yes ☒ | No ☐ | | |

Remarks: **Drier than normal August and September. Wetland C – in pit.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | - | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 3-m diameter)** | | | |
| 1. *Fraxinus latifolia* | 15 | Y | FACW |
| 2. *Alnus rubra* | 15 | Y | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | = Total Cover | |
| **Herb Stratum (Plot size: 1-m diameter)** | | | |
| 1. *Phalaris arundinacea* | 50 | Y | FACW |
| 2. *Carex obnupta*** | 25 | Y | OBL |
| 3. *Ranunculus repens* | 15 | N | FAC |
| 4. *Phalaris arundinacea* | 15 | N | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 105 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| | - | = Total Cover | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes ☒ No ☒**

Remarks: **Appears to be a cultivar.

## SOIL

Sampling Point: DP-4

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 3/1 | 90 | 10YR 3/6 | 10 | C | M | Sandy loam | |
| 12-14 | 10YR 3/1 | 70 | | | | | Sandy loam | Mixed matrix |
| 12-14 | 10YR 3/1 | 30 | | | | | Loamy sand | Mixed matrix |
| 14-16 | 10YR 3/1 | 95 | 10YR 3/6 | 5 | C | M | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ____________________

Depth (inches):

**Hydric soil present?** **Yes** ☒ **No** ☐

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Geomorphic position is a floodplain.

D|C|G WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 5**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050) City/County: Lake Forest Park/ King County Sampling date: 10/18/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 5

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes** ☐ | **No** ☐ |
| Hydric Soils Present? | Yes ☐ | No ☒ | | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus robur* | 60 | Y | *UPL |
| 2. *Alnus rubra* | 30 | Y | FAC |
| 3. | | | |
| 4. | | | |
| | 90 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | - | = Total Cover | |
| **Herb Stratum (Plot size: 1-m diameter)** | | | |
| 1. *Ranunculus repens* | 60 | Y | FAC |
| 2. *Calystegia* sp. | 5 | N | **FAC |
| 3. *Geranium robertianum* | 5 | N | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 70 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| | - | = Total Cover | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 6\7 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ☒ **No** ☐

Remarks: *Not listed, presumed UPL. **Presumed FAC.

## SOIL

Sampling Point: DP-5

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 2/2 | 100 | | | | | Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ______

Depth (inches):

**Hydric soil present?** **Yes** ☐ **No** ☒

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Geomorphic position is a floodplain.

DCG WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 6**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050) City/County: Lake Forest Park/ King County Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 6

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): terrace/slope Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Hydric Soils Present? | Yes ☐ | No ☒ | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 5-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| = Total Cover | - | | |
| Sapling/Shrub Stratum (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | - | | |
| Herb Stratum (Plot size: 1-m diameter) | | | |
| 1. *Poa* sp. | 95 | Y | FAC* |
| 2. *Stellaria media* | 1 | N | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| = Total Cover | 96 | | |
| Woody Vine Stratum (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| = Total Cover | - | | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | (A) | | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes ☒ No ☒**

Remarks: *Presumed FAC.

## SOIL

Sampling Point: DP-6

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 2/2 | 100 | | | | | Sandy loam | |
| 4-5 | 10YR 2/2 | 97 | 10YR 4/6 | 3 | C | M | Loam | |
| 5-18 | 2.5Y 2.5/1 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

☐ 2cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric soil present?** Yes ☐ No ☒

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

☐ Surface water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): - |

**Wetland Hydrology Present?** Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils slightly damp throughout profile.

DCG WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 7**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050 City/County: Lake Forest Park/ King County Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 7

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Terrace/slope Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes** ☐ | **No** ☒ |
| Hydric Soils Present? | Yes ☐ | No ☒ | | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| = Total Cover | - | | |

| Sapling/Shrub Stratum (Plot size: 3-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | - | | |

| Herb Stratum (Plot size: 1-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Poa* sp. | 85 | Y | FAC* |
| 2. *Ranunculus repens* | 15 | N | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| = Total Cover | 100 | | |

| Woody Vine Stratum (Plot size: 3-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| = Total Cover | - | | |

% Bare Ground in Herb Stratum:

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species that are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across all Strata: | 1 | (B) |
| Percent of Dominant Species that are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | (A) | | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ☒ **No** ☐

Remarks: *Presumed FAC.

## SOIL

Sampling Point: DP-7

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 8-16 | 2.5Y 2/1 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric soil present?** **Yes** ☐ **No** ☒

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | Yes | No | Depth (in): |
|---|---|---|---|
| Surface Water Present? | ☐ | ☒ | - |
| Water Table Present? | ☐ | ☒ | - |
| Saturation Present? (includes capillary fringe) | ☐ | ☒ | - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

D|C|G WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 8**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050 City/County: Lake Forest Park/ King County Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 8

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Terrace/slope Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☐ | No ☒ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Hydric Soils Present? | Yes ☒ | No ☐ | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| = Total Cover | - | | |
| **Sapling/Shrub Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | - | | |
| **Herb Stratum** (Plot size: 1-m diameter) | | | |
| 1. *Poa* sp. | 60 | Y | FAC* |
| 2. *Prunella vulgaris* | 35 | Y | FACU |
| 3. *Ranunculus repens* | 5 | N | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| = Total Cover | 100 | | |
| **Woody Vine Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| = Total Cover | - | | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species that are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across all Strata: | 2 | (B) |
| Percent of Dominant Species that are OBL, FACW, or FAC: | | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | - | x 1 = | - |
| FACW species | - | x 2 = | - |
| FAC species | 65 | x 3 = | 195 |
| FACU species | 35 | x 4 = | 140 |
| UPL species | - | x 5 = | - |
| Column Totals: | 100 (A) | | 335 (B) |

Prevalence Index = B/A = 3.35

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes ☐ No ☒**

Remarks:

## SOIL

Sampling Point: DP-8

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 6-18 | 7.5Y 2.5/1 | 95 | 7.5Y 4/6 | 5 | C | M | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ______

Depth (inches):

**Hydric soil present?** **Yes** ☒ **No** ☐

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

D|C|G WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

DP - 9

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050 City/County: Lake Forest Park/ King County Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 9

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Terrace/slope Local relief (concave, convex, none): none Slope (%): >5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☐ | No ☒ | Is the Sampled Area within a Wetland? | Yes ☐ | No ☒ |
| Hydric Soils Present? | Yes ☐ | No ☒ | | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus robar* | 85 | Y | UPL* |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 85 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | - | = Total Cover | |
| **Herb Stratum (Plot size: 1-m diameter)** | | | |
| 1. *Poa* sp. | 95 | Y | FAC** |
| 2. *Stellaria media* | 1 | N | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 96 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| | - | = Total Cover | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species that are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across all Strata: | 2 | (B) |
| Percent of Dominant Species that are OBL, FACW, or FAC: | 50 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | 95 | x 3 = | 285 |
| FACU species | 1 | x 4 = | 4 |
| UPL species | 85 | x 5 = | 425 |
| Column Totals: | 181 | (A) | 715 (B) |

Prevalence Index = B/A = 3.95

**Hydrophytic Vegetation Indicators:**

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 – Dominance Test is > 50%
☐ 3 – Prevalence Index is ≤ 3.0[1]
☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 – Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ☐ **No** ☒

Remarks: *Not listed, presumed UPL. **Presumed FAC.

## SOIL

Sampling Point: DP-9

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 2/2 | 100 | | | | | Sandy loam | |
| 4-6 | 2.5Y 3/2 | 100 | | | | | Sand | |
| 6-20 | 2.5Y 3/2 | 95 | 10YR 4/6 | 5 | C | M | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ______

Depth (inches):

**Hydric soil present?** Yes ☐ No ☒

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | Yes | No | Depth (in): |
|---|---|---|---|
| Surface Water Present? | ☐ | ☒ | - |
| Water Table Present? | ☐ | ☒ | - |
| Saturation Present? (includes capillary fringe) | ☐ | ☒ | - |

**Wetland Hydrology Present?** Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils slightly damp at 16” BSG.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 10**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050  City/County: Lake Forest Park/ King County  Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park  State: WA  Sampling Point: 10

Investigator(s): S. Yuasa, R. Hohlfeld  Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Terrace/slope  Local relief (concave, convex, none): none  Slope (%): <5

Subregion (LRR): A  Lat: -  Long: -  Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes*  NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?  Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?  (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Hydric Soils Present? | Yes ☐ | No ☒ | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus robar* | 35 | Y | UPL* |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| = Total Cover | 345 | | |
| **Sapling/Shrub Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | | | |
| **Herb Stratum (Plot size: 1-m diameter)** | | | |
| 1. *Poa* sp. | 80 | Y | FAC** |
| 2. *Prunella vulgaris* | 10 | N | FACU |
| 3. *Ranunculus repens* | 10 | N | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| = Total Cover | 100 | | |
| **Woody Vine Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| = Total Cover | - | | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species that are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across all Strata: | 1 | (B) |
| Percent of Dominant Species that are OBL, FACW, or FAC: | 100 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes ☒ No ☐**

Remarks: *Not listed, presumed UPL. **Presumed FAC.

## SOIL

Sampling Point: DP-10

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-6 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 6-16 | 2.5Y 2.5/1 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

☐ 2cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric soil present?** **Yes** ☐ **No** ☒

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

☐ Surface water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (**LRR A**)
☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

D|C|G WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 11**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050 City/County: Lake Forest Park/ King County Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 11

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Terrace/slope Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes** ☐ | **No** ☒ |
| Hydric Soils Present? | Yes ☐ | No ☒ | | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus robar* | 25 | Y | UPL* |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 25 | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | - | = Total Cover | |
| **Herb Stratum** (Plot size: 1-m diameter) | | | |
| 1. *Carex obnupta* | 75 | Y | OBL** |
| 2. *Poa* sp. | 25 | Y | FAC*** |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 25 | = Total Cover | |
| **Woody Vine Stratum** (Plot size: 3-m diameter) | | | |
| 1. | | | |
| 2. | | | |
| | - | = Total Cover | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species that are OBL, FACW, or FAC: | 2 | (A) |
| Total Number of Dominant Species Across all Strata: | 3 | (B) |
| Percent of Dominant Species that are OBL, FACW, or FAC: | 67 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ☒ **No** ☐

Remarks: *Not listed, presumed UPL. **Appears to be a cultivar. ***Presumed FAC.

## SOIL

Sampling Point: DP-11

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 2-18 | 7.5Y 3/2 | 100 | | | | | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ______

Depth (inches):

**Hydric soil present?** **Yes** ☐ **No** ☒

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

DCG WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 12**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050 City/County: Lake Forest Park/ King County Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 12

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Terrace/slope Local relief (concave, convex, none): none Slope (%): <5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☐ | No ☒ | **Is the Sampled Area within a Wetland?** | **Yes** ☐ | **No** ☒ |
| Hydric Soils Present? | Yes ☒ | No ☐ | | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus robar* | 10 | Y | UPL* |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 10 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | - | = Total Cover | |
| **Herb Stratum (Plot size: 1-m diameter)** | | | |
| 1. *Poa* sp. | 85 | Y | FAC** |
| 2. *Prunella vulgaris* | 55 | Y | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 140 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| | - | = Total Cover | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species that are OBL, FACW, or FAC: | 1 | (A) |
| Total Number of Dominant Species Across all Strata: | 3 | (B) |
| Percent of Dominant Species that are OBL, FACW, or FAC: | 33 | (A/B) |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | | |
|---|---|---|---|---|
| OBL species | | x 1 = | | |
| FACW species | | x 2 = | | |
| FAC species | 85 | x 3 = | 255 | |
| FACU species | 55 | x 4 = | 220 | |
| UPL species | 10 | x 5 = | 50 | |
| Column Totals: | 150 | (A) | 525 | (B) |

Prevalence Index = B/A = 3.5

**Hydrophytic Vegetation Indicators:**

☐ 1 – Rapid Test for Hydrophytic Vegetation

☐ 2 – Dominance Test is > 50%

☐ 3 – Prevalence Index is ≤ 3.0[1]

☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ 5 – Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ☐ **No** ☒

Remarks: *Not listed, presumed UPL. **Presumed FAC.

## SOIL

Sampling Point: DP-12

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 7.5YR 3/2 | 98 | 10YR 3/6 | 2 | C | M | Clay loam | |
| 5-18 | 2.5Y 3/2 | 80 | 5YR 3/4 | 20 | C | M | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ____________________

Depth (inches):

**Hydric soil present?** **Yes** ☒ **No** ☐

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): | - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): | - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

DCG WATERSHED

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

**DP - 13**

Project/Site: Lakefront Property / Lyon Creek Waterfront Preserve (Parcels 403010-0035 & -0040, and -0050 City/County: Lake Forest Park/ King County Sampling date: 10/31/2023

Applicant/Owner: City of Lake Forest Park State: WA Sampling Point: 13

Investigator(s): S. Yuasa, R. Hohlfeld Section, Township, Range: S10, T26N, R04E

Landform (hillslope, terrace, etc): Click here to enter text. Local relief (concave, convex, none): Click here to enter text. Slope (%): x

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: *Urban land – Alderwood complex, 0 to 5 percent slopes* NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes ☐** | **No ☒** |
| Hydric Soils Present? | Yes ☒ | No ☐ | | | |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | | |

Remarks: **Drier than normal August and September.**

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 5-m diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix babylonica* | 65 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| = Total Cover | 65 | | |
| **Sapling/Shrub Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | - | | |
| **Herb Stratum (Plot size: 1-m diameter)** | | | |
| 1. *Poa* sp. | 40 | Y | FAC** |
| 2. *Prunella vulgaris* | 30 | Y | FACU |
| 3. *Ranunculus repens* | 30 | Y | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| = Total Cover | 100 | | |
| **Woody Vine Stratum (Plot size: 3-m diameter)** | | | |
| 1. | | | |
| 2. | | | |
| = Total Cover | - | | |
| % Bare Ground in Herb Stratum: | | | |

**Dominance Test worksheet:**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 75 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | | x 2 = | |
| FAC species | | x 3 = | |
| FACU species | | x 4 = | |
| UPL species | | x 5 = | |
| Column Totals: | | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

☐ 1 – Rapid Test for Hydrophytic Vegetation

☐ 2 – Dominance Test is > 50%

☒ 3 – Prevalence Index is ≤ 3.0[1]

☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ 5 – Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes ☒** **No ☐**

Remarks:

## SOIL

Sampling Point: DP-13

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 3-13 | 2.5Y 3/2 | 95 | 7.5YR 4/6 | 5 | C | M | Sand | |
| 13-16 | 2.5Y 3/2 | 90 | 7.5YR 4/6 | 10 | C | M | Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ______

Depth (inches):

**Hydric soil present?** **Yes** ☒ **No** ☐

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water-Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ☐ | No ☒ | Depth (in): - |
| Water Table Present? | Yes ☐ | No ☒ | Depth (in): - |
| Saturation Present? (includes capillary fringe) | Yes ☐ | No ☒ | Depth (in): - |

**Wetland Hydrology Present?** **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: October 19 and 31, 2023

Rated by: R. Hohlfeld, S. Yuasa Trained by Ecology? ☒Y ☐N Date of training: September 2017

**HGM Class used for rating:** Lake-fringe Wetland has multiple HGM classes? ☐Y ☒N

**NOTE**: **Form is not complete without the figures requested** *(figures can be combined).*
Source of base aerial photo/map: Google Earth, DOE Water Quality Atlas

## OVERALL WETLAND CATEGORY (based on functions ☒ or special characteristics ☐)

### 1. Category of wetland based on FUNCTIONS

☐ **Category I** – Total score = 23 - 27

☐ **Category II** – Total score = 20 - 22

☒ **Category III** – Total score = 16 - 19

☐ **Category IV** – Total score = 9 - 15

| FUNCTION | Improving Water Quality | | | Hydrologic | | | Habitat | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | *Circle the appropriate ratings* | |
| Site Potential | H | **M** | L | H | M | **L** | H | M | **L** | |
| Landscape Potential | **H** | M | L | **H** | M | L | H | M | **L** | |
| Value | H | **M** | L | **H** | M | L | **H** | M | L | **TOTAL** |
| **Score Based on Ratings** | 7 | | | 7 | | | 5 | | | 19 |

**Score for each function based on three ratings**
*(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | CATEGORY |
|---|---|
| **Estuarine** | I II |
| **Wetland of High Conservation Value** | I |
| **Bog** | I |
| **Mature Forest** | I |
| **Old Growth Forest** | I |
| **Coastal Lagoon** | I II |
| **Interdunal** | I II III IV |
| None of the above | ☒ |

# Maps and figures required to answer questions correctly for Western Washington

Lake Fringe Wetlands

| Map of: | To answer questions: | Figure # |
|---|---|---|
| Cowardin plant classes | L 1.1, L 4.1, H 1.1, H 1.4 | 1 |
| Plant cover of trees, shrubs, and herbaceous plants | L 1.2 | 3 |
| Boundary of area within 150 ft of the wetland *(can be added to another figure)* | L 2.2 | 1 |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | 5 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | L 3.1, L 3.2 | 6 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | L 3.3 | 7 |

# HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   ☒NO – go to 2 ☐**YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   **NO – Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for* ***Riverine*** *wetlands. If it is Saltwater Tidal Fringe it is an* ***Estuarine*** *wetland and is not scored. This method* ***cannot*** *be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   ☒NO – go to 3 ☐**YES –** The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for* ***Depressional*** *wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

   ☒The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

   ☒At least 30% of the open water area is deeper than 6.6 ft (2 m).

   ☐NO – go to 4 ☒**YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

   ☐The wetland is on a slope (*slope can be very gradual*),

   ☐The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

   ☐The water leaves the wetland **without being impounded.**

   ☐NO – go to 5 ☐**YES –** The wetland class is **Slope**

   **NOTE**: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

   ☐The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

   ☐The overbank flooding occurs at least once every 2 years.

☐NO – go to 6 ☐**YES –** The wetland class is **Riverine**

**NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐NO – go to 7 ☐**YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐NO – go to 8 ☐**YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE**: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

| HGM classes within the wetland unit being rated | HGM class to use in rating |
|---|---|
| Slope + Riverine | Riverine |
| Slope + Depressional | Depressional |
| Slope + Lake Fringe | Lake Fringe |
| Depressional + Riverine along stream within boundary of depression | Depressional |
| Depressional + Lake Fringe | Depressional |
| Riverine + Lake Fringe | Riverine |
| Salt Water Tidal Fringe and any other class of freshwater wetland | Treat as ESTUARINE |

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have* ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

## LAKE FRINGE WETLANDS

**Water Quality Functions** - Indicators that the site functions to improve water quality

| L 1.0. Does the site have the potential to improve water quality? | |
|---|---|
| L 1.1. Average width of plants along the lakeshore *(use polygons of Cowardin classes)*:<br>☐ Plants are more than 33 ft (10 m) wide — points = 6<br>☐ Plants are more than 16 ft (5 m) wide and <33 ft — points = 3<br>☒ Plants are more than 6 ft (2 m) wide and <16 ft — points = 1<br>☐ Plants are less than 6 ft wide — points = 0 | 1 |
| L 1.2. Characteristics of the plants in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. *These are not Cowardin classes. Area of cover is total cover in the unit, but it can be in patches. Herbaceous does not include aquatic bed.*<br>☒ Cover of herbaceous plants is > 90% of the vegetated area — points = 6<br>☐ Cover of herbaceous plants is > 2/3 of the vegetated area — points = 4<br>☐ Cover of herbaceous plants is > 1/3 of the vegetated area — points = 3<br>☐ Other plants that are not aquatic bed > 2/3 unit — points = 3<br>☐ Other plants that are not aquatic bed in > 1/3 vegetated area — points = 1<br>☐ Aquatic bed plants and open water cover > 2/3 of the unit — points = 0 | 6 |
| Total for L 1 — Add the points in the boxes above | 7 |

**Rating of Site Potential** If score is: ☐**8-12 = H** ☒**4-7 = M** ☐**0-3 = L** *Record the rating on the first page*

| L 2.0. Does the landscape have the potential to support the water quality function of the site? | |
|---|---|
| L 2.1. Is the lake used by power boats? ☒Yes = 1 ☐ No = 0 | 1 |
| L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that generate pollutants? ☒Yes = 1 ☐ No = 0 | 1 |
| L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil? ☒Yes = 1 ☐ No = 0 | 1 |
| Total for L 2 — Add the points in the boxes above | 3 |

**Rating of Landscape Potential:** If score is: ☒**2 or 3 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

| L 3.0. Is the water quality improvement provided by the site valuable to society? | |
|---|---|
| L 3.1. Is the lake on the 303(d) list of degraded aquatic resources? ☐Yes = 1 ☒ No = 0 | 0 |
| L 3.2. Is the lake in a sub-basin where water quality is an issue (at least one aquatic resource in the basin is on the 303(d) list)? ☒Yes = 1 ☐ No = 0 | 1 |
| L 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the lake or basin in which the unit is found.* ☐Yes = 2 ☒ No = 0 | 0 |
| Total for L 3 — Add the points in the boxes above | 1 |

**Rating of Value** If score is: ☐**2-4 = H** ☒**1 = M** ☐**0 = L** *Record the rating on the first page*

## LAKE FRINGE WETLANDS

**Hydrologic Functions** - Indicators that the wetland unit functions to reduce shoreline erosion

| L 4.0. Does the site have the potential to reduce shoreline erosion? | |
|---|---|
| L 4.1. Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include Aquatic bed):<br>*Choose the highest scoring description that matches conditions in the wetland.*<br>☐ > ¾ of distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 6<br>☐ > ¾ of distance is Scrub-shrub or Forested at least 6 ft (2 m) wide — points = 4<br>☐ > ¼ distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 4<br>☒ Plants are at least 6 ft (2 m) wide (any type except Aquatic bed) — points = 2<br>☐ Plants are less than 6 ft (2 m) wide (any type except Aquatic bed) — points = 0 | 2 |

**Rating of Site Potential:** If score is: ☐**6 = M** ☒**0-5 = L** *Record the rating on the first page*

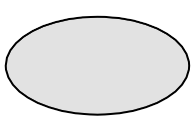
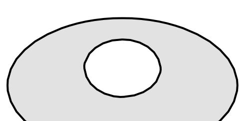
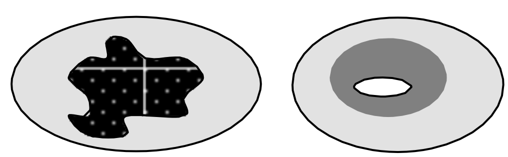
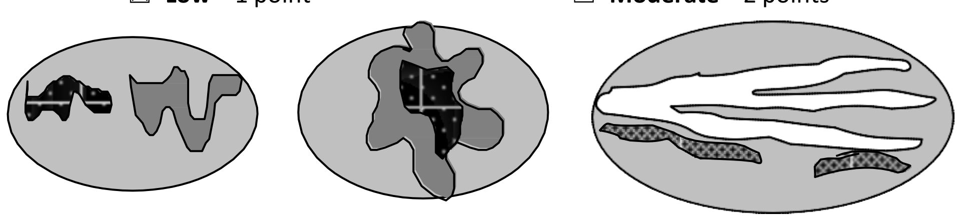
| L 5.0. Does the landscape have the potential to support the hydrologic functions of the site? | | |
|---|---|---|
| L 5.1. Is the lake used by power boats with more than 10 hp? | ☒Yes = 1 ☐ No = 0 | 1 |
| L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance? | ☒Yes = 1 ☐ No = 0 | 1 |
| Total for L 5 | Add the points in the boxes above | 2 |

**Rating of Landscape Potential** If score is: ☒**2 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

| L 6.0. Are the hydrologic functions provided by the site valuable to society? | |
|---|---|
| L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resource is present, choose the one with the highest score.<br>☒ There are human structures or old growth/mature forests within 25 ft of OHWM of the shore in the unit. — points = 2<br>☐ There are nature trails or other paths and recreational activities within 25 ft of OHWM — points = 1<br>☐ Other resources that could be impacted by erosion — points = 1<br>☐ There are no resources that can be impacted by erosion along the shores of the unit — points = 0 | 2 |

**Rating of Value**: If score is**:** ☒**2 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

<table>
<tr><th colspan="2">H 1.0. Does the site have the potential to provide habitat?</th></tr>
<tr><td>H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.<br>
☐ Aquatic bed — 4 structures or more: points = 4<br>
☒ Emergent — 3 structures: points = 2<br>
☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1<br>
☒ Forested (areas where trees have > 30% cover) — 1 structure: points = 0<br>
If the unit has a Forested class, check if:<br>
☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon</td><td>1</td></tr>
<tr><td>H 1.2. Hydroperiods<br>
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).<br>
☐ Permanently flooded or inundated — 4 or more types present: points = 3<br>
☐ Seasonally flooded or inundated — 3 types present: points = 2<br>
☐ Occasionally flooded or inundated — 2 types present: points = 1<br>
☐ Saturated only — 1 type present: points = 0<br>
☐ Permanently flowing stream or river in, or adjacent to, the wetland<br>
☐ Seasonally flowing stream in, or adjacent to, the wetland<br>
☒ Lake Fringe wetland — 2 points<br>
☐ Freshwater tidal wetland — 2 points</td><td>2</td></tr>
<tr><td>H 1.3. Richness of plant species<br>
Count the number of plant species in the wetland that cover at least 10 $ft^2$.<br>
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle<br>
If you counted: ☐ > 19 species — points = 2<br>
☒ 5 - 19 species — points = 1<br>
☐ < 5 species — points = 0</td><td>1</td></tr>
<tr><td>H 1.4. Interspersion of habitats<br>
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. If you have four or more plant classes or three classes and open water, the rating is always high.<br>
<br>
☐ None = 0 points<br>
<br>
☒ Low = 1 point<br>
<br>
☐ Moderate = 2 points<br>
<br>
All three diagrams in this row are<br>
☐ HIGH = 3points</td><td>1</td></tr>
</table>

| | |
|---|---|
| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).<br>☐ Standing snags (dbh > 4 in) within the wetland.<br>☐ Undercut banks are present for at least 6.6 ft (2 m) **AND/OR**<br>overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m).<br>☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR**<br>signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed).*<br>☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians).* | 0 |
| Total for H 1 — Add the points in the boxes above | 5 |

**Rating of Site Potential** If score is: ☐**15-18 = H** ☐**7-14 = M** ☒**0-6 = L** *Record the rating on the first page*

| | |
|---|---|
| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | |
| H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).<br>*Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2] = **0% + (0%/2) = 0%**<br>If total accessible habitat is:<br>☐ > 1/3 (33.3%) of 1 km Polygon — points = 3<br>☐ 20-33% of 1 km Polygon — points = 2<br>☐ 10-19% of 1 km Polygon — points = 1<br>☒ < 10% of 1 km Polygon — points = 0 | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2 **= 0% + (44%/2) = 22%**<br>☐ Undisturbed habitat > 50% of Polygon — points = 3<br>☒ Undisturbed habitat 10-50% and in 1-3 patches — points = 2<br>☐ Undisturbed habitat 10-50% and > 3 patches — points = 1<br>☐ Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 2 |
| H 2.3. Land use intensity in 1 km Polygon: If<br>☒ > 50% of 1 km Polygon is high intensity land use — points = (- 2)<br>☐ ≤ 50% of 1 km Polygon is high intensity — points = 0 | -2 |
| Total for H 2 — Add the points in the boxes above | 0 |

**Rating of Landscape Potential** If score is: ☐**4-6 = H** ☐**1-3 = M** ☒**< 1 = L** *Record the rating on the first page*

| | |
|---|---|
| H 3.0. Is the habitat provided by the site valuable to society? | |
| H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*<br>Site meets ANY of the following criteria: — points = 2<br>☒ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan<br>☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1<br>☐ Site does not meet any of the criteria above — points = 0 | 2 |

**Rating of Value** If score is: ☒**2 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

# WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi- layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha ) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

## CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| Wetland Type<br><br>*Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.* | Category |
|---|---|
| **SC 1.0. Estuarine wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt ☐Yes –Go to **SC 1.1** ☒No= **Not an estuarine wetland** | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?<br>☐Yes = **Category I** ☐No - Go to **SC 1.2** | **Cat. I** |
| SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)<br>☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐Yes = **Category I** ☐No= **Category II** | **Cat. I**<br><br>**Cat. II** |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☒Yes **–** Go to **SC 2.2** ☐No **–** Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>http://www.dnr.wa.gov/NHPwetlandviewer ☐Yes **= Category** I ☒No **= Not a WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf<br>☐Yes **– Contact WNHP/WDNR and go to SC 2.4** ☐No **= Not a WHCV**<br>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐Yes **= Category I** ☐No **= Not a WHCV** | **Cat. I** |
| **SC 3.0. Bogs**<br>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.***<br>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐Yes – Go to **SC 3.3** ☒No – Go to **SC 3.2**<br>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐Yes – Go to **SC 3.3** ☒No = **Is not a bog**<br>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐Yes = **Is a Category I bog** ☐No – Go to **SC 3.4**<br>**NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.<br>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?<br>☐Yes = **Is a Category I bog** ☐No = **Is not a bog** | **Cat. I** |

| | |
|---|---|
| **SC 4.0. Forested Wetlands**<br>Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***<br>☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.<br>☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).<br>☐Yes = **Category I** ☒No = **Not a forested wetland for this section** | **Cat. I** |
| **SC 5.0. Wetlands in Coastal Lagoons**<br>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?<br>☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks<br>☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*<br>☐Yes – Go to **SC 5.1** ☒No = **Not a wetland in a coastal lagoon**<br>SC 5.1. Does the wetland meet all of the following three conditions?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).<br>☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland.<br>☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)<br>☐Yes = **Category I** ☐No = **Category II** | **Cat. I**<br><br>**Cat. II** |
| **SC 6.0. Interdunal Wetlands**<br>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***<br>In practical terms that means the following geographic areas:<br>☐ Long Beach Peninsula: Lands west of SR 103<br>☐ Grayland-Westport: Lands west of SR 105<br>☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109<br>☐Yes – Go to **SC 6.1** ☒No = **not an interdunal wetland for rating**<br>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐Yes = **Category I** ☐No – Go to **SC 6.2**<br>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?<br>☐Yes = **Category II** ☐No – Go to **SC 6.3**<br>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?<br>☐Yes = **Category III** ☐No = **Category IV** | **Cat I**<br><br>**Cat. II**<br><br>**Cat. III**<br><br>**Cat. IV** |
| **Category of wetland based on Special Characteristics**<br>If you answered No for all types, enter "Not Applicable" on Summary Form | n/a |

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# RATING SUMMARY – Western Washington

Name of wetland (or ID #): <u>**B**</u> Date of site visit: <u>October 19 and 31, 2023</u>

Rated by: <u>R. Hohlfeld, S. Yuasa</u> Trained by Ecology? ☒Y ☐N Date of training: <u>September 2017</u>

**HGM Class used for rating:** <u>Lake-fringe</u> Wetland has multiple HGM classes? ☐Y ☒N

**NOTE**: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map: <u>Google Earth, DOE Water Quality Atlas</u>

## OVERALL WETLAND CATEGORY (based on functions ☒ or special characteristics ☐)

### 1. Category of wetland based on FUNCTIONS

☐ **Category I** – Total score = 23 - 27

☐ **Category II** – Total score = 20 - 22

☒ **Category III** – Total score = 16 - 19

☐ **Category IV** – Total score = 9 - 15

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|---|---|---|---|---|
| | | | *Circle the appropriate ratings* | |
| Site Potential | H **<u>M</u>** L | H M **<u>L</u>** | H M **<u>L</u>** | |
| Landscape Potential | **<u>H</u>** M L | **<u>H</u>** M L | H M **<u>L</u>** | |
| Value | H **<u>M</u>** L | H **<u>M</u>** L | **<u>H</u>** M L | **TOTAL** |
| **Score Based on Ratings** | 7 | 6 | 5 | 18 |

**Score for each function based on three ratings**
*(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | CATEGORY |
|---|---|
| **Estuarine** | I II |
| **Wetland of High Conservation Value** | I |
| **Bog** | I |
| **Mature Forest** | I |
| **Old Growth Forest** | I |
| **Coastal Lagoon** | I II |
| **Interdunal** | I II III IV |
| None of the above | ☒ |

# Maps and figures required to answer questions correctly for Western Washington

<u>Lake Fringe Wetlands</u>

| Map of: | To answer questions: | Figure # |
|---|---|---|
| Cowardin plant classes | L 1.1, L 4.1, H 1.1, H 1.4 | 2 |
| Plant cover of trees, shrubs, and herbaceous plants | L 1.2 | 4 |
| Boundary of area within 150 ft of the wetland *(can be added to another figure)* | L 2.2 | 2 |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | 5 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | L 3.1, L 3.2 | 6 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | L 3.3 | 7 |

# HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   ☒NO – go to 2 ☐**YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   **NO – Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for* ***Riverine*** *wetlands. If it is Saltwater Tidal Fringe it is an* ***Estuarine*** *wetland and is not scored. This method* ***cannot*** *be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   ☒NO – go to 3 ☐**YES –** The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for* ***Depressional*** *wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☒The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☒At least 30% of the open water area is deeper than 6.6 ft (2 m).

   ☐NO – go to 4 ☒**YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ☐The wetland is on a slope (*slope can be very gradual*),
   ☐The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☐The water leaves the wetland **without being impounded.**

   ☐NO – go to 5 ☐**YES –** The wetland class is **Slope**

   **NOTE**: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ☐The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☐The overbank flooding occurs at least once every 2 years.

☐NO – go to 6 ☐**YES –** The wetland class is **Riverine**

**NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐NO – go to 7 ☐**YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐NO – go to 8 ☐**YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   **NOTE**: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

| HGM classes within the wetland unit being rated | HGM class to use in rating |
|---|---|
| Slope + Riverine | Riverine |
| Slope + Depressional | Depressional |
| Slope + Lake Fringe | Lake Fringe |
| Depressional + Riverine along stream within boundary of depression | Depressional |
| Depressional + Lake Fringe | Depressional |
| Riverine + Lake Fringe | Riverine |
| Salt Water Tidal Fringe and any other class of freshwater wetland | Treat as ESTUARINE |

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have* ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

## LAKE FRINGE WETLANDS

**Water Quality Functions** - Indicators that the site functions to improve water quality

| L 1.0. Does the site have the potential to improve water quality? | | |
|---|---|---|
| L 1.1. Average width of plants along the lakeshore *(use polygons of Cowardin classes)*:<br>☐ Plants are more than 33 ft (10 m) wide<br>☐ Plants are more than 16 ft (5 m) wide and <33 ft<br>☒ Plants are more than 6 ft (2 m) wide and <16 ft<br>☐ Plants are less than 6 ft wide | <br>points = 6<br>points = 3<br>points = 1<br>points = 0 | 1 |
| L 1.2. Characteristics of the plants in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. *These are not Cowardin classes. Area of cover is total cover in the unit, but it can be in patches. Herbaceous does not include aquatic bed.*<br>☒ Cover of herbaceous plants is > 90% of the vegetated area<br>☐ Cover of herbaceous plants is > 2/3 of the vegetated area<br>☐ Cover of herbaceous plants is > 1/3 of the vegetated area<br>☐ Other plants that are not aquatic bed > 2/3 unit<br>☐ Other plants that are not aquatic bed in > 1/3 vegetated area<br>☐ Aquatic bed plants and open water cover > 2/3 of the unit | <br>points = 6<br>points = 4<br>points = 3<br>points = 3<br>points = 1<br>points = 0 | 6 |
| Total for L 1 | Add the points in the boxes above | 7 |

**Rating of Site Potential** If score is: **☐8-12 = H ☒4-7 = M ☐0-3 = L** *Record the rating on the first page*

| L 2.0. Does the landscape have the potential to support the water quality function of the site? | | |
|---|---|---|
| L 2.1. Is the lake used by power boats? | ☒Yes = 1 ☐ No = 0 | 1 |
| L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that generate pollutants? | ☒Yes = 1 ☐ No = 0 | 1 |
| L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil? | ☒Yes = 1 ☐ No = 0 | 1 |
| Total for L 2 | Add the points in the boxes above | 3 |

**Rating of Landscape Potential:** If score is: **☒2 or 3 = H ☐1 = M ☐0 = L** *Record the rating on the first page*

| L 3.0. Is the water quality improvement provided by the site valuable to society? | | |
|---|---|---|
| L 3.1. Is the lake on the 303(d) list of degraded aquatic resources? | ☐Yes = 1 ☒ No = 0 | 0 |
| L 3.2. Is the lake in a sub-basin where water quality is an issue (at least one aquatic resource in the basin is on the 303(d) list)? | ☒Yes = 1 ☐ No = 0 | 1 |
| L 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the lake or basin in which the unit is found.* | ☐Yes = 2 ☒ No = 0 | 0 |
| Total for L 3 | Add the points in the boxes above | 1 |

**Rating of Value** If score is: **☐2-4 = H ☒1 = M ☐0 = L** *Record the rating on the first page*

Wetland name or number: A

| LAKE FRINGE WETLANDS<br>**Hydrologic Functions** - Indicators that the wetland unit functions to reduce shoreline erosion | |
|---|---|
| L 4.0. Does the site have the potential to reduce shoreline erosion? | |
| L 4.1. Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include Aquatic bed):<br>*Choose the highest scoring description that matches conditions in the wetland.*<br>☐ > ¾ of distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 6<br>☐ > ¾ of distance is Scrub-shrub or Forested at least 6 ft (2 m) wide — points = 4<br>☐ > ¼ distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 4<br>☒ Plants are at least 6 ft (2 m) wide (any type except Aquatic bed) — points = 2<br>☐ Plants are less than 6 ft (2 m) wide (any type except Aquatic bed) — points = 0 | 2 |

**Rating of Site Potential:** If score is: ☐**6 = M** ☒**0-5 = L** *Record the rating on the first page*

| L 5.0. Does the landscape have the potential to support the hydrologic functions of the site? | | |
|---|---|---|
| L 5.1. Is the lake used by power boats with more than 10 hp? | ☒Yes = 1 ☐ No = 0 | 1 |
| L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance? | ☒Yes = 1 ☐ No = 0 | 1 |
| Total for L 5 | Add the points in the boxes above | 2 |

**Rating of Landscape Potential** If score is: ☒**2 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

| L 6.0. Are the hydrologic functions provided by the site valuable to society? | |
|---|---|
| L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resource is present, choose the one with the highest score.<br>☐ There are human structures or old growth/mature forests within 25 ft of OHWM of the shore in the unit. — points = 2<br>☒ There are nature trails or other paths and recreational activities within 25 ft of OHWM — points = 1<br>☐ Other resources that could be impacted by erosion — points = 1<br>☐ There are no resources that can be impacted by erosion along the shores of the unit — points = 0 | 1 |

**Rating of Value**: If score is**:** ☐**2 = H** ☒**1 = M** ☐**0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

## H 1.0. Does the site have the potential to provide habitat?

<table>
<tr><td>

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland*. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

☐ Aquatic bed — 4 structures or more: points = 4<br>
☒ Emergent — 3 structures: points = 2<br>
☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1<br>
☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0<br>
*If the unit has a Forested class, check if:*<br>
☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

</td><td>0</td></tr>
<tr><td>

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

☐ Permanently flooded or inundated — 4 or more types present: points = 3<br>
☐ Seasonally flooded or inundated — 3 types present: points = 2<br>
☐ Occasionally flooded or inundated — 2 types present: points = 1<br>
☐ Saturated only — 1 type present: points = 0<br>
☐ Permanently flowing stream or river in, or adjacent to, the wetland<br>
☐ Seasonally flowing stream in, or adjacent to, the wetland<br>
☒ **Lake Fringe wetland** — **2 points**<br>
☐ **Freshwater tidal wetland** — **2 points**

</td><td>2</td></tr>
<tr><td>

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft$^2$.

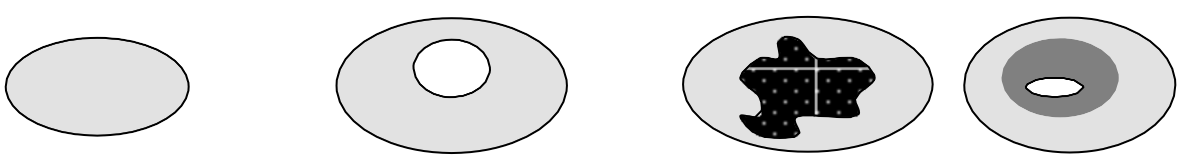
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: ☐ > 19 species — points = 2<br>
☒ 5 - 19 species — points = 1<br>
☐ < 5 species — points = 0

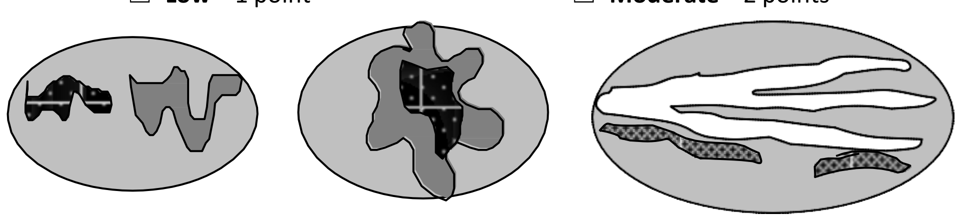
</td><td>1</td></tr>
<tr><td>

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



☒ **None** = 0 points ☐ **Low** = 1 point ☐ **Moderate** = 2 points



All three diagrams in this row are<br>
☐ **HIGH** = 3points

</td><td>0</td></tr>
</table>

| | |
|---|---|
| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).<br>☐ Standing snags (dbh > 4 in) within the wetland.<br>☐ Undercut banks are present for at least 6.6 ft (2 m) **AND/OR** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m).<br>☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed).*<br>☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians).* | 1 |
| Total for H 1 — Add the points in the boxes above | 4 |

**Rating of Site Potential** If score is: ☐**15-18 = H** ☐**7-14 = M** ☒**0-6 = L** *Record the rating on the first page*

| | |
|---|---|
| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | |
| H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).<br>*Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2] = **0% + (0%/2) = 0%**<br>If total accessible habitat is:<br>☐ > 1/3 (33.3%) of 1 km Polygon — points = 3<br>☐ 20-33% of 1 km Polygon — points = 2<br>☐ 10-19% of 1 km Polygon — points = 1<br>☒ < 10% of 1 km Polygon — points = 0 | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2 **= 0% + (44%/2) = 22%**<br>☐ Undisturbed habitat > 50% of Polygon — points = 3<br>☒ Undisturbed habitat 10-50% and in 1-3 patches — points = 2<br>☐ Undisturbed habitat 10-50% and > 3 patches — points = 1<br>☐ Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 2 |
| H 2.3. Land use intensity in 1 km Polygon: If<br>☒ > 50% of 1 km Polygon is high intensity land use — points = (- 2)<br>☐ ≤ 50% of 1 km Polygon is high intensity — points = 0 | -2 |
| Total for H 2 — Add the points in the boxes above | 0 |

**Rating of Landscape Potential** If score is: ☐**4-6 = H** ☐**1-3 = M** ☒**< 1 = L** *Record the rating on the first page*

| | |
|---|---|
| H 3.0. Is the habitat provided by the site valuable to society? | |
| H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*<br>Site meets ANY of the following criteria: — points = 2<br>☒ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan<br>☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1<br>☐ Site does not meet any of the criteria above — points = 0 | 2 |

**Rating of Value** If score is: ☒**2 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

# WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi- layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha ) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

## CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| **Wetland Type**<br>*Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.* | **Category** |
|---|---|
| **SC 1.0. Estuarine wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt ☐Yes –Go to **SC 1.1** ☒No= **Not an estuarine wetland** | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?<br>☐Yes = **Category I** ☐No - Go to **SC 1.2** | **Cat. I** |
| SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)<br>☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐Yes = **Category I** ☐No= **Category II** | **Cat. I**<br><br>**Cat. II** |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☒Yes **–** Go to **SC 2.2** ☐No **–** Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>http://www.dnr.wa.gov/NHPwetlandviewer ☐Yes **= Category** I ☒No **= Not a WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf<br>☐Yes **– Contact WNHP/WDNR and go to SC 2.4** ☐No **= Not a WHCV**<br>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐Yes **= Category I** ☐No **= Not a WHCV** | **Cat. I** |
| **SC 3.0. Bogs**<br>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below. **If you answer YES you will still need to rate the wetland based on its functions.***<br>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐Yes – Go to **SC 3.3** ☒No – Go to **SC 3.2**<br>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐Yes – Go to **SC 3.3** ☒No = **Is not a bog**<br>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐Yes = **Is a Category I bog** ☐No – Go to **SC 3.4**<br>**NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.<br>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?<br>☐Yes = **Is a Category I bog** ☐No = **Is not a bog** | **Cat. I** |

| | |
|---|---|
| **SC 4.0. Forested Wetlands**<br>Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***<br>☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.<br>☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).<br>☐Yes = **Category I** ☒No **= Not a forested wetland for this section** | **Cat. I** |
| **SC 5.0. Wetlands in Coastal Lagoons**<br>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?<br>☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks<br>☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*<br>☐Yes – Go to **SC 5.1** ☒No = **Not a wetland in a coastal lagoon**<br>SC 5.1. Does the wetland meet all of the following three conditions?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).<br>☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland.<br>☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)<br>☐Yes = **Category I** ☐No = **Category II** | **Cat. I**<br><br>**Cat. II** |
| **SC 6.0. Interdunal Wetlands**<br>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***<br>In practical terms that means the following geographic areas:<br>☐ Long Beach Peninsula: Lands west of SR 103<br>☐ Grayland-Westport: Lands west of SR 105<br>☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109<br>☐Yes – Go to **SC 6.1** ☒No = **not an interdunal wetland for rating**<br>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐Yes = **Category I** ☐No – Go to **SC 6.2**<br>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?<br>☐Yes = **Category II** ☐No – Go to **SC 6.3**<br>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?<br>☐Yes = **Category III** ☐No = **Category IV** | **Cat I**<br><br>**Cat. II**<br><br>**Cat. III**<br><br>**Cat. IV** |
| **Category of wetland based on Special Characteristics**<br>If you answered No for all types, enter "Not Applicable" on Summary Form | n/a |

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# 2014 Ecology Wetland Rating Form Figures

## LAKEFRONT PROPERTY / LYON CREEK WATERFRONT PRESERVE

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# WETLANDS A AND B (LAKE-FRINGE)

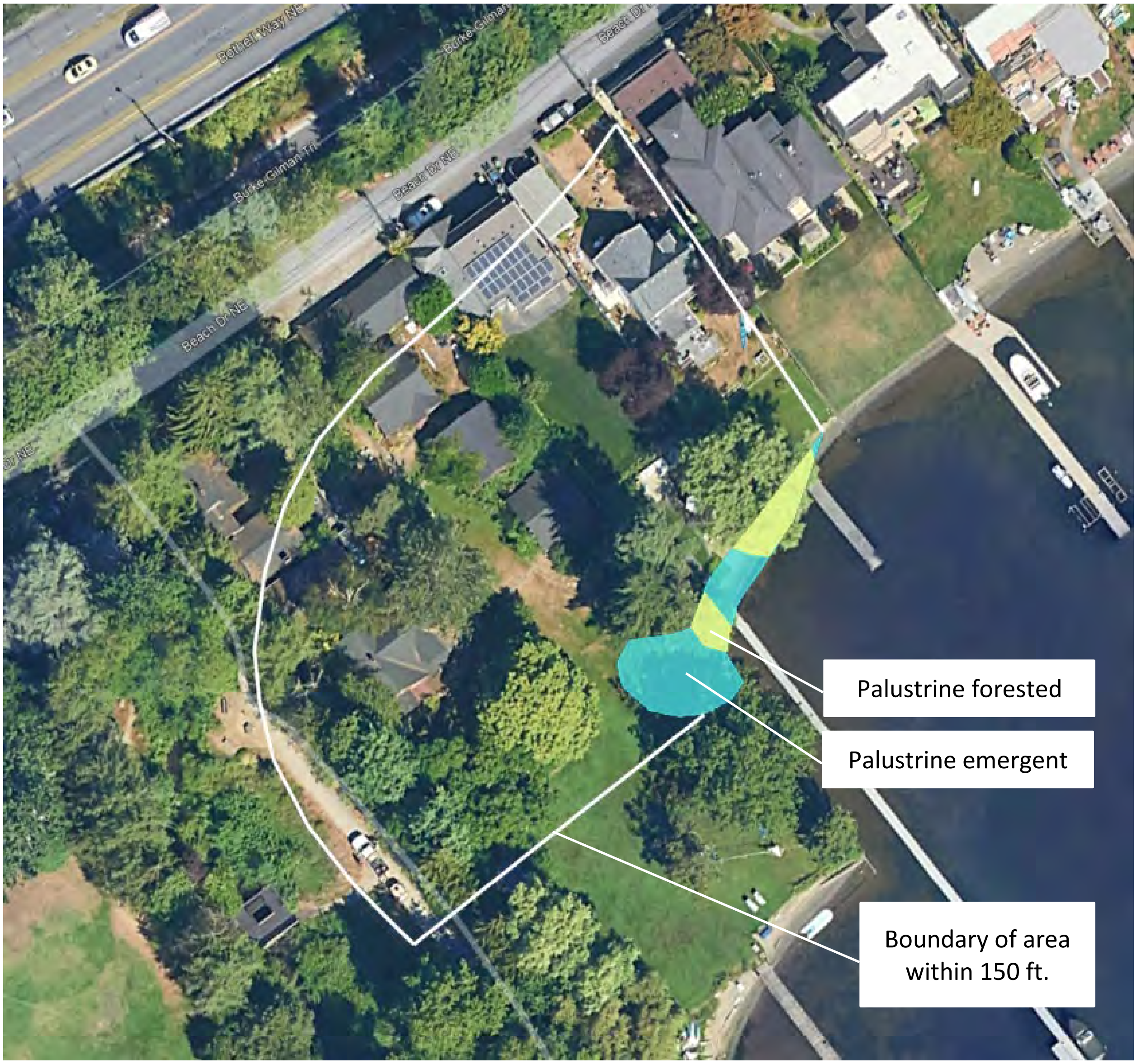



Figure 1. Wetland A - Cowardin plant classes and 150-ft area – L1.1, L2.2, L4.1, H1.1, H1.4

Features depicted are not to scale. Sketches are based on available data and best professional judgment.


Figure 2. Wetland B - Cowardin plant classes and 150-ft area – L1.1, L2.2, L4.1, H1.1, H1.4

Features depicted are not to scale. Sketches are based on available data and best professional judgment.


Figure 3. Wetland A - Plant cover of trees, shrubs, and herbaceous plants (not Cowardin) – L1.2

Features depicted are not to scale. Sketches are based on available data and best professional judgment.


Figure 4. Wetland B - Plant cover of trees, shrubs, and herbaceous plants (not Cowardin) – L1.2

Features depicted are not to scale. Sketches are based on available data and best professional judgment.


Figure 5. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

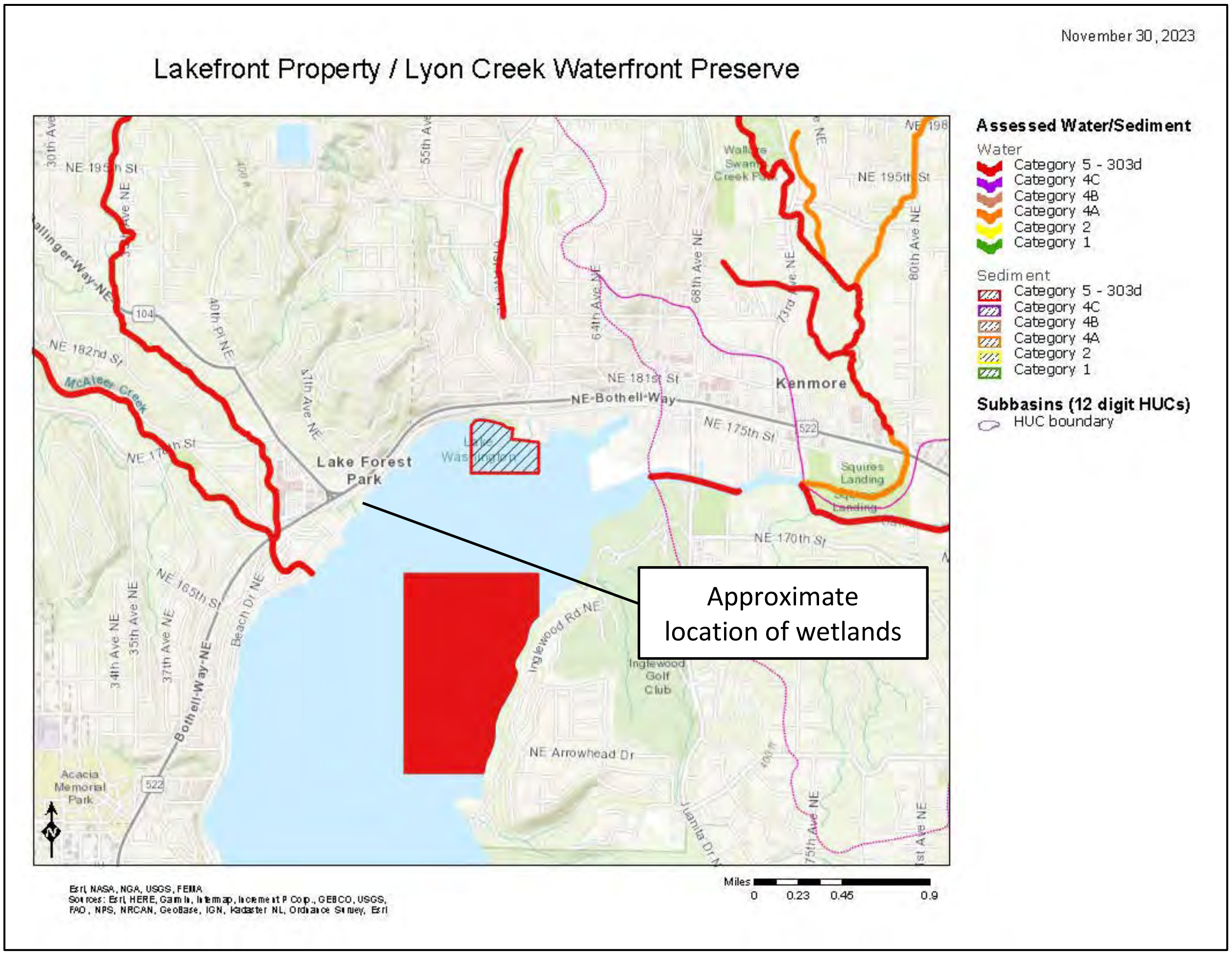



Figure 6. Screen-capture of 303(d) listed waters in basin – L3.1, L3.2

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

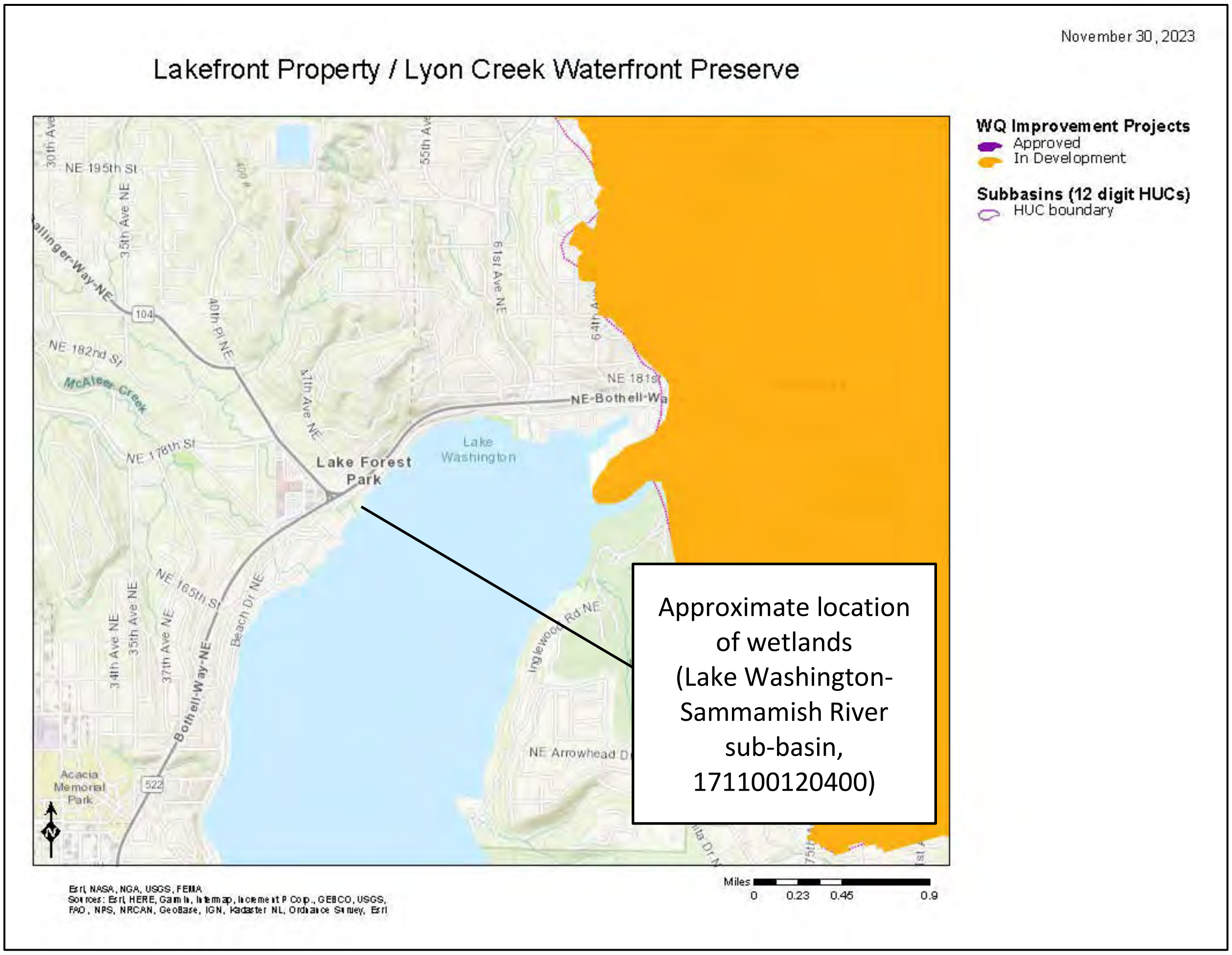



Figure 7. Screen-capture of TMDL list for WRIA in which unit is found. – L3.3

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): C  Date of site visit: October 19 and 31, 2023

Rated by: R. Hohlfeld, S, Yuasa Trained by Ecology? ☒Y ☐N Date of training: September 2017

**HGM Class used for rating:** Riverine  Wetland has multiple HGM classes? ☒Y ☐N

**NOTE**: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map: Google Earth, DOE Water Quality Atlas, USGS

## OVERALL WETLAND CATEGORY (based on functions ☒ or special characteristics ☐)

### 1. Category of wetland based on FUNCTIONS

☐ **Category I** – Total score = 23 - 27

☐ **Category II** – Total score = 20 - 22

☒ **Category III** – Total score = 16 - 19

☐ **Category IV** – Total score = 9 - 15

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|---|---|---|---|---|
| | | | *Circle the appropriate ratings* | |
| Site Potential | H **M** L | H **M** L | H **M** L | |
| Landscape Potential | **H** M L | **H** M L | H M **L** | |
| Value | H M **L** | H M **L** | **H** M L | **TOTAL** |
| **Score Based on Ratings** | 6 | 6 | 6 | 18 |

**Score for each function based on three ratings**
*(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | CATEGORY |
|---|---|
| **Estuarine** | I II |
| **Wetland of High Conservation Value** | I |
| **Bog** | I |
| **Mature Forest** | I |
| **Old Growth Forest** | I |
| **Coastal Lagoon** | I II |
| **Interdunal** | I II III IV |
| None of the above | ☒ |

# Maps and figures required to answer questions correctly for Western Washington

Riverine Wetlands

| Map of: | To answer questions: | Figure # |
|---|---|---|
| Cowardin plant classes | H 1.1, H 1.4 | 1 |
| Hydroperiods | H 1.2 | 2 |
| Ponded depressions | R 1.1 | 2 |
| Boundary of area within 150 ft of the wetland *(can be added to another figure)* | R 2.4 | 1 |
| Plant cover of trees, shrubs, and herbaceous plants | R 1.2, R 4.2 | 3 |
| Width of unit vs. width of stream *(can be added to another figure)* | R 4.1 | 2 |
| Map of the contributing basin | R 2.2, R 2.3, R 5.2 | 4 |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | 5 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | 6 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | 7 |

# HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   ☒NO – go to 2 ☐**YES –** the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   **NO – Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   ☒NO – go to 3 ☐**YES –** The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☐The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☐At least 30% of the open water area is deeper than 6.6 ft (2 m).

   ☒NO – go to 4 ☐**YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ☐The wetland is on a slope (*slope can be very gradual*),
   ☐The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☐The water leaves the wetland **without being impounded.**

   ☒NO – go to 5 ☐**YES –** The wetland class is **Slope**

   **NOTE**: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ☒The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☒The overbank flooding occurs at least once every 2 years.

☐NO – go to 6 ☒**YES –** The wetland class is **Riverine**

**NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☒NO – go to 7 ☐**YES –** The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☒NO – go to 8 ☐**YES –** The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   **NOTE**: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

| HGM classes within the wetland unit being rated | HGM class to use in rating |
|---|---|
| Slope + Riverine | Riverine |
| Slope + Depressional | Depressional |
| Slope + Lake Fringe | Lake Fringe |
| Depressional + Riverine along stream within boundary of depression | Depressional |
| Depressional + Lake Fringe | Depressional |
| **Riverine + Lake Fringe** | **Riverine** |
| Salt Water Tidal Fringe and any other class of freshwater wetland | Treat as ESTUARINE |

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have* ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

## RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

**Water Quality Functions** - Indicators that the site functions to improve water quality

| R 1.0. Does the site have the potential to improve water quality? | | |
|---|---|---|
| R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:<br>☐ Depressions cover > 3/4 area of wetland<br>☐ Depressions cover > 1/2 area of wetland<br>☒ Depressions present but cover < 1/2 area of wetland<br>☐ No depressions present | <br>points = 8<br>points = 4<br>points = 2<br>points = 0 | 2 |
| R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)<br>☒ Trees or shrubs > 2/3 area of the wetland<br>☐ Trees or shrubs > 1/3 area of the wetland<br>☐ Herbaceous plants (> 6 in high) > 2/3 area of the wetland<br>☐ Herbaceous plants (> 6 in high) > 1/3 area of the wetland<br>☐ Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland | <br>points = 8<br>points = 6<br>points = 6<br>points = 3<br>points = 0 | 8 |
| Total for R 1 | Add the points in the boxes above | 10 |

**Rating of Site Potential** If score is: ☐**12-16 = H** ☒**6-11 = M** ☐**0-5 = L** *Record the rating on the first page*

| R 2.0. Does the landscape have the potential to support the water quality function of the site? | | |
|---|---|---|
| R 2.1. Is the wetland within an incorporated city or within its UGA? | ☒Yes = 2 ☐ No = 0 | 2 |
| R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? | ☒Yes = 1 ☐ No = 0 | 1 |
| R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? | ☐Yes = 1 ☒ No = 0 | 0 |
| R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? | ☒Yes = 1 ☐ No = 0 | 1 |
| R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4<br>Other sources: Click here to enter text. | ☐Yes = 1 ☒ No = 0 | 0 |
| Total for R 2 | Add the points in the boxes above | 4 |

**Rating of Landscape Potential** If score is: ☒**3-6 = H** ☐**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

| R 3.0. Is the water quality improvement provided by the site valuable to society? | | |
|---|---|---|
| R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? | ☐Yes = 1 ☒ No = 0 | 0 |
| R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? | ☐Yes = 1 ☒ No = 0 | 0 |
| R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (Answer ***YES*** *if there is a TMDL for the drainage in which the unit is found*) | ☐Yes = 2 ☒ No = 0 | 0 |
| Total for R 3 | Add the points in the boxes above | 0 |

**Rating of Value** If score is: ☐**2-4 = H** ☐**1 = M** ☒**0 = L** *Record the rating on the first page*

## RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

**Hydrologic Functions** - Indicators that site functions to reduce flooding and stream erosion

| R 4.0. Does the site have the potential to reduce flooding and erosion? | |
|---|---|
| R 4.1. Characteristics of the overbank storage the wetland provides:<br>*Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (40ft)/(10ft) = 4.*<br>☐ If the ratio is more than 20 points = 9<br>☐ If the ratio is 10-20 points = 6<br>☐ If the ratio is 5-<10 points = 4<br>☒ If the ratio is 1-<5 points = 2<br>☐ If the ratio is < 1 points = 1 | 2 |
| R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).*<br>☒ Forest or shrub for > 1/3 area OR emergent plants > 2/3 area points = 7<br>☐ Forest or shrub for > 1/10 area OR emergent plants > 1/3 area points = 4<br>☐ Plants do not meet above criteria points = 0 | 7 |
| Total for R 4 Add the points in the boxes above | 9 |

**Rating of Site Potential** If score is: ☐**12-16 = H** ☒**6-11 = M** ☐**0-5 = L** *Record the rating on the first page*

| R 5.0. Does the landscape have the potential to support the hydrologic functions of the site? | |
|---|---|
| R 5.1. Is the stream or river adjacent to the wetland downcut? ☐Yes = 0 ☒ No = 1 | 1 |
| R 5.2. Does the up-gradient watershed include a UGA or incorporated area? ☒Yes = 1 ☐ No = 0 | 1 |
| R 5.3. Is the up-gradient stream or river controlled by dams? ☐Yes = 0 ☒ No = 1 | 1 |
| Total for R 5 Add the points in the boxes above | 3 |

**Rating of Landscape Potential** If score is: ☒**3 = H** ☐**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

| R 6.0. Are the hydrologic functions provided by the site valuable to society? | |
|---|---|
| R 6.1. Distance to the nearest areas downstream that have flooding problems?<br>*Choose the description that best fits the site.*<br>☐ The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2<br>☐ Surface flooding problems are in a sub-basin farther down-gradient points = 1<br>☒ No flooding problems anywhere downstream points = 0 | 0 |
| R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? ☐Yes = 2 ☒ No = 0 | 0 |
| Total for R 6 Add the points in the boxes above | 0 |

**Rating of Value** If score is: ☐**2-4 = H** ☐**1 = M** ☒**0 = L** *Record the rating on the first page*

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

| | |
|---|---|
| ☐ Aquatic bed | 4 structures or more: points = 4 |
| ☒ Emergent | 3 structures: points = 2 |
| ☒ Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 |
| ☒ Forested (areas where trees have > 30% cover) | 1 structure: points = 0 |

*If the unit has a Forested class, check if:*

☒ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

4

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

| | |
|---|---|
| ☐ Permanently flooded or inundated | 4 or more types present: points = 3 |
| ☐ Seasonally flooded or inundated | 3 types present: points = 2 |
| ☒ Occasionally flooded or inundated | 2 types present: points = 1 |
| ☒ Saturated only | 1 type present: points = 0 |
| ☒ Permanently flowing stream or river in, or adjacent to, the wetland | |
| ☐ Seasonally flowing stream in, or adjacent to, the wetland | |
| ☐ **Lake Fringe wetland** | **2 points** |
| ☐ **Freshwater tidal wetland** | **2 points** |

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 $ft^2$.

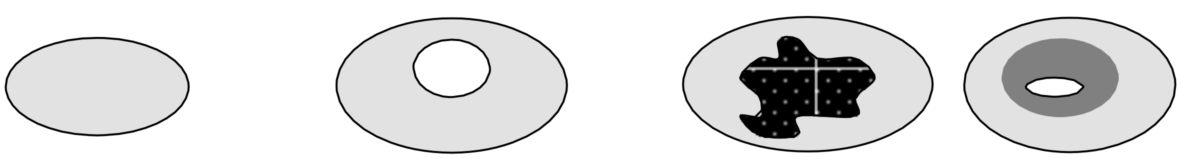
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

| | | |
|---|---|---|
| If you counted: | ☒ > 19 species | points = 2 |
| | ☐ 5 - 19 species | points = 1 |
| | ☐ < 5 species | points = 0 |

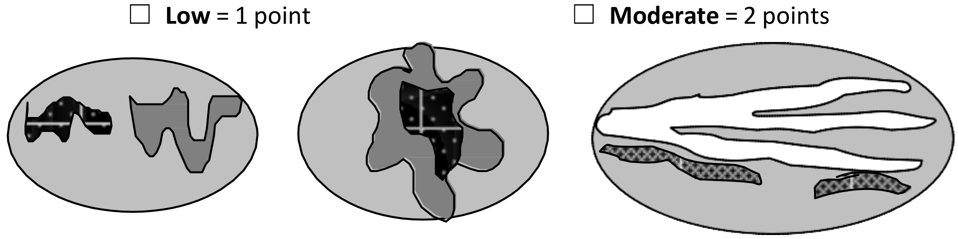
2

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



☐ **None** = 0 points ☐ **Low** = 1 point ☐ **Moderate** = 2 points



All three diagrams in this row are ☒ **HIGH** = 3points

3

| | |
|---|---|
| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).<br>☒ Standing snags (dbh > 4 in) within the wetland.<br>☒ Undercut banks are present for at least 6.6 ft (2 m) **AND/OR** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m).<br>☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed).*<br>☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians).*<br>☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*). | 3 |
| Total for H 1 — Add the points in the boxes above | 14 |

**Rating of Site Potential** If score is: ☐**15-18 = H** ☒**7-14 = M** ☐**0-6 = L** *Record the rating on the first page*

| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | |
|---|---|
| H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).<br>*Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2] = **0% + (0%/2) = 0%**<br>If total accessible habitat is:<br>☐ > 1/3 (33.3%) of 1 km Polygon — points = 3<br>☐ 20-33% of 1 km Polygon — points = 2<br>☐ 10-19% of 1 km Polygon — points = 1<br>☒ < 10% of 1 km Polygon — points = 0 | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2 **= 0% + (44%/2) = x22x%**<br>☐ Undisturbed habitat > 50% of Polygon — points = 3<br>☒ Undisturbed habitat 10-50% and in 1-3 patches — points = 2<br>☐ Undisturbed habitat 10-50% and > 3 patches — points = 1<br>☐ Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 2 |
| H 2.3. Land use intensity in 1 km Polygon: If<br>☒ > 50% of 1 km Polygon is high intensity land use — points = (- 2)<br>☐ ≤ 50% of 1 km Polygon is high intensity — points = 0 | -2 |
| Total for H 2 — Add the points in the boxes above | 0 |

**Rating of Landscape Potential** If score is: ☐**4-6 = H** ☐**1-3 = M** ☒**< 1 = L** *Record the rating on the first page*

| H 3.0. Is the habitat provided by the site valuable to society? | |
|---|---|
| H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*<br>Site meets ANY of the following criteria: — points = 2<br>☒ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan<br>☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1<br>☐ Site does not meet any of the criteria above — points = 0 | 2 |

**Rating of Value** If score is: ☒**2 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

# WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi- layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha ) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number: C

## CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| **Wetland Type**<br><br>*Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.* | **Category** |
|---|---|
| **SC 1.0. Estuarine wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt ☐Yes –Go to **SC 1.1** ☒No= **Not an estuarine wetland** | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?<br>☐Yes = **Category I** ☐No - Go to **SC 1.2** | **Cat. I** |
| SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)<br>☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐Yes = **Category I** ☐No= **Category II** | **Cat. I**<br><br>**Cat. II** |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☒Yes **–** Go to **SC 2.2** ☐No **–** Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>http://www.dnr.wa.gov/NHPwetlandviewer ☐Yes **= Category** I ☒No **= Not a WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf<br>☐Yes **– Contact WNHP/WDNR and go to SC 2.4** ☐No **= Not a WHCV**<br>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐Yes **= Category I** ☐No **= Not a WHCV** | **Cat. I** |
| **SC 3.0. Bogs**<br>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.***<br>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐Yes – Go to **SC 3.3** ☒No – Go to **SC 3.2**<br>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐Yes – Go to **SC 3.3** ☒No = **Is not a bog**<br>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐Yes = **Is a Category I bog** ☐No – Go to **SC 3.4**<br>**NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.<br>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?<br>☐Yes = **Is a Category I bog** ☐No = **Is not a bog** | **Cat. I** |

| | |
|---|---|
| **SC 4.0. Forested Wetlands**<br>Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***<br>☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.<br>☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).<br>☐Yes = **Category I** ☒No **= Not a forested wetland for this section** | **Cat. I** |
| **SC 5.0. Wetlands in Coastal Lagoons**<br>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?<br>☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks<br>☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*<br>☐Yes – Go to **SC 5.1** ☒No = **Not a wetland in a coastal lagoon**<br>SC 5.1. Does the wetland meet all of the following three conditions?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).<br>☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland.<br>☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft$^2$)<br>☐Yes = **Category I** ☐No = **Category II** | **Cat. I**<br><br>**Cat. II** |
| **SC 6.0. Interdunal Wetlands**<br>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***<br>In practical terms that means the following geographic areas:<br>☐ Long Beach Peninsula: Lands west of SR 103<br>☐ Grayland-Westport: Lands west of SR 105<br>☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109<br>☐Yes – Go to **SC 6.1** ☒No = **not an interdunal wetland for rating**<br>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐Yes = **Category I** ☐No – Go to **SC 6.2**<br>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ☐Yes = **Category II** ☐No – Go to **SC 6.3**<br>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐Yes = **Category III** ☐No = **Category IV** | **Cat I**<br><br>**Cat. II**<br><br>**Cat. III**<br><br>**Cat. IV** |
| **Category of wetland based on Special Characteristics**<br>If you answered No for all types, enter "Not Applicable" on Summary Form | N/A |

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# 2014 Ecology Wetland Rating Form Figures

## Lakefront Property / Lyon Creek Waterfront Preserve

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# WETLAND C (RIVERINE)


Figure 1. Cowardin plant classes and 150-ft area – H1.1, H1.4, R2.4

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

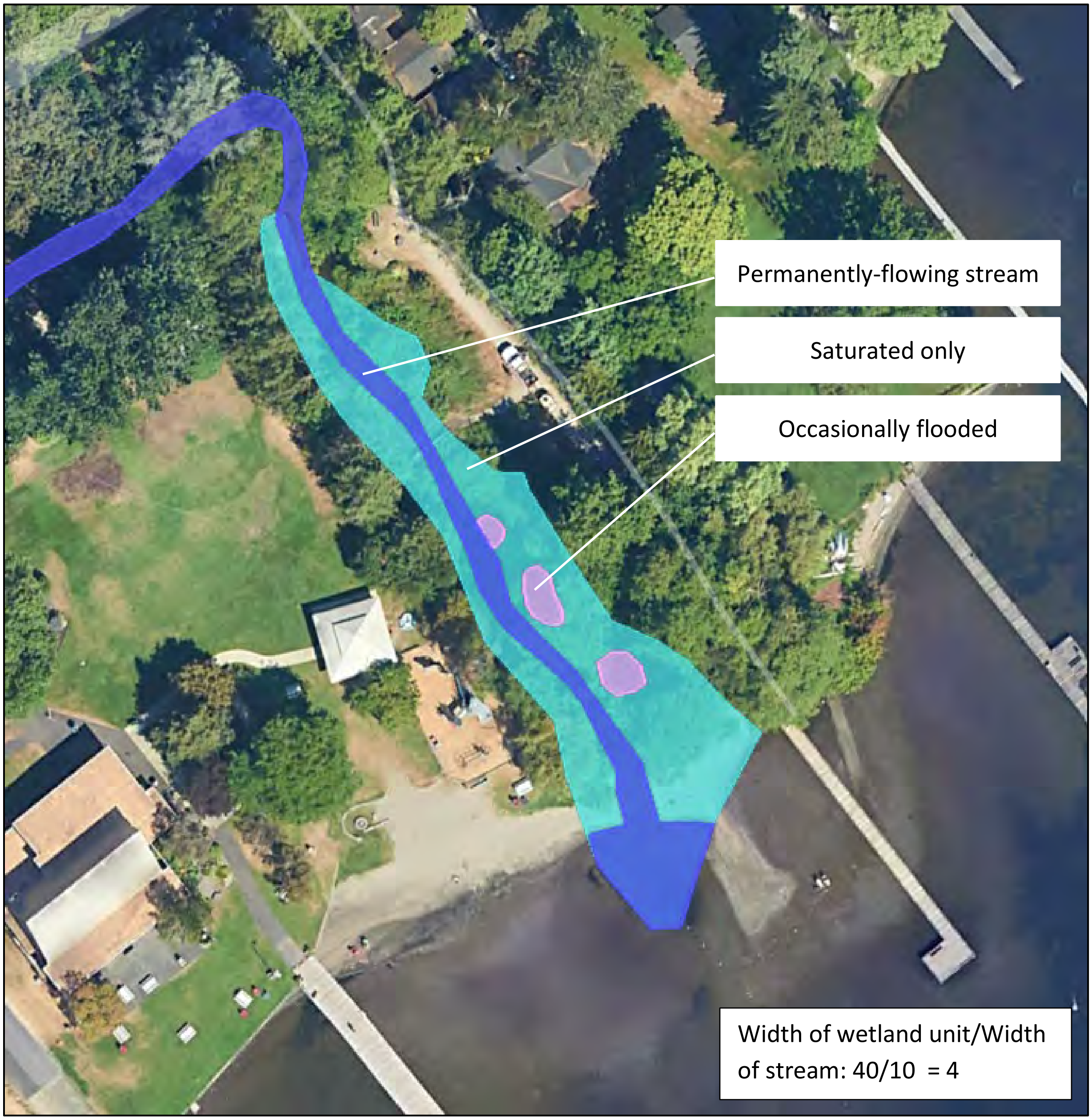


Figure 2. Hydroperiods, ponded depressions, and wetland-width-to-stream-width ratio – H1.2, R1.1, R4.1

Features depicted are not to scale. Sketches are based on available data and best professional judgment.


Figure 3. Plant cover of trees, shrubs, and herbaceous plants (not Cowardin) – R1.2, R4.2

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

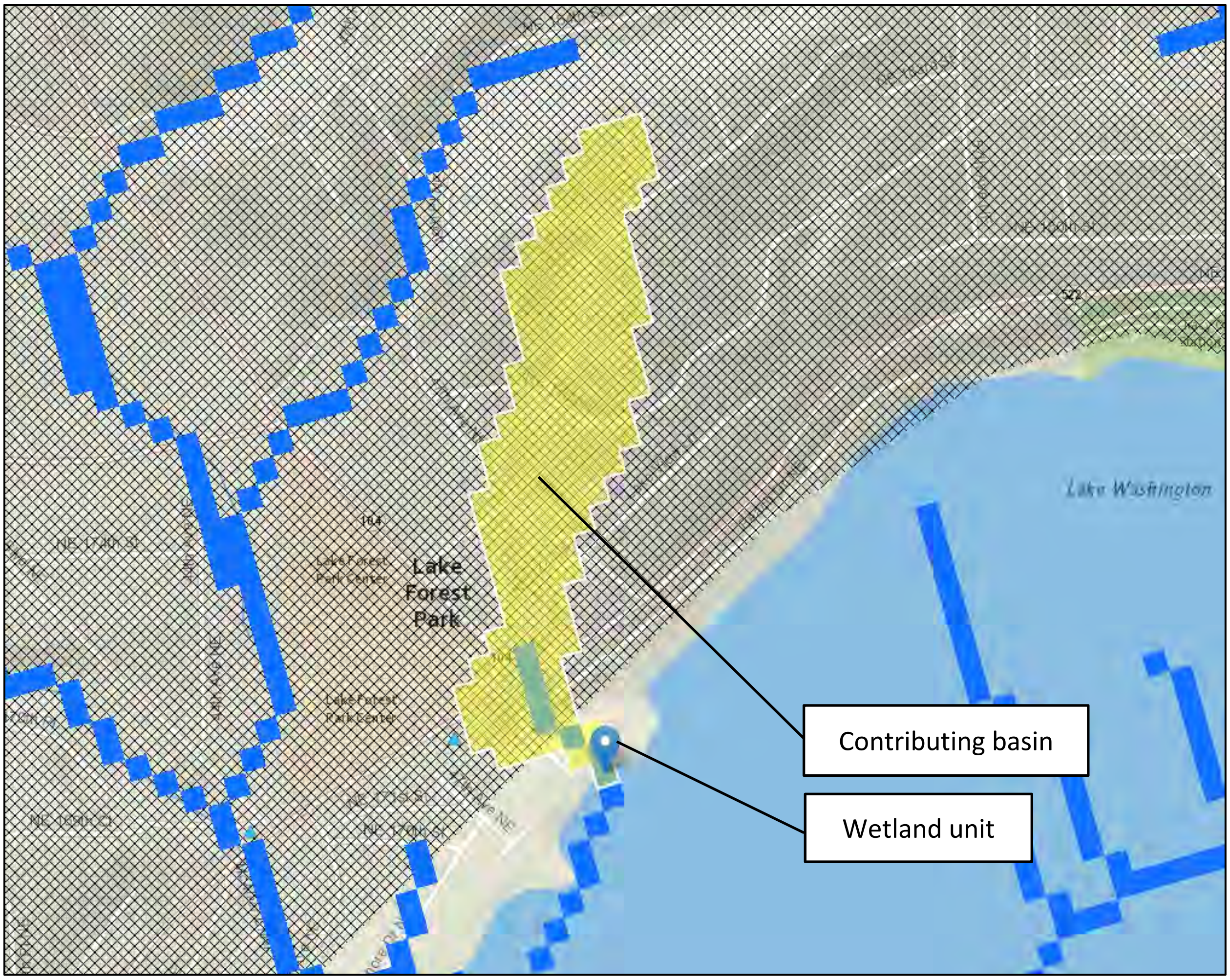



Figure 4. Map of the contributing basin – R2.2, R2.3, R5.2

Features depicted are not to scale. Sketches are based on available data and best professional judgment.


Figure 5. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

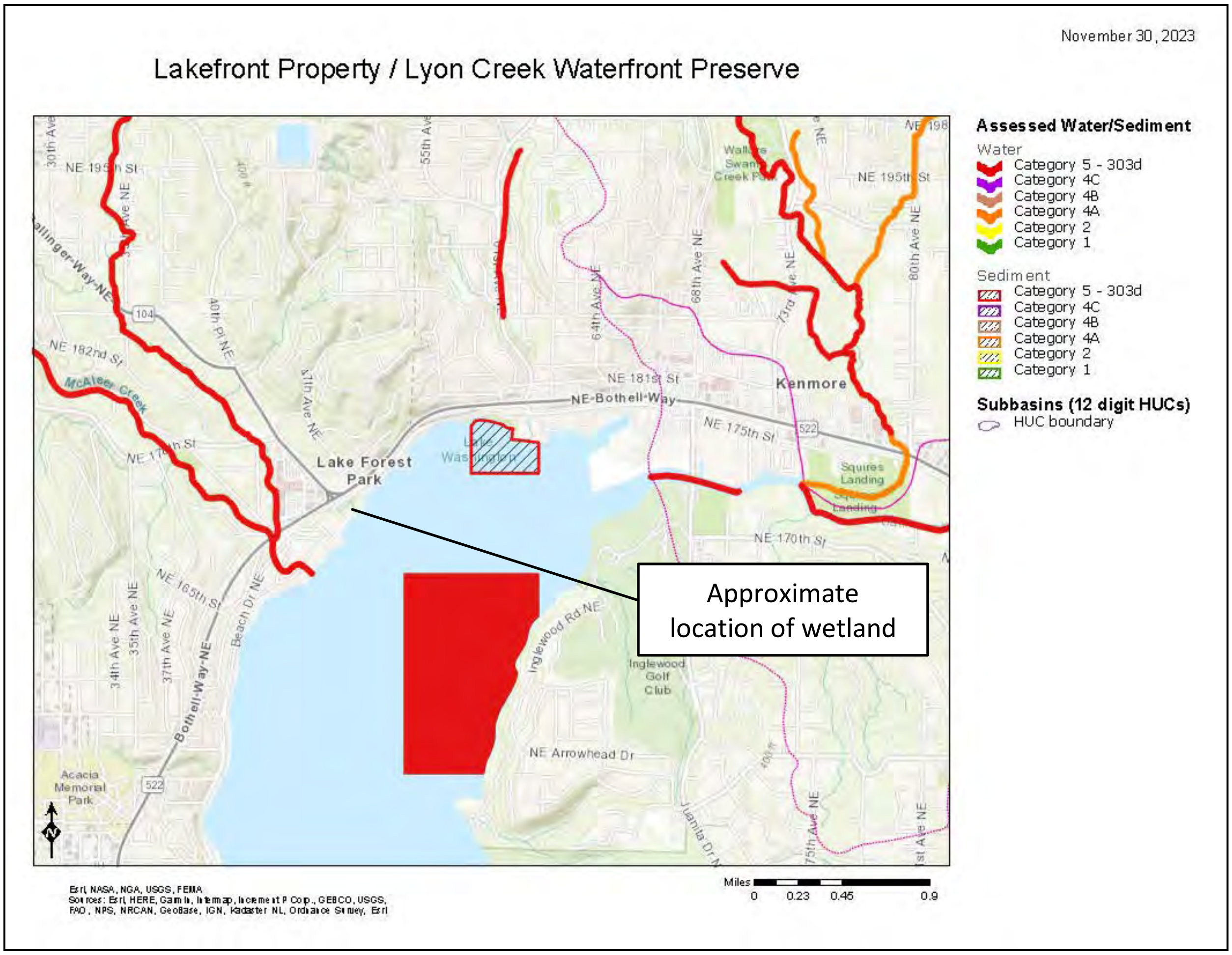



Figure 6. Screen-capture of 303(d) listed waters in basin – D3.1, D3.2, R3.1.

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

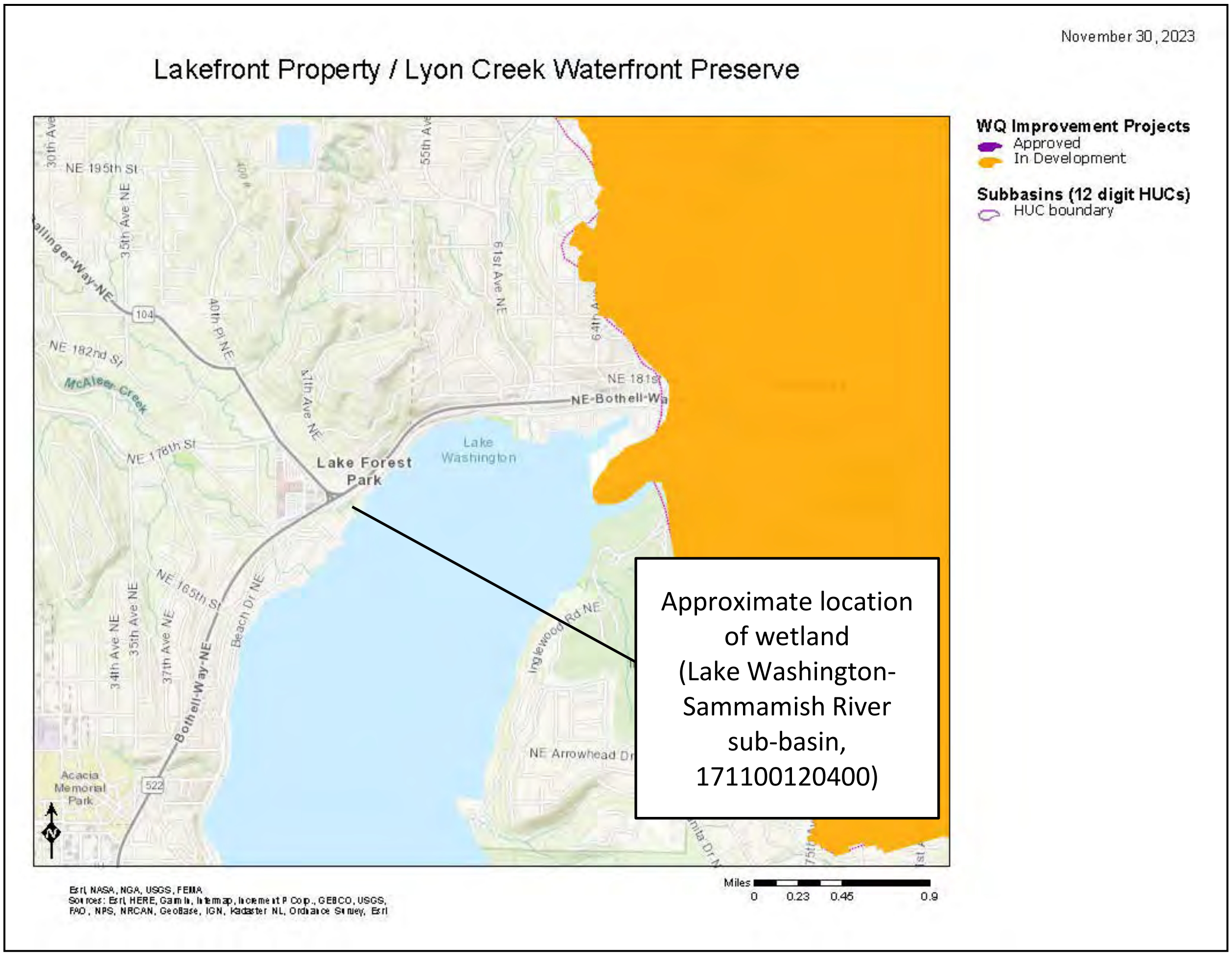



Figure 7. Screen-capture of TMDL map for sub-basin in which unit is found – D3.3, R3.2, R3.3.

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

December 4, 2023

Cory Roche
City of Lake Forest Park
Phone: 206-957-2814
Email: croche@cityoflfp.gov

Re: Lakefront Property / Lyon Creek Waterfront Preserve Tree Inventory Report
DCG/Watershed Reference Number: 230336

Dear Cory:

On October 19 and 31, 2023, ISA Certified Arborists® from DCG/Watershed visited Lyon Creek Waterfront Preserve and additional properties in Lake Forest Park, Washington to inventory regulated trees located in proximity to proposed park improvements. This report summarizes the findings of the study. The following documents are enclosed:

- Tree Inventory Table
- Tree Inventory Sketch

## Study Area

The study area includes parcel #401930-1663 (Lake Forest Park City Hall), 403010-0035, -0040 (two recently acquired city properties), -0050 (Lyon Creek Waterfront Preserve), and a portion of parcels #102604-9016 (Burke-Gilman Trail). The inventory also includes street trees located in the adjacent public right-of-way along Ballinger Way NE, Bothell Way NE, and Beach Dr NE (see Figure 1).


Figure 1. Study area, highlighted in yellow (provided courtesy of City of Lake Forest Park).

## Project Background

Park improvements are proposed at Lyon Creek Waterfront Preserve and two recently acquired lakefront parcels (#403010-0035, -0040). Pedestrian improvements for park access are also planned on the City Hall property (parcel #401930-1663), a portion of the Bure-Gilman Trail (parcel #102604-9016), and within the adjacent public right-of-way.

## Methods

For the purposes of this study, all trees rooted within the project area, or with driplines extending into the project area, were included in the tree inventory. The City of Lake Forest Park defines a significant tree as "a tree six inches or greater in diameter (DBH) or a required replacement tree of any size. Dead trees shall not be considered significant trees." (Lake Forest Park Municipal Code [LFPMC] 16.14.030).

Additionally, Lake Forest Park regulated landmark and exceptional trees. A landmark tree is defined as a significant tree that is at least 24 inches in diameter (DBH)." An exceptional tree is defined as "a viable tree, which because of its unique combination of size and species, age, location, and health is worthy of long-term retention, as determined by the city's qualified arborist." An exceptional tree must also meet the following criteria (LFPMC 16.14.030):

> *1. The tree must be included in and have a diameter at breast height (DBH) that is equal to or greater than the threshold diameters listed in Table 1* (Exceptional Tree Specie4s and Their Threshold Diameters)*;*
>
> *2. The tree shall exhibit healthful vigor for its age and species;*
>
> *3. The tree shall not be considered a significant risk in regard to existing utilities and structures as evaluated per the tree risk assessment defined in LFPMC 16.14.080(A)(1);*
>
> *4. The tree shall have no visual structural defects that cannot be mitigated by one or more measures outlined in the International Society of Arboriculture Best Management Practices; and*
>
> *5. If retained under current tree growth conditions, the tree can be expected to remain viable with reasonable and prudent management and care.*

The diameter-at-breast-height (DBH) of all trees in the study area, was measured at 4.5 feet above the average surface of the ground. Methodology for measuring and calculating the diameter of trees with multiple trunks, major leans, or on steep slopes followed those outlined in the Guide for Plant Appraisal, 10th Edition, written by the Council of Tree and Landscape Appraisers (CTLA) and published by ISA (CTLA 2020). To measure trees with multiple trunks, the total diameter of multi-stemmed trees was calculated by taking the square root of the sum of each diameter squared; this allows for comparison to other single-stemmed trees and for more accurate permitting and tree retention calculations.

A round one-and-one-quarter inch-wide, numbered aluminum tag was affixed to the trunk of all trees meeting minimum tree size requirements within the study area. All significant trees in the study area were identified and assessed in the field using a Basic Assessment according to International Society of Arboriculture (ISA) standards. The attributes collected during the field survey are described in Table 1, below. The attached Tree Inventory Table contains the data collected for each tree inventoried. General attributes documented for all inventoried trees include the unique identification number and species name. Physical attributes include number of stems, diameter at breast height (DBH), height, canopy radius, and condition.

Table 1. Attributes recorded for all inventoried trees and that are presented in the spreadsheet database.

| Attribute | Description of Attribute |
|---|---|
| ID NUMBER | Unique number assigned to an assessed tree. This number corresponds to the tag number in the field. |
| SCIENTIFIC NAME | Formal scientific name conforming to the International Code of Nomenclature. |
| COMMON NAME | Name that is based on normal or common language of the Pacific Northwest. |
| STEMS | Number of trunks or shoots that contribute significantly to the canopy. |
| DBH | Diameter at Breast Height; or 4.5 feet from the ground surface. |
| HEIGHT | Approximate distance from the ground surface at the trunk to the highest point of the subject tree as visually estimated. |
| CANOPY RADIUS | Approximate average distance from the stem to the limits of the drip line, or end of branches. For trees with uneven crowns, the average of two perpendicular radii was recorded. |
| CONDITION | Health rating of an assessed tree using a 6-tier system as follows:<br>1 – Excellent: No apparent problems with the tree. Form is exemplary for the species.<br>2 – Good: Few minor defects such as crossed branches, minor foliage die-back, minor trunk damage, or unbalanced canopy.<br>3 – Fair: Several minor problems exist.<br>4 – Poor: Major defects visible such as significant trunk decay, codominant leaders with included bark, significant canopy die-back, major cracks in a stem or major limbs, and/or other structural problems. Topped trees are generally considered poor.<br>5 – Dying: Tree is in a state of significant decline.<br>6 – Dead: Tree is dead. |

# Findings

## Environmental Setting

Lyon Creek Waterfront Preserve and additional parcels included in the tree inventory are located in the City of Lake Forest Park in Section 10 of Township 26 North, Range 04 East. Overall site topography is relatively flat and the defining landscape feature is Lake Washington, located at the southeastern boundary of the tree inventory area. The inventory area includes a public park (Lyon Creek Waterfront Preserve) that is used for passive recreation, two adjacent parcels that are currently developed with multiple houses, Lake Forest Park City Hall property, and street rights-of-way between these properties. The properties are zoned RS-7 and Town Center. Surrounding land use is characterized by single-family residential development and a large commercial area adjacent to City Hall.

## Tree Inventory Results

A total of 171 trees were included in the inventory, with an approximately equal proportion of conifers and deciduous trees. Thirty-five different species of trees were inventoried, including native trees, ornamentals, and native cultivars. Western red cedar (*Thuja plicata*), Western hemlock (*Tsuga heterophylla*), and red alder (*Alnus rubra*) are the most common species, with 32, 28, and 21 individuals, respectively. The majority of significant trees were in good (2) or fair (3) condition at the time of the inventory, with six trees rated in Poor (4) condition (#2751, 2782, 2788, 2792, 2853, and 2877). Two trees were rated in Very Poor (5) condition (#2783 and 2790). A summary of inventoried tree species and size is provided in Table 2 below.

Table 2. Summary of tree species and size.

| Tree Name | Total Trees | Total Landmark | Average DBH (In.) | Largest DBH (In.) |
|---|---|---|---|---|
| *Acer circinatum* (vine maple) | 1 | - | n/a | 6.2 |
| *Acer macrophyllum* (bigleaf maple) | 1 | - | n/a | 6.0 |
| *Acer platanoides* (Norway maple) | 5 | - | 16.6 | 20.8 |
| *Acer rubrum* (red maple) | 5 | - | 9.0 | 17.4 |
| *Aesculus hippocastanum* (horsechestnut) | 2 | 1 | 23.1 | 31.7 |
| *Alnus rubra (red alder)* | 21 | - | 11.5 | 17.0 |
| *Betula nigra* (river birch) | 1 | - | n/a | 8.6 |
| *Betula pendula* (European white birch) | 4 | - | 12.7 | 14.5 |
| *Cedrus atlantica* (atlas cedar) | 4 | 2 | 28.2 | 47.7 |
| *Cedrus deodara* (deodar cypress) | 1 | - | n/a | 17.0 |
| *Chamaecyparis lawsoniana* (Port Orford cedar) | 2 | 1 | 19.4 | 29.1 |
| *Cornus* sp. (flowering dogwood) | 1 | - | n/a | 7.0 |
| *Cuprocyparis leylandii* (Leyland cypress) | 12 | - | 14.5 | 21.1 |
| *Fraxinus latifolia* (Oregon ash) | 6 | - | 14.0 | 21.1 |
| *Juglans nigra* (black walnut) | 1 | 1 | n/a | 31.7 |
| *Parrotia persica (Persian ironwood)* | 1 | - | n/a | 6.6 |
| *Picea* sp. (spruce) | 2 | 1 | 22.3 | 26.5 |
| *Pinus contorta* (shore pine) | 2 | - | 12.0 | 16.0 |
| *Pinus nigra* (Austrian pine) | 6 | 1 | 20.1 | 29.8 |
| *Platanus x acerifolia* (London planetree) | 5 | 3 | 26.8 | 47.0 |
| *Populus balsamifera* (black cottonwood) | 2 | 1 | 27.6 | 32.0 |
| *Prunus cerasifera.* (flowering plum) | 1 | - | n/a | 6.6 |
| *Prunus emarginata* (bitter cherry) | 3 | - | 11.3 | 12.2 |
| *Pseudotsuga menziesii* (Douglas-fir) | 4 | - | 19.9 | 23.0 |
| *Quercus palustris* (pin oak) | 3 | 2 | 27.0 | 29.5 |
| *Quercus robur* (English oak) | 2 | 1 | 23.2 | 27.4 |
| *Rhamnus puurshiana* (cascara) | 1 | - | n/a | 7.3 |
| *Robinia pseudoacacia* (black locust) | 3 | - | 11.9 | 14.3 |
| *Salis babylonica* (weeping willow) | 3 | 2 | 23.0 | 34.5 |
| *Salix lasiandra* (Pacific willow) | 2 | 1 | 23.6 | 33.6 |
| *Sequioa sempervirens* (redwood) | 1 | 1 | n/a | 68.9 |
| *Sorbus acuparia* (European mountain-ash) | 1 | - | n/a | 10.1 |

| Tree Name | Total Trees | Total Landmark | Average DBH (In.) | Largest DBH (In.) |
|---|---|---|---|---|
| *Taxus brevifolia* (Pacific yew) | 2 | - | 13.0 | 15.4 |
| *Thuja plicata* (Western red cedar) | 32 | - | 10.2 | 20.7 |
| *Tsuga heterophylla* (Western hemlock) | 28 | - | 12.5 | 18.8 |
| **TOTAL/OVERALL** | **171** | **18** | **14.8** | **68.9** |

Overall, the average DBH of trees within the study area is 14.8-inches. The largest tree (#2756) is a coastal redwood (*Sequioa sempervirens*) with a DBH of 68.9-inches. A total of eighteen significant trees, including tree #2756, meet the definition of a landmark tree, defined as a significant tree measuring at least 24-inches DBH (LFPMC 16.14.030, see Figure 2). No inventoried trees meet size requirements to qualify as an exceptional tree (LFPMC 16.14.030). However, ten trees (trees #2413, 2749, 2756, 2758, 2778, 2831, 2843, 2884, 2879, and 2895) have DBHs measuring 33-inches or larger, the minimum size threshold for exceptional native conifers.


Figure 2. Approximate locations of inventoried landmark trees, highlighted in teal.

## Local Regulations

Trees in Lake Forest Park are regulated under Chapter 16.14 *Tree Canopy Preservation and Enhancement*. Additionally, trees located within environmentally critical areas or associated buffers are subject to Chapter 16.16 *Environmentally Critical Areas*.

Criteria for the removal of trees located in critical areas or buffers is outlined in LPFMC 16.14.080. In short, this criterion addresses a tree's risk level, damage caused to structures, utilities, or other infrastructure, and invasive tree species; an approved action under Chapter 16.16 is also required for tree removals (LFPMC 16.14080.A). Additionally, cut vegetation is required to remain in the critical area or buffer (LFPMC 16.14080.C).

LPFMC 16.14.070.G and .H outline criteria for tree removals located within a public right-of-way. LPFMC 16.14.070.C. and D detail requirements associated with Minor Tree Permits and Major Tree Permits needed to authorize tree removals and include the following criteria when a major development activity is proposed:

*3. Development proposals associated with a tree permit shall:*

*a. Incorporate trees as a site amenity and reflect a strong emphasis on tree protection.*

*b. Demonstrate the following prioritized factors for retention:*

*i. Existing viable trees in groups or groves;*

*ii. Exceptional trees or other high quality open-grown, windfirm trees;*

*iii. Landmark trees;*

*iv. Trees in critical area buffers, or adjacent to critical area buffers;*

*v. Trees that are interdependent with and therefore critical to the integrity of groves of other protected trees;*

*vi. Other individual trees that will be windfirm, high quality trees if retained;*

*vii. Other trees that provide wildlife or riparian habitat, screening, buffering or other amenities;*

*viii. Trees that help to protect neighbors' trees from windthrow, or other trees within required yard setbacks or on the perimeter; and*

*ix. Trees next to parks or other open space areas.*

*c. Retain a forested look, value, and function after development or modification. Trees should be protected within vegetated islands and groves rather than as individual, isolated trees scattered throughout the site.*

*d. Consider tree protection opportunities in the design and location of building footprints, parking areas, roadways, utility corridors and other structures.*

*e. Provide grading plans that accommodate existing trees and avoid alteration to grades around existing significant trees.*

Additionally, per LFPMC 16.14.070.D.2. an approved tree replacement plan must demonstrate that when trees are removed that canopy coverage meets goals provided in LFPMC 16.14.070.A.

### Lake Forest Park Tree Protection Measures

Tree permits issued by the City of Lake Forest Park require that trees identified for retention are protected. Generally, sidewalks, structures, utilities, and roadways are required to be set back a minimum of five feet from a tree's critical root zone (CRZ), defined as "an area equal to one-foot radius from the base of the tree's trunk for each one inch of the tree's diameter at four and one-half feet above grade." Trenching, construction, and grading may be allowed up to the interior CRZ (the inner half of the CRZ) when a tree protection plan demonstrates long-term viability of the tree. A tree is considered to be a removal by the City of Lake Forest Park when an action or process "results in the loss of more than 20 percent of the tree's root system; or the removal through any of these processes of greater than 50 percent of the live crown of the significant tree" (LFPMC 16.14.030).

## Tree Protection Recommendations

All retained trees will require protection measures during construction. Trees can be damaged quickly and irreversibly by construction activities, especially by heavy machinery and exposure to chemicals. The following best management practices follow the industry standards for tree protection (ANSI A300 Part 5, 2019), and should be adhered to whenever work is being performed.

## Tree Protection Zones and Fencing

The critical root zone (CRZ) is the area that contains tree roots critical to the health and stability of the tree. It can be approximated by an area with a radius of one foot for every diameter inch of the trunk. However, topography and site conditions may greatly affect where critical roots are growing.

The tree protection zone (TPZ) is the area within the critical root zone in which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development. The TPZ should encompass as much of the CRZ as possible. However, the TPZ may be adjusted in size or shape to accommodate the existing infrastructure, planned construction, and specific site conditions, as well as the tree canopy conformation and visible root orientation, species response to construction impacts, size, condition, and maturity. All construction activities, including staging and driving machinery, should be located outside of the TPZ. Verification of site conditions and long-term health of the tree by an ISA certified arborist may be required for intrusions into the TPZ.

The TPZ and other tree protection measures for preserved trees should be shown on the site development plans, including grading and drainage plans and temporary erosion and sediment control (TESC) plans.

## Tree Protection Fencing Requirements

- Fencing should be placed at the outer edges of the tree protection zone.
- Fencing should be four to six feet high, and constructed of chain link, wire-mesh, or high-visibility plastic fencing.
- Fencing should include visible warning signs, such as “Tree Protection Area – Keep Out”, spaced no further than 15 feet apart.
- Fencing and signage should be installed prior to the start of construction and remain in place for the duration of the project.

## Minimize Root Zone Disturbance

All construction activities, including staging and driving machinery, should be located outside of the CRZ. If temporary impacts in the CRZ are unavoidable, the arborist recommends using one of the following temporary measures to minimize soil compaction and root damage:

- Install six to twelve inches of wood chip mulch over the CRZ.
- Lay down a ¾-inch thick plywood sheet over at least four inches of wood chip mulch.
- Apply four to six inches of gravel over staked geotextile fabric.

- Place commercial logging mats on top of a 4-inch mulch layer.

The gravel, geotextile fabric, mats, and all mulch over four-inches thick **must** be removed after the temporary disturbance is finished.

## Minimize Grade Changes

The grade should not be altered in the TPZ. Most tree roots grow in the top six to 18 inches of soil and are highly susceptible to damage from grade changes. If the grade is lowered, roots critical to health and stability will be removed. If the grade is raised, roots can suffocate from lack of oxygen.

If an increase in grade within the TPZ is recommended and approved, these best management practices should be followed:

- Do not place fill or other organic matter against the trunk.
- Do not compact soils.
- If the fill to be applied is no more than two to four inches, it should be a coarser texture than the existing soil.

If a decrease in grade within the TPZ is recommended and approved, these best management practices should be followed:

- No more than six inches of soil should be removed from the existing grade.
- Consider retaining walls or terraces to avoid excessive soil loss. Support for retaining walls should not impact major structural roots. Soil excavation by hand or hydro-vac prior to mechanical augering is recommended to avoid root impacts.
- Spread two to four inches of mulch over the exposed area to buffer the root's environment change.
- Apply supplemental water during dry months to encourage new root growth.

## Root pruning

If any excavation or construction is proposed within the dripline, critical root zone, or tree protection zone, roots must be protected or properly pruned to ensure tree health and stability. Prior to excavation within a tree's root zone (either within or outside of the TPZ), exposing roots using high-pressure air (pneumatic) or water (hydraulic) excavation is recommended. Any roots over one inch that are exposed after excavation should be clean cut by hand. The project arborist should be consulted before root pruning. All root pruning should be overseen by the project arborist or designee.

### Canopy pruning

All construction activities should stay out of the canopy zone. However, if the canopy of a tree will conflict with construction, the canopy could be raised to avoid aerial conflicts after consulting with the project arborist or designee. Any pruning of trees should be overseen by a certified professional through the International Society of Arboriculture (ISA) or Tree Care Industry Association (TCIA). No other pruning should be necessary and could negatively impact the health of the trees.

### Maintenance

The impacts of construction are stressful to trees, which may not show the signs of stress for up to five to ten years after being impacted. Applying additional woodchip mulch and providing supplemental irrigation may be necessary to reduce tree stress during construction.

## Disclaimer

The findings of this report are based on the best available science and are limited to the scope, budget, and site conditions at the time of the assessment. Although the information in this report is based on sound methodology, internal physical flaws (such as cracking or root rot) or other conditions that are not visible cannot be detected with this limited basic visual screening. Trees are inherently unpredictable. Even vigorous and healthy trees can fail due to high winds, heavy snow, ice storms, rain, age, or other causes.

This report is based on the current observable conditions and may not represent future conditions of the trees. Changes in site conditions, including clearing and grading, will alter the condition of remaining trees in a way that is not predictable.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

RH

Roen Hohlfeld
Ecologist / ISA Certified Arborist® PN-8562A

Enclosures

## References

American National Standard (ANSI) A300 (Part 5). 2019. Tree, Shrub, and Other Woody Plant Management Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction). Londonderry, NH: Tree Care Industry Association.

Council of Tree & Landscape Appraisers (CTLA). 2020. Guide for Plant Appraisal: 10th Edition, Revised. Atlanta, GA: International Society of Arboriculture.

Dunster, J. 2017. Tree Risk Assessment Manual, Second Edition. Champaign, IL: International Society of Arboriculture.

Matheny, Nelda, and James R Clark. *Trees and Development: A Technical Guide to Preservation of Trees During Land Development*. International Society of Arboriculture, 1998.

Lake Forest Park Municipal Code. Chapter 16.14 *Tree Canopy Preservation and Enhancement*. Accessed October 2023.

DCG + The Watershed Company

# Lakefront Property / Lyon Creek Waterfront Preserve
## Parcels #102604-9016, 401930-1663, 403010-0035, -0040, and -0050
## Lake Forest Park, WA

Tree Inventory Table
Table Issued: 12/4/2023
Site Visit: October 19 and 31, 2023

| TAG # | TREE NAME | EVERGREEN (E) / DECIDUOUS (D) | # STEMS | COMB DBH (IN) | HEIGHT (FT) | RADIUS (FT) | CONDITION | LANDMARK SIZE | EXCEPTIONAL SIZE |
|---|---|---|---|---|---|---|---|---|---|
| 2410 | Robinia pseudoacacia (Black locust) | D | 1 | **11.1** | 45 | 15 | Good | no | n/a |
| 2411 | Robinia pseudoacacia (Black locust) | D | 1 | **10.3** | 35 | 15 | Good | no | n/a |
| 2412 | Robinia pseudoacacia (Black locust) | D | 1 | **14.3** | 40 | 15 | Good | no | n/a |
| 2413 | Platanus × acerifolia (London planetree) | D | 1 | **47.0** | 65 | 35 | Good | YES | n/a |
| 2414 | Quercus palustris (Pin oak) | D | 1 | **23.0** | 65 | 20 | Good | no | n/a |
| 2415 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **20.1** | 30 | 12 | Good | no | n/a |
| 2416 | Acer rubrum (Red maple) | D | 1 | **17.4** | 15 | 10 | Good | no | n/a |
| 2417 | Salix babylonica (Weeping willow) | D | 1 | **7.8** | 15 | 8 | Good | no | n/a |
| 2418 | Acer rubrum (Red maple) | D | 1 | **6.8** | 18 | 10 | Good | no | n/a |
| 2419 | Acer rubrum (Red maple) | D | 1 | **8.4** | 18 | 12 | Good | no | n/a |
| 2420 | Acer rubrum (Red maple) | D | 1 | **6.0** | 15 | 10 | Good | no | n/a |
| 2421 | Acer rubrum (Red maple) | D | 1 | **6.4** | 15 | 10 | Good | no | n/a |
| 2422 | Pinus contorta (Shore pine) | E | 1 | **16.0** | 40 | 10 | Good | no | n/a |
| 2744 | Thuja plicata (Western red cedar) | E | 2 | **6.0** | 20 | 8 | Fair | no | no |
| 2745 | Thuja plicata (Western red cedar) | E | 4 | **9.4** | 20 | 8 | Fair | no | no |
| 2746 | Thuja plicata (Western red cedar) | E | 4 | **8.8** | 20 | 8 | Fair | no | no |
| 2747 | Thuja plicata (Western red cedar) | E | 3 | **10.2** | 20 | 8 | Fair | no | no |
| 2748 | Thuja plicata (Western red cedar) | E | 3 | **7.6** | 20 | 8 | Fair | no | no |
| 2749 | Salix babylonica (Weeping willow) | D | 1 | **34.5** | 40 | 25 | Good | YES | n/a |
| 2750 | Salix babylonica (Weeping willow) | D | 1 | **26.6** | 50 | 30 | Good | YES | n/a |
| 2751 | Quercus robur (English oak) | D | 1 | **18.9** | 30 | 15 | Poor | no | n/a |
| 2752 | Picea sp. (Spruce species) | E | 1 | **18.1** | 45 | 15 | Good | no | n/a |
| 2753 | Quercus robur (English oak) | D | 1 | **27.4** | 45 | 30 | Good | YES | n/a |
| 2754 | Pseudotsuga menziesii (Douglas-fir) | E | 1 | **21.7** | 70 | 12 | Good | no | no |
| 2755 | Pseudotsuga menziesii (Douglas-fir) | E | 1 | **23.0** | 70 | 12 | Good | no | no |
| 2756 | Sequioa sempervirens (Coastal redwood) | E | 1 | **68.9** | 70 | 15 | Good | YES | n/a |
| 2757 | Aesculus hippocastanum (Horsechestnut) | D | 1 | **31.7** | 45 | 25 | Good | YES | n/a |
| 2758 | Juglans nigra (Black walnut) | D | 4 | **31.7** | 45 | 25 | Good | YES | n/a |
| 2759 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **13.1** | 50 | 12 | Good | no | n/a |
| 2760 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **12.7** | 50 | 12 | Good | no | n/a |
| 2761 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **12.0** | 50 | 12 | Good | no | n/a |
| 2762 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **11.9** | 50 | 12 | Good | no | n/a |
| 2763 | Cornus sp. (Ornamental dogwood) | D | 3 | **7.0** | 20 | 12 | Fair | no | n/a |
| 2764 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **12.6** | 50 | 12 | Good | no | n/a |
| 2765 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **14.9** | 50 | 12 | Good | no | n/a |
| 2766 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **12.7** | 50 | 12 | Good | no | n/a |
| 2767 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **13.4** | 50 | 12 | Good | no | n/a |
| 2768 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **12.0** | 50 | 12 | Good | no | n/a |
| 2769 | Chamaecyparis lawsoniana (Port Orford cedar) | E | 1 | **9.7** | 45 | 12 | Good | no | n/a |
| 2770 | Prunus emarginata (Bitter cherry) | D | 3 | **10.7** | 45 | 12 | Good | no | n/a |
| 2771 | Pinus nigra (Austrian pine) | E | 1 | **29.8** | 45 | 25 | Fair | YES | n/a |
| 2772 | Pinus nigra (Austrian pine) | E | 1 | **17.6** | 55 | 15 | Good | no | n/a |
| 2773 | Betula pendula (European white birch) | D | 1 | **14.1** | 40 | 15 | Fair | no | n/a |
| 2774 | Alnus rubra (Red alder) | D | 1 | **6.2** | 30 | 10 | Good | no | n/a |

| TAG # | TREE NAME | EVERGREEN (E) / DECIDUOUS (D) | # STEMS | COMB DBH (IN) | HEIGHT (FT) | RADIUS (FT) | CONDITION | LANDMARK SIZE | EXCEPTIONAL SIZE |
|---|---|---|---|---|---|---|---|---|---|
| 2775 | Prunus emarginata (Bitter cherry) | D | 2 | **11.0** | 30 | 15 | Good | no | n/a |
| 2776 | Chamaecyparis lawsoniana (Port Orford cedar) | E | 1 | **29.1** | 55 | 12 | Good | YES | n/a |
| 2777 | Picea sp. (Spruce species) | E | 1 | **26.5** | 75 | 15 | Good | YES | n/a |
| 2778 | Cedrus atlantica (Atlas cedar) | E | 1 | **47.7** | 75 | 20 | Good | YES | n/a |
| 2779 | Pinus nigra (Austrian pine) | E | 1 | **19.0** | 65 | 15 | Good | no | n/a |
| 2780 | Prunus emarginata (Bitter cherry) | D | 2 | **12.2** | 65 | 15 | Good | no | n/a |
| 2781 | Thuja plicata (Western red cedar) | E | 1 | **11.0** | 35 | 8 | Good | no | no |
| 2782 | Tsuga heterophylla (Western hemlock) | E | 1 | **15.7** | 55 | 20 | Good | no | no |
| 2783 | Tsuga heterophylla (Western hemlock) | E | 1 | **17.0** | 55 | 20 | Good | no | no |
| 2784 | Thuja plicata (Western red cedar) | E | 1 | **7.5** | 40 | 10 | Good | no | no |
| 2785 | Thuja plicata (Western red cedar) | E | 2 | **8.5** | 40 | 10 | Good | no | no |
| 2786 | Thuja plicata (Western red cedar) | E | 1 | **9.8** | 40 | 10 | Good | no | no |
| 2787 | Thuja plicata (Western red cedar) | E | 1 | **7.4** | 30 | 10 | Good | no | no |
| 2788 | Tsuga heterophylla (Western hemlock) | E | 1 | **13.8** | 40 | 10 | Good | no | no |
| 2789 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **17.6** | 55 | 15 | Good | no | n/a |
| 2790 | Tsuga heterophylla (Western hemlock) | E | 1 | **10.3** | 55 | 15 | Good | no | no |
| 2791 | Tsuga heterophylla (Western hemlock) | E | 1 | **10.1** | 50 | 10 | Poor | no | no |
| 2792 | Tsuga heterophylla (Western hemlock) | E | 2 | **13.5** | 55 | 15 | Fair | no | no |
| 2793 | Tsuga heterophylla (Western hemlock) | E | 1 | **16.4** | 55 | 15 | Fair | no | no |
| 2794 | Tsuga heterophylla (Western hemlock) | E | 2 | **11.7** | 50 | 10 | Fair | no | no |
| 2795 | Tsuga heterophylla (Western hemlock) | E | 1 | **6.0** | 20 | 10 | Poor | no | no |
| 2796 | Tsuga heterophylla (Western hemlock) | E | 1 | **6.0** | 25 | 10 | Very Poor | no | no |
| 2797 | Tsuga heterophylla (Western hemlock) | E | 1 | **6.3** | 20 | 10 | Poor | no | no |
| 2798 | Tsuga heterophylla (Western hemlock) | E | 1 | **11.0** | 50 | 10 | Good | no | no |
| 2799 | Thuja plicata (Western red cedar) | E | 1 | **12.6** | 55 | 15 | Good | no | no |
| 2800 | Cuprocyparis leylandii (Leyland cypress) | E | 1 | **21.1** | 65 | 15 | Good | no | n/a |
| 2801 | Thuja plicata (Western red cedar) | E | 1 | **15.0** | 70 | 15 | Good | no | no |
| 2802 | Thuja plicata (Western red cedar) | E | 2 | **7.8** | 50 | 15 | Good | no | no |
| 2803 | Thuja plicata (Western red cedar) | E | 2 | **9.3** | 50 | 10 | Good | no | no |
| 2804 | Thuja plicata (Western red cedar) | E | 1 | **8.2** | 50 | 10 | Good | no | no |
| 2805 | Thuja plicata (Western red cedar) | E | 1 | **8.4** | 50 | 10 | Good | no | no |
| 2806 | Thuja plicata (Western red cedar) | E | 1 | **7.6** | 40 | 10 | Good | no | no |
| 2807 | Thuja plicata (Western red cedar) | E | 1 | **15.1** | 50 | 15 | Good | no | no |
| 2808 | Thuja plicata (Western red cedar) | E | 1 | **6.4** | 45 | 10 | Good | no | no |
| 2809 | Thuja plicata (Western red cedar) | E | 1 | **8.8** | 50 | 10 | Good | no | no |
| 2810 | Thuja plicata (Western red cedar) | E | 1 | **9.4** | 45 | 10 | Good | no | no |
| 2811 | Thuja plicata (Western red cedar) | E | 1 | **16.1** | 45 | 10 | Good | no | no |
| 2812 | Quercus palustris (Pin oak) | D | 1 | **28.6** | 50 | 20 | Fair | YES | n/a |
| 2813 | Thuja plicata (Western red cedar) | E | 1 | **6.0** | 25 | 10 | Good | no | no |
| 2814 | Alnus rubra (Red alder) | D | 1 | **7.1** | 35 | 12 | Good | no | n/a |
| 2815 | Alnus rubra (Red alder) | D | 1 | **10.3** | 40 | 12 | Good | no | n/a |
| 2816 | Alnus rubra (Red alder) | D | 1 | **14.7** | 55 | 12 | Good | no | n/a |
| 2817 | Alnus rubra (Red alder) | D | 1 | **13.2** | 55 | 12 | Good | no | n/a |
| 2818 | Alnus rubra (Red alder) | D | 1 | **17.0** | 55 | 12 | Good | no | n/a |

| TAG # | TREE NAME | EVERGREEN (E) / DECIDUOUS (D) | # STEMS | COMB DBH (IN) | HEIGHT (FT) | RADIUS (FT) | CONDITION | LANDMARK SIZE | EXCEPTIONAL SIZE |
|---|---|---|---|---|---|---|---|---|---|
| 2819 | Alnus rubra (Red alder) | D | 1 | **6.0** | 30 | 8 | Good | no | n/a |
| 2820 | Alnus rubra (Red alder) | D | 1 | **9.6** | 50 | 12 | Good | no | n/a |
| 2821 | Alnus rubra (Red alder) | D | 1 | **10.6** | 45 | 12 | Good | no | n/a |
| 2822 | Alnus rubra (Red alder) | D | 1 | **10.0** | 45 | 12 | Good | no | n/a |
| 2823 | Betula pendula (European white birch) | D | 1 | **14.5** | 50 | 15 | Good | no | n/a |
| 2824 | Alnus rubra (Red alder) | D | 1 | **13.0** | 50 | 15 | Good | no | n/a |
| 2825 | Betula pendula (European white birch) | D | 2 | **10.6** | 45 | 15 | Good | no | n/a |
| 2826 | Betula pendula (European white birch) | D | 1 | **11.5** | 55 | 15 | Good | no | n/a |
| 2827 | Alnus rubra (Red alder) | D | 1 | **11.2** | 50 | 10 | Good | no | n/a |
| 2828 | Alnus rubra (Red alder) | D | 1 | **14.6** | 55 | 15 | Good | no | n/a |
| 2829 | Alnus rubra (Red alder) | D | 1 | **14.1** | 55 | 15 | Good | no | n/a |
| 2830 | Alnus rubra (Red alder) | D | 1 | **16.7** | 55 | 15 | Good | no | n/a |
| 2831 | Salix lasiandra (Pacific willow) | D | 3 | **33.6** | 30 | 20 | Good | YES | n/a |
| 2832 | Salix lasiandra (Pacific willow) | D | 2 | **13.6** | 20 | 20 | Good | no | n/a |
| 2833 | Alnus rubra (Red alder) | D | 1 | **13.5** | 30 | 15 | Good | no | n/a |
| 2834 | Acer circinatum (Vine maple) | D | 1 | **6.2** | 15 | 10 | Good | no | n/a |
| 2835 | Thuja plicata (Western red cedar) | E | 1 | **10.0** | 30 | 10 | Good | no | no |
| 2836 | Fraxinus latifolia (Oregon ash) | D | 1 | **6.8** | 45 | 8 | Good | no | n/a |
| 2837 | Rhamnus purshiana (Cascara) | D | 4 | **7.3** | 25 | 8 | Good | no | n/a |
| 2838 | Betula nigra (River birch) | D | 1 | **8.6** | 40 | 8 | Good | no | n/a |
| 2839 | Aesculus hippocastanum (Horsechestnut) | D | 2 | **14.5** | 30 | 15 | Good | no | n/a |
| 2840 | Taxus brevifolia (Pacific yew) | E | 3 | **10.6** | 12 | 10 | Good | no | n/a |
| 2841 | Populus balsamifera (Cottonwood) | D | 1 | **23.2** | 75 | 15 | Good | no | n/a |
| 2842 | Parrotia persica (Persian ironwood) | D | 1 | **6.6** | 30 | 8 | Good | no | n/a |
| 2843 | Cedrus atlantica (Atlas cedar) | E | 1 | **33.9** | 80 | 25 | Fair | YES | n/a |
| 2844 | Taxus brevifolia (Pacific yew) | E | 1 | **15.4** | 15 | 8 | Good | no | n/a |
| 2845 | Thuja plicata (Western red cedar) | E | 1 | **8.3** | 20 | 10 | Good | no | no |
| 2846 | Thuja plicata (Western red cedar) | E | 1 | **6.2** | 25 | 10 | Good | no | no |
| 2847 | Acer macrophyllum (Bigleaf maple) | D | 1 | **6.0** | 25 | 15 | Good | no | no |
| 2848 | Alnus rubra (Red alder) | D | 2 | **14.1** | 60 | 15 | Good | no | n/a |
| 2849 | Alnus rubra (Red alder) | D | 2 | **12.0** | 40 | 15 | Good | no | n/a |
| 2850 | Alnus rubra (Red alder) | D | 1 | **10.1** | 45 | 10 | Good | no | n/a |
| 2851 | Tsuga heterophylla (Western hemlock) | E | 1 | **11.3** | 45 | 10 | Fair | no | no |
| 2852 | Tsuga heterophylla (Western hemlock) | E | 1 | **11.3** | 65 | 10 | Fair | no | no |
| 2853 | Tsuga heterophylla (Western hemlock) | E | 1 | **12.3** | 55 | 10 | Fair | no | no |
| 2854 | Tsuga heterophylla (Western hemlock) | E | 1 | **12.5** | 55 | 10 | Poor | no | no |
| 2855 | Tsuga heterophylla (Western hemlock) | E | 1 | **17.4** | 55 | 10 | Fair | no | no |
| 2856 | Tsuga heterophylla (Western hemlock) | E | 1 | **12.1** | 55 | 12 | Fair | no | no |
| 2857 | Tsuga heterophylla (Western hemlock) | E | 1 | **17.7** | 55 | 15 | Fair | no | no |
| 2858 | Tsuga heterophylla (Western hemlock) | E | 1 | **12.2** | 45 | 10 | Fair | no | no |
| 2859 | Tsuga heterophylla (Western hemlock) | E | 2 | **17.2** | 55 | 15 | Fair | no | no |
| 2860 | Tsuga heterophylla (Western hemlock) | E | 1 | **6.8** | 45 | 10 | Good | no | no |
| 2861 | Thuja plicata (Western red cedar) | E | 1 | **6.8** | 45 | 10 | Good | no | no |
| 2862 | Tsuga heterophylla (Western hemlock) | E | 1 | **14.7** | 55 | 15 | Good | no | no |

# Lakefront Property / Lyon Creek Waterfront Preserve
## Parcels #102604-9016, 401930-1663, 403010-0035, -0040, and -0050
## Lake Forest Park, WA



| TAG # | TREE NAME | EVERGREEN (E) / DECIDUOUS (D) | # STEMS | COMB DBH (IN) | HEIGHT (FT) | RADIUS (FT) | CONDITION | LANDMARK SIZE | EXCEPTIONAL SIZE |
|---|---|---|---|---|---|---|---|---|---|
| 2863 | Thuja plicata (Western red cedar) | E | 1 | **6.1** | 45 | 8 | Good | no | no |
| 2863 | Prunus cerasifera (Flowering plum) | D | 1 | **6.6** | 25 | 8 | Fair | no | n/a |
| 2864 | Thuja plicata (Western red cedar) | E | 1 | **15.6** | 55 | 12 | Good | no | no |
| 2865 | Thuja plicata (Western red cedar) | E | 1 | **15.5** | 60 | 12 | Good | no | no |
| 2866 | Thuja plicata (Western red cedar) | E | 1 | **19.8** | 60 | 12 | Good | no | no |
| 2867 | Thuja plicata (Western red cedar) | E | 1 | **20.7** | 65 | 12 | Fair | no | no |
| 2868 | Tsuga heterophylla (Western hemlock) | E | 1 | **18.8** | 65 | 15 | Good | no | no |
| 2869 | Tsuga heterophylla (Western hemlock) | E | 1 | **17.7** | 65 | 15 | Good | no | no |
| 2870 | Pinus contorta (Shore pine) | E | 1 | **8.0** | 35 | 8 | Fair | no | n/a |
| 2871 | Sorbus aucuparia (European mountain ash) | D | 2 | **10.1** | 20 | 8 | Good | no | n/a |
| 2872 | Tsuga heterophylla (Western hemlock) | E | 1 | **13.8** | 45 | 15 | Good | no | no |
| 2873 | Tsuga heterophylla (Western hemlock) | E | 1 | **6.3** | 20 | 5 | Very Poor | no | no |
| 2874 | Quercus palustris (Pin oak) | D | 1 | **29.5** | 75 | 20 | Good | YES | n/a |
| 2875 | Tsuga heterophylla (Western hemlock) | E | 1 | **10.6** | 40 | 12 | Good | no | no |
| 2876 | Alnus rubra (Red alder) | D | 1 | **9.1** | 40 | 15 | Good | no | n/a |
| 2877 | Alnus rubra (Red alder) | D | 2 | **9.1** | 40 | 15 | Poor | no | n/a |
| 2878 | Cedrus deodara (Deodar cedar) | E | 2 | **17.0** | 50 | 15 | Good | no | n/a |
| 2879 | Fraxinus latifolia (Oregon ash) | D | 5 | **20.1** | 50 | 25 | Good | no | n/a |
| 2880 | Cedrus atlantica (Atlas cedar) | E | 1 | **16.5** | 50 | 15 | Good | no | n/a |
| 2881 | Fraxinus latifolia (Oregon ash) | D | 2 | **12.4** | 40 | 12 | Good | no | n/a |
| 2882 | Cedrus atlantica (Atlas cedar) | E | 1 | **14.6** | 50 | 15 | Good | no | n/a |
| 2883 | Fraxinus latifolia (Oregon ash) | D | 2 | **12.9** | 40 | 12 | Good | no | n/a |
| 2884 | Fraxinus latifolia (Oregon ash) | D | 4 | **21.0** | 35 | 15 | Fair | no | n/a |
| 2885 | Pinus nigra (Austrian pine) | E | 1 | **21.2** | 60 | 20 | Good | no | n/a |
| 2886 | Pseudotsuga menziesii (Douglas-fir) | E | 1 | **15.2** | 65 | 8 | Good | no | no |
| 2887 | Platanus × acerifolia (London planetree) | D | 1 | **26.0** | 75 | 30 | Good | YES | n/a |
| 2888 | Acer platanoides (Norway maple) | D | 1 | **14.1** | 60 | 25 | Good | no | n/a |
| 2889 | Pinus nigra (Austrian pine) | E | 1 | **17.7** | 65 | 12 | Good | no | n/a |
| 2890 | Acer platanoides (Norway maple) | D | 1 | **18.6** | 70 | 25 | Good | no | n/a |
| 2891 | Pinus nigra (Austrian pine) | E | 1 | **15.4** | 65 | 12 | Fair | no | n/a |
| 2893 | Platanus × acerifolia (London planetree) | D | 1 | **17.3** | 55 | 25 | Good | no | n/a |
| 2892 | Acer platanoides (Norway maple) | D | 1 | **14.2** | 65 | 25 | Good | no | n/a |
| 2894 | Acer platanoides (Norway maple) | D | 1 | **15.4** | 65 | 25 | Good | no | n/a |
| 2895 | Acer platanoides (Norway maple) | D | 5 | **20.8** | 70 | 30 | Good | no | n/a |
| 2896 | Platanus × acerifolia (London planetree) | D | 1 | **18.6** | 60 | 15 | Good | no | n/a |
| 2897 | Platanus × acerifolia (London planetree) | D | 1 | **25.2** | 60 | 30 | Good | YES | n/a |
| 2898 | Fraxinus latifolia (Oregon ash) | D | 2 | **10.9** | 25 | 15 | Fair | no | n/a |
| 2899 | Pseudotsuga menziesii (Douglas-fir) | E | 1 | **19.5** | 55 | 10 | Good | no | no |
| 2900 | Populus balsamifera (Cottonwood) | D | 1 | **32.0** | 75 | 25 | Good | YES | n/a |

750 Sixth Street South | Kirkland | WA 98033
p 425.822.5242 f 425.827.8136

## Tree Inventory Sketch – Lakefront Property / Lyon Creek Waterfront Preserve

| | | | |
|---|---|---|---|
| Site Address: | 17337 Beach Dr NE; Lake Forest Park, WA | Prepared for: | City of Lake Forest Park |
| Parcel Number: | 401930-1663, 03010-0035, -0040, -0050, 102604-9016 | TWC Ref. No.: | 230336 |
| Site Visit Date: | October 19 and 31, 2023 | | |


**LEGEND**

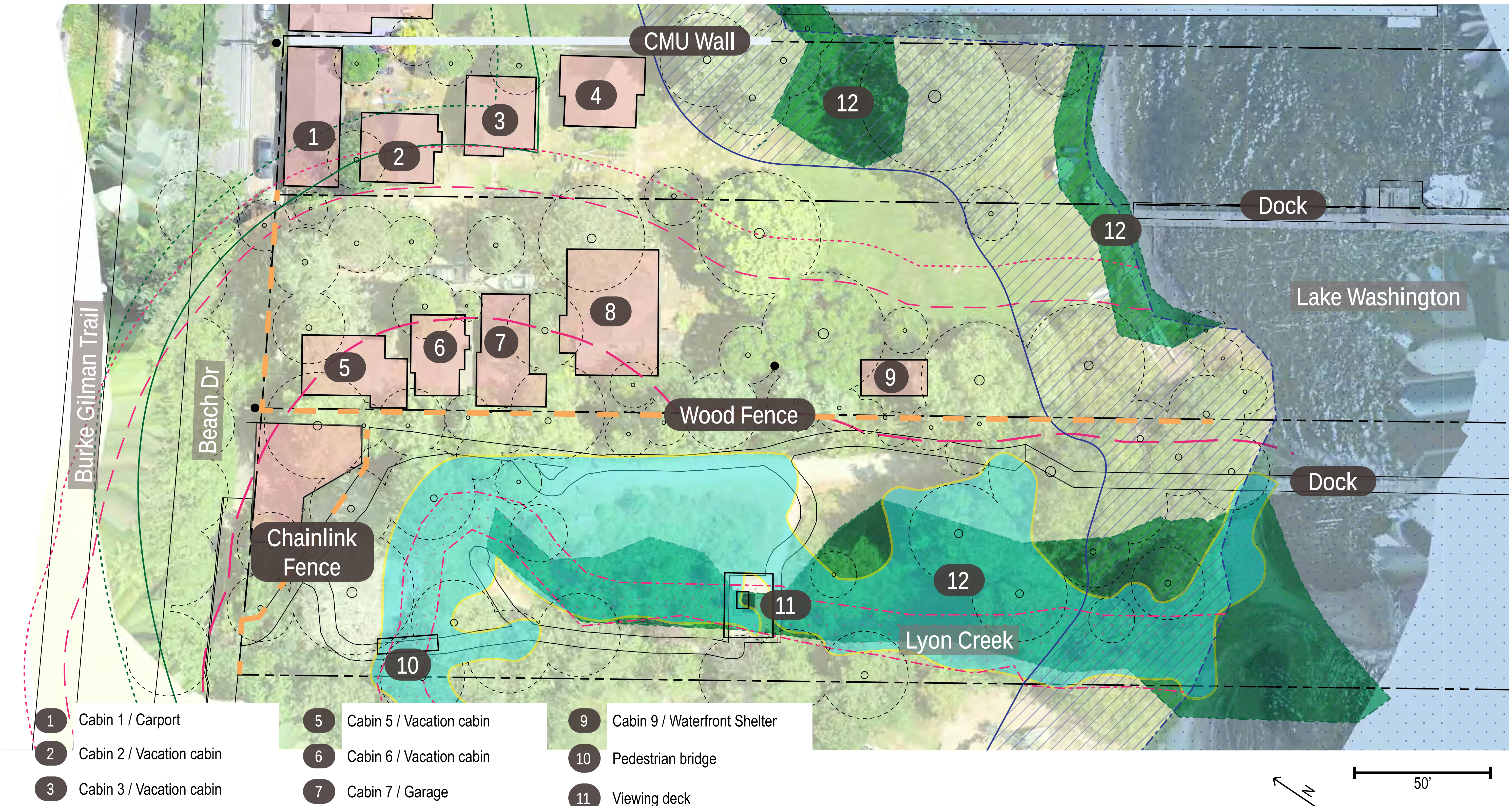
Study Area

Significant Tree

**Note**: Field sketch only. Features depicted are approximate and not to scale. All observations were made from within the subject parcel or public right-of-way; adjoining private properties were not entered.

Inventoried trees are marked with 1-1/4 inch round aluminum tags with a unique identification number (#2744-2900, 2410-2422) permanently affixed to the tree trunk.

Appendix E.




1 Cabin 1 / Carport
2 Cabin 2 / Vacation cabin
3 Cabin 3 / Vacation cabin
4 Cabin 4 / Vacation cabin
5 Cabin 5 / Vacation cabin
6 Cabin 6 / Vacation cabin
7 Cabin 7 / Garage
8 Cabin 8 / Big House
9 Cabin 9 / Waterfront Shelter
10 Pedestrian bridge
11 Viewing deck
12 Wetland

# EXISTING

LAKEFRONT IMPROVEMENT PROJECT

The project comprises three parcels, including an existing public preserve (plan south, above) and two parcesl previously programmed as a single residential property with multiple outbuildings (plan north, above). The residential property and the preserve each have an existing wood plank dock. The project is encumbered by shoreline and critical area regulations, including the shoreline management area of Lake Washington and encumbrances from onsite wetlands and Lyon Creek, a natural salmon-bearing stream.

Appendix F.

# CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2024-02-01232

Author: Whitney Osiensky and Austin Baker

Title of Report: Cultural Resources Assessment for the Lake Forest Park Lakefront Improvements Project 17345 and 17347 Beach Dr NE, Lake Forest Park, King County, Washington

Date of Report: February 2024

County: King Section: 10 Township: 26 Range: 4E

Quad: East Edmonds Acres: 1.91

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:

- Submission of PDFs is required.
- Please be sure that any PDF submitted to DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.
- Please check that the PDF displays correctly when opened.

# Cultural Resources Assessment for the Lake Forest Park Lakefront Improvements Project 17345 and 17347 Beach Dr NE, Lake Forest Park, King County, Washington

*Prepared for:*

Amber Mikluscak
DCG/Watershed
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44490.00 Lake Forest Park
February 2024

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# Management Summary

ASM Affiliates, Inc. (ASM) contracted with the DCG/Watershed to conduct a cultural resources assessment for the proposed Lake Forest Park Lakefront Improvements Project 17345 and 17347 Beach Dr NE in Lake Forest Park, King County, Washington. The proposed project consists of acquiring and developing a 1.91-acres adjacent to the Lyon Creek Waterfront Preserve. The project includes funding through the Washington State Recreation and Conservation Office using the Washington Wildlife and Recreation Program (PRISM Project #20-1862). The purpose of the assessment was to evaluate the project for the potential effects on archaeological or historic resources. ASM's efforts included a literature review of site forms and previous cultural resources reports on file at the Washington State Department of Archaeology and Historic Preservation as well as pertinent environmental, historic, and ethnographic maps and documentation; a field inventory of the Project area; and preparation of this technical report to fully document the results of the inventory in compliance with Governor's Executive Order 21-02.

During the assessment ASM identified historic structures at 17345 and 17347 Beach Drive. Although the structures are over 50 years old and thus represents a historic resource, they have previously been determined ineligible for the National Register of Historic Places (Borth 2021).

# 1. Introduction

This report presents the results of a cultural resources assessment conducted by ASM Affiliates, Inc. (ASM) for the Lake Forest Park Lakefront Improvements Project 17345 and 17347 Beach Dr NE in Lake Forest Park, King County, Washington. The project consists of acquiring and developing a 1.91-acres adjacent to the Lyon Creek Waterfront Preserve. The project includes funding through the Washington State Recreation and Conservation Office (RCO) using the Washington Wildlife and Recreation Program (WWRP) under PRISM Project #20-1862. The purpose of the assessment was to evaluate the project for the potential effects on archaeological or historic resources. ASM's efforts included a literature review of site forms and previous cultural resources reports on file at the Washington State Department of Archaeology and Historic Preservation (DAHP) as well as pertinent environmental, historic, and ethnographic maps and documentation; a field inventory of the Project area; and preparation of this technical report to fully document the results of the inventory in compliance with Governor's Executive Order 21-02 (EO 21-02). During the assessment ASM identified historic structures at 17345 and 17347 Beach Drive. Background research determined the structures spanning both properties has previously been determined ineligible for the NRHP.

After the introductory chapter, this report includes chapters on the archaeological context, briefly describing the environment, culture history and previous research; on research design and field methods; on field results; and on recommendations for further archaeological work associated with the proposed project.

## Project Description and Background

The City of Lake Forest Park (the City) will use a grant from the RCO to acquire 1.91 acres on the northwest shores of Lake Washington. Goals for the project are to increase the park acres to population ratio, provide water access for the community while also providing pedestrian park access located approximately 350-feet off the highly used Burke-Gilman Trail. The purchase of this property will provide active and recreational access to grassy park land, approximately 150-feet of sandy beach, a dock, and the lake for local and regional park usage.

Currently, the property has one single family residence, built in 1930, as well as smaller cabin style structures, and garages on the property built from 1931-1937. The City plans to retain the main house as a potential community gathering place and one or two cabins to recognize the historic significance of the property combined with education. A bathroom and picnic shelter(s) would also be looked at to replace the existing cabin and garage that are in poor condition. The grassy area will be kept open for water access and recreation use. Currently the City is in the early stage of the project which is a rigorous planning process with community involvement. In 2024, using RCO funding, the City will conduct selective demolition and architectural deconstruction and salvage of several cabins and the carport. This initial phase of demolition with have little to no ground disturbance. Detail design and construction will also continue in upcoming years that the City applies for additional funding.

One single-family residence and six cottages on the subject properties were evaluated for the NRHP in 2021. These structures were determined in eligible under Criterion A, B, C, D.

## DAHP and Tribal Consultation

At the time of reporting the RCO is the lead state agency for this project and will coordinate with DAHP and Tribal cultural resources staff for cultural resources compliance. The project is being funded through the RCO's Recreation and Conservation Funding Board under PRISM Project #20-1862. If federal funding for the project is acquired, then the RCO will work with the agency to conduct government to government consultation.

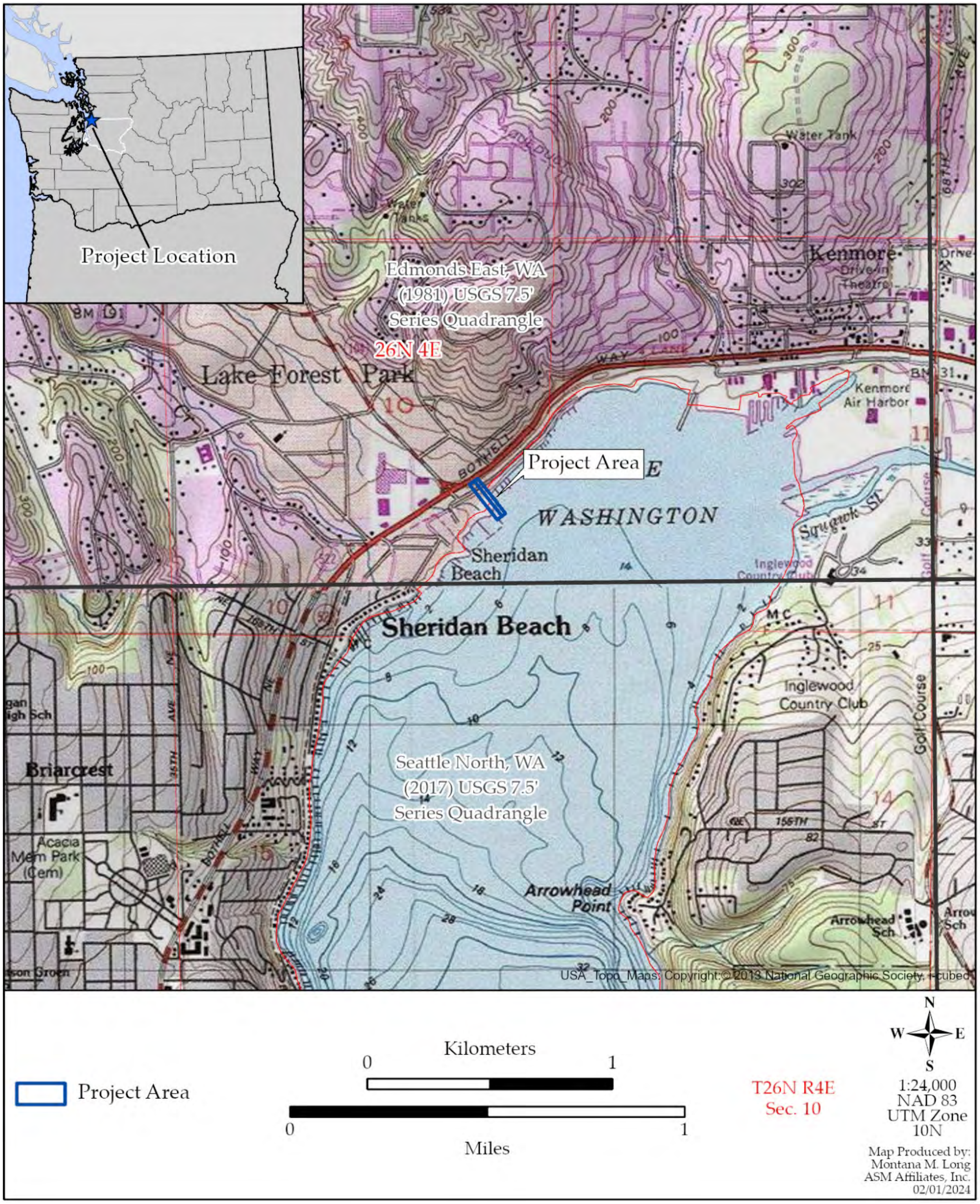


Figure 1. Lakefront Property Project APE Location

# 2. Archaeological Context

This chapter reviews the environmental setting and the precontact, ethnohistoric, and historic cultural sequences of the project vicinity and summarizes how pertinent investigations in the general region have contributed to the current constructions of cultural history.

## Environmental Setting

Environmental factors affecting human land-use patterns in the current project vicinity include Pleistocene glaciation and Holocene climate change. The Cordilleran Ice Sheet began moving south from the coastal mountains of British Columbia approximately 20,000 years ago, representing the last advance of a continental glacier through the Puget Lowland. The Puget Lobe of the Cordilleran Ice Sheet progressed south through the Puget Sound Basin from Canada, reaching its southern limit approximately 17,000 years ago (Porter and Swanson 1998). The advancing glacier blocked drainage channels that previously flowed to the north into Puget Sound and the Strait of Juan de Fuca, forming lakes south of the Cordilleran Ice Sheet. Glacial outwash and ancestral channels of contemporary river systems in the Puget Lowland drained south through the Chehalis River Valley. Puget Sound embayments formed as the advancing glacier cut deep troughs through bedrock and previous glacial deposits. As the Puget Lobe of the Cordilleran Ice Sheet reached its maximum southern extent approximately 30 kilometers (km) south of Olympia by around 17,000 years ago, the southern edge of the ice sheet remained stationary and stagnated for a short period (Porter and Swanson 1998:210). At around 16,950 years ago, the Puget Lobe receded rapidly northward (Porter and Swanson 1998:210; Thorson 1981). After the retreat of the glacier, sea level of Puget Sound and much of the world was still lower than it is today. Sea level was rising relative to ground surfaces approximately 9,000 years ago, and the surface elevation of Puget Sound was probably within 5 to 9 meters (m) (16 to 30 ft.) of its present elevation by around 5,000 years ago (Beale 1991; Eronen et al. 1987).

Vegetation patterns in western Washington shifted at least three times in the past 14,000 years due to regional climate changes in the Pacific Northwest. The northern Puget Sound was characterized by a cool, dry climate between approximately 13,000 and 12,000 B.P. Vegetation at this time included grasslands within open forests of sparse lodgepole pine (*Pinus contorta*), sedges (Cyperaceae), sagebrush (*Artemisia* sp.), and an assortment of herbs (Barnosky et al. 1987; Brubaker 1991; Whitlock 1992). Regional climate warmed by approximately 12,000 B.P., and Douglas fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*) became integrated with the existing forest (Whitlock 1992). From approximately 12,000 to 7000 B.P., regional climate became much drier, characterized by higher summer temperatures and an increase in severity and frequency of summer droughts (Barnosky et al. 1987; Brubaker 1991; Whitlock 1992). The regional environment changed to a cooler, moist marine climate after 6000 B.P. An increase in summer precipitation and a decrease in summer temperatures accompanied an increase in the relative abundance of western red cedar (*Thuja plicata*) and western hemlock, culminating in a forest dominated by western hemlock and Douglas fir (Brubaker 1991; Whitlock 1992). Early General Land Office surveys documented stands of fir, hemlock, maple, alder, and cedar with a dense understory including salal and vine maple in the current project vicinity (United States Surveyor General 1867a, 1880).

The Project is located along the northern bank of Lake Washington. Soils mapped in the project location are Urban land Alderwood complex (Soil Survey Staff 2023). These soils form on hillslopes from glacial drift or outwash over dense glaciomarine deposits. The typical sediment profile of these soils is as follows:

- *A - 0 to 7 inches:* gravelly sandy loam
- *Bw1 - 7 to 21 inches:* very gravelly sandy loam
- *Bw2 - 21 to 30 inches:* very gravelly sandy loam
- *Bg - 30 to 35 inches:* very gravelly sandy loam
- *2Cd1 - 35 to 43 inches:* very gravelly sandy loam
- *2Cd2 - 43 to 59 inches:* very gravelly sandy loam

## Cultural Setting

This section briefly reviews the precontact, ethnohistoric, and historic cultural sequence of the project vicinity. This is a summary of how pertinent investigations in the general region have contributed to the understanding of past utilization of the project area.

### Precontact Context

The antiquity of human occupation in North America has been the subject of considerable debate, and several sites have been suggested to represent very early occupation of the Americas (Davis et al. 2019; Dillehay and Collins 1988; Dillehay and Meltzer 1991; Fariña 2015; Guidon and Delibrias 1986). The most widely accepted current model is that humans first entered the western hemisphere between approximately 16,000-15,000 B.P., with a second migration of proto-Clovis peoples occurring between 1,000-2,000 years later (e.g., Pitblado 2011; Waters and Stafford 2014). Humans probably migrated into the Puget Sound region as glaciers retreated during the Late Pleistocene. Limited archaeological evidence, characterized by lithic artifacts, including the distinctive Clovis type fluted projectile points and Western Stemmed Tradition stemmed and foliate bifaces, exists for these early populations in the Pacific Northwest region (Ames and Maschner 1999; Beck and Jones 2014; Carlson 1990; Kopperl 2016; Moss 2011). Cultural deposits dating between ca. Cal BP 12,000-10,000 from the Bear Creek Site (45KI839) north of Lake Sammamish represent an example of the Late Pleistocene-Holocene transition in Western Washington. Artifacts recovered from the site include projectile points, bifaces, scrapers, and retouched flakes comparable to those identified in Western Stemmed Tradition lithic assemblages. Evaluation of the Bear Creek Site lithic assemblage indicates a cultural continuity between the Late Pleistocene and Holocene populations in the region (Kopperl 2016).

The earliest archaeological evidence of Holocene exploitation in the Puget Sound region is commonly classified as the Olcott complex. The Olcott complex began around 10,000 B.P. and continued to as late as 4000 B.P., although the chronology of this complex is poorly understood, with various classifications, terminologies, and subdivisions utilized within the literature. These sites are generally recorded on river and streams terraces, with the Olcott type site (45IS14) recorded on the South Fork of the Stillaguamish River upstream from its confluence with Jim Creek. Large cobble tools and leaf-shaped projectile points, often heavily weathered, typically characterize Olcott sites. However, there is no consensus on the typology of Olcott tools, and similar artifacts are recorded in sites dated to the

Late Holocene as well. The Buse Timber Sales Site (45SN303) documented along the South Fork of the Stillaguamish River at the current City of Granite Falls represents one of the only stereotypical Olcott complex sites firmly dated to the Early Holocene. The Olcott artifacts indicate a subsistence strategy concentrating on large game hunting and plant food gathering, while the location of Olcott sites on river and stream terraces infers a fishing element (Carlson 1990; Chatters et al. 2011; Kidd 1964; Mattson 1985; Nelson 1990). The early and middle period for the Middle Green Basin is poorly represented archaeologically, however changing environmental conditions likely influenced subsistence practices. Prior to about five-thousand years ago, the Auburn vicinity was a tidal estuary of the Green River, and local inhabitants may have exploited marine resources. Environmental conditions changed abruptly 5,700 years ago when a massive lahar from Mt. Rainier (Osceola Mudflow) swept down the ancestral White River valley covering the Enumclaw Plateau with a massive deposit of rock and mud and extending the Auburn delta northward to Kent. The event transformed the Enumclaw Plateau into a massive level prairie, and likely affected resource procurement strategies on both the Muckleshoot and Covington plateaus.

As the regional climate shifted to a drier pattern and sea levels stabilized by 5000 B.P., people living in the Pacific Northwest Coast region increasingly relied on marine intertidal resources for subsistence (Ames and Maschner 1999:88-89), although sedentary seasonal winter settlements based on the storage of marine resources may have appeared on the Northwest Coast as early as 7000 B.P. (Cannon and Yang 2006). The specialized fishing industry characteristic of the Puget Sound region and the Pacific Northwest Coast in general solidified in the region after 2500 B.P. (Ames and Maschner 1999). Plank houses and specialized fishing implements, including toggled harpoons, appeared in the archaeological record of the Puget Sound region during that time, and were likely accompanied by an increased reliance on and surplus storage of salmon and harvested shellfish (Ames and Maschner 1999; Nelson 1990). Large shell midden sites also appeared in the archaeological record at this time and continued into the ethnohistoric period (Ames and Maschner 1999:89), as did small, notched projectile points potentially indicative of bow-and-arrow technology (Ames and Maschner 1999:200; Nelson 1990; Rorabaugh 2019, Rorabaugh and Fulkerson 2015).

## Ethnohistoric Context

Native groups living in the Puget Sound region at the time of contact generally spoke one of two Lushootseed dialects, Northern and Southern. These groups all spoke languages assigned by linguists to the Coast Salish language family (Suttles and Lane 1990:485-486). Although there were distinct differences in the practices of speakers of various dialects, and even within groups speaking the same dialect, the people living in the Puget Sound region shared many cultural traits, including a dependence on marine resources, particularly salmon and shellfish, as their primary basis of subsistence, as well as extensive woodworking and basketry technologies. Gill and dip nets, basket traps, weirs, harpoons, and gaff hooks were utilized to catch fish, while shellfish were collected by hand or with digging sticks. Wooden implements, including boxes, water containers, and other domestic items were crafted using adzes, mauls, and wedges made of stone, antler, and wood. Cedar bark was utilized extensively for several purposes, including clothing, basketry, bedding, and cordage. People often occupied winter residences consisting of cedar plank longhouses, although some people lived in similar villages year-round. They also utilized seasonal resource procurement systems, using cedar dugout canoes, trail networks, and portable shelters when traveling to fishing, hunting, shellfish-collecting, and berry-gathering areas in the spring, summer, and early fall. Animals hunted include deer, elk, bear, mountain goat, beaver, seal, and waterfowl, and were taken with bow and arrows, clubs, harpoons, pitfalls, deadfalls, and nets. In addition to food, animal resources also provided clothing, bedding, and tools Numerous types of roots, berries, nuts and other plants were gathered for subsistence as well as medicinal purposes (Gibbs 1877; Haeberlin and Gunther 1930; Smith 1941; Suttles and Lane 1990; Waterman 1973; Waterman and Greiner 1921). Puget Sound groups maintained expansive trading networks within the region, as well as south to the Columbia River, north into present-day Canada, west to the Pacific Coast, and eastward across the Cascade Mountain Range, and they established complex religious, economic, and social structures that were made possible by a surplus of stored marine resources (Holm 1990; Hymes 1990; Suttles and Lane 1990).

Numerous types of roots, berries, nuts and other plants were gathered for subsistence as well as medicinal purposes (Gibbs 1877; Haeberlin and Gunther 1930; Smith 1941; Suttles and Lane 1990; Waterman 1973; Waterman and Greiner 1921). Puget Sound groups maintained expansive trading networks within the region, as well as south to the Columbia River, north into present-day Canada, west to the Pacific Coast, and eastward across the Cascade Mountain Range, and they established complex religious, economic, and social structures that were made possible by a surplus of stored marine resources (Holm 1990; Hymes 1990; Suttles and Lane 1990).

The nearby Sammamish River, a river feeding Lake Washington, was home to the Southern Lushootseed speaking Sammamish (Gibbs 1877:179; Smith 1941:207; Suttles and Lane 1990:486). The Southern Lushootseed speaking Duwamish and Suquamish, as well as the Northern Lushootseed speaking Snohomish also utilized the project area. An ethnographic Duwamish village is documented at the mouth of McAleer Creek on Lake Washington just west of the project area. (Haeberlin and Gunther 1930:7-10; Spier 1936:42; Suttles and Lane 1990:486; Waterman 1973).

Contact with Euro-American populations resulted in extensive changes to the Native communities. Smallpox and other diseases greatly reduced Native populations in the Puget Sound region, and land claims by Euro-Americans, as well as the establishment of reservations, removed several Native groups from their traditional territories, limiting access to their customary hunting and fishing areas (Suttles and Lane 1990). The United States, under Washington Territorial Governor Isaac I. Stevens, established several reservations designed for the forced relocation of Native Americans living along Puget Sound in the middle of the nineteenth century (Marino 1990:169). In 1855, several representatives of numerous Northern and Southern Lushootseed-speaking tribes, including the Duwamish, Sammamish, Snohomish, and Suquamish, signed the Treaty of Point Elliott, resulting in the creation of the Tulalip and Port Madison reservations (Lane 1974, 1975a, 1975b, 1975c; Marino 1990; Ruby and Brown 1986).

## Historic Context

Non-natives first arrived in the Puget Sound region in the late 1700s. The first non-natives to travel south of the Strait of Juan de Fuca were explorers, followed by fur traders and missionaries. British explorer George Vancouver explored and charted the shores of Puget Sound in the 1790s (Meany 1957). The Wilkes expedition, sponsored by the United States, conducted further exploration in 1841 (Meany 1926). The British-owned Hudson's Bay Company established Fort Nisqually in 1833 and maintained the British trading tradition with native Puget Sound groups (Carpenter 1986). The United

States took sole possession of the Oregon Country including what is now Washington State in 1846, and by the early l850s, Euro-Americans began streaming into Puget Sound, first seeking timber and then lands to establish homes and farms. The United States Congress established Washington Territory in 1853, and Washington gained statehood in 1889 (Whitfield 1926).

The project area at Lake Forest Park was first surveyed in 1859 on behalf of the Surveyor General's Office. The original survey depicts the north end of Lake Washington, similar to how it appears today, although it seems that the Eastern tip of the lake has been modified since the original survey. The original survey includes a network of streams that branch off McAleer Creek and Lyon Creek near the project area which do not seem to exist anymore. The survey does not include any structures, roads, trails or other cultural modifications (Bureau of Land Management 2021).

The project area was first allotted to Fred Drew on September 15, 1865, under the Scrip Warrant act of 1855 (Bureau of Land Management 2021). The Scrip Warrant Act of 1855 allowed the General Land Office to pay veterans or their heirs for their military service with land warrants (Department of Veteran Affairs 2023). The warrant was awarded to Clemente Villaronga of the United States Navy who assigned their warrant to Fred Drew, although neither the patent nor military warrant documenting the transaction describe Fred Drew's specific relationship to Clemente Villaronga (Bureau of Land Management 2021).

The earliest map of the project area available from the USGS is a map of the Snohomish Quadrangle from 1895. At that time, the project area and its surroundings had very few structures, and very little urban or industrial development, however, even as far back as 1895, the Pacific Railroad and Washington State Highway 522 passed very close by the project area (United States Geological Survey 1895). A USGS map of the Seattle Special Quadrangle from 1909 depicts the project area as marsh/grassland (United States Geological Survey 1909).

Atlases published by the Anderson Map Company in 1907, and by the Kroll Map Company in 1912, depict the project area without significant alteration, although by 1907, the Puget Mill Company owned the property directly North and South of the project area along the shore of Lake Washington (Anderson 1907, Kroll 1912). A map created by Metsker Maps in 1936 shows the area surrounding the project area heavily developed and divided into small tracts. Tracts containing the project area are unlabeled. The area may have been considered a part of Sheridan Beach which is just South of the project area along the shore of Lake Washington. A note points to the approximate location of the project area that reads "Lk. For. Waterfront Add." This may indicate the creation utilization or plans to utilize the project area as a waterfront (Metsker 1936).

A USGS map of the Edmonds East Quadrangle from 1954 depicts the project area, however, the project site is in a portion of the map marked red, which means that only landmark buildings are shown. The highlighting indicates that structures have already been built in the project area at this time. Unfortunately, we are not given any specific information on the map. By 1954, Beach Dr. had been constructed, including the portion that the project site is connected to. In 1954, the Pacific Railroad was still present and passed along the Northwest side of the project area, directly between Bothell Way and Beach Dr. (United States Geological Survey 1953). The version of this map that was revised in 1968 shows docks added to the shore of Lake Washington, probably including the dock inside the project area. The docks are colored purple, meaning that they were added to the map sometime between 1953 and 1968 (United States Geological Survey 1968).

The main structure at 17345 Beach Dr. NE, was built in 1930 as a single-family residence. Two of the accompanying cabins were built in 1933, In 1937, three more cabins and the structure which now serves as a carport were constructed at 17347 Beach Dr. A sixth cabin was constructed at 17347 Beach Dr. in 1953. The property was purchased by Forterra NW in 2019, then by the City of Lake Forest Park in 2021 and then obtained by Washington State in 2022 (King County Department of Assessments 2022). The ownership history of the property at 17345 prior to 2019 is nearly identical to the ownership history of the property at 17347, indicating that both of these properties were typically owned together (King County Department of Assessments 2022).

## Previous Research

A records search of documents on file at the DAHP revealed 10 cultural resources studies conducted within 1 mile of the Lake Forest Park (Appendix A). Most of the studies did not find any evidence of significant cultural resources or archaeological sites. The closest previous study to the project area was an archaeological pedestrian survey conducted in 2007 in preparation for the modification of the Burke Gilman Trail. The APE of this project passed within 20 meters of the project area. No cultural resources were discovered during this survey (Zuccotti 2007). An archaeological survey was conducted on the North shore of Lake Washington, 600 meters from the project area. During this survey, the ground soil was found to largely consist of artificial fill and natural stratigraphy was heavily disturbed (Breidenthal and Gerrish 2020). Other nearby subsurface surveys observed loamy fine sand subrounded cobbles and high levels of disturbance due to development (Boggs et al. 2009, Lahren 2013).

The subject properties were the focus of a Historic Property Inventory completed in 2021. The study looked at the seven structures, spanning both properties and determined them ineligible for the NRHP (Borth 2021).

### Previously Recorded Cultural Resources

Previous studies have resulted in the recordation of two archaeological sites within 1 mile of the Lake Forest Park Project Area (Appendix B). The Railway Grade of the Seattle, Lake Shore and Eastern Railroad site (45KL541) contains numerous segments of historic railroad features including intact railroad grade and trestles as well as other associated features and artifacts (Hudson and Nelson, 1997). The Wurdemann House (45KL598), which is located directly Northeast of the project area and has historic significance as a landmark and architectural model (Saunders, 1990).

#### *45KL451*

The Railway Grade of the Seattle, Lake Shore, and Eastern Railroad (SLS&E) site is a series of historic railway grade segments and artifact deposits associated with the SLS&E, which has been abandoned since 1974. The site is located along portions of the Snohomish County Centennial Trail as well as along the Eastern shore of Lake Sammamish and extending into North Bend. Another leg of the SLS&E Railroad passed along the North and West shore of Lake Washington into Seattle, directly adjacent to and less than 20 meters from the Lake Forest Park Project Area. Railroad grade, intact portions of track, railroad trestles, timber beam supports and communication poles with insulators as well as discarded railroad artifacts such as railroad ties, railroad spikes and coal deposits have been documented at various parts of the site. Related artifacts such as historic glass bottles have also been documented. Both Surface and subsurface artifacts between 30-80 cm below the surface have been documented. Documented features and artifacts can be dated as far back as 1896 and as recent as the mid-20th century. This site is significant to the Lake Forest Park Project Area due to its proximity to the area. Additionally, both areas are in close proximity to former railroads that operated at the same time, so it is likely that the Project Area could include similar artifacts and features to those found at 45KL451 (Hudson and Nelson, 1997).

#### *45KL598*

The Wurdemann House is a private residence located at 1706 Bothell Way NE, Lake Forest Park WA 98155. The house property is located 50 meters from the Lake Forest Park project area, directly across Bothell Way NE and Beach Dr NE. The Wurdemann House was built in 1914 and was one of the first residences built in Lake Forest Park. The house was intentionally designed to inspire future development by bringing attention to the area and giving it a sense of style and prestige. It is the largest and considered to be the most impressive residence in the area (Saunders 1990). The Wurdemann House is 2738 square feet, and its design is based on the Mediterranean Villa style, which was popular at the time of its construction. Its property also contains gardens and a cottage intended for a live-in gardener. From an architectural standpoint, the Wurdemann House is a technical feat as well as an example of architectural ideals of the period in which it was built. Due to the impressive nature of the home, and the social activity of its various owners, the home has served as a landmark and community center since its creation. The Wurdemann House's direct ties to the rise of urbanism and residence in the area make it not only a significant site on its own, but potentially impactful to the Lake Forest Park project area (Saunders, 1990).

# 3. Research Design and Field Methods

This chapter discusses the research design, including expectations for identifying cultural resources within the project area, as well as field methods employed for the Project.

## Research Design

Several factors contribute to expectations concerning the likelihood of locating cultural resources within the project area. Recorded cultural resources, landform characteristics, documented land use, and previous archaeological work discussed in the preceding chapter all contributed to those expectations. The DAHP predictive modeling has determined the project APE is within an area of "very high" risk for cultural resources. The project area is along the shores of Lake Washington. An ethnographic Duwamish village is documented at the mouth of McAleer Creek on Lake Washington just west of the project area. People living at the creek mouth likely utilized the entire watershed during fishing, hunting, and plant gathering forays. Lushootseed place names documented for Lake Washington as well as the mouth of the creek support this assumption. Cultural resources associated with resource procurement activities in project area could include stone tools, ground stone implements, hearth features, fire-modified rock concentrations, culturally modified trees, terrestrial faunal remains, and fish bone.

Historic period cultural remains in the project area could represent those associated with the existing 1930's building as well as the railroad activities. These activities could have produced resources such as railroad debris and domestic refuse characterized by bottle glass, ceramics, brick, metal, and food remains; these resources would most likely date from the late nineteenth to the mid-twentieth century.

## Field Methods

ASM Archaeologists Lane Larson and Austin Baker conducted the fieldwork for the cultural resources assessment of this project. Fieldwork consisted of both surface and subsurface examination of the project area (Figure 2). A total of 12 shovel test pits (STPs) were conducted within the project area. STPs were excavated throughout the property and were dug to a maximum depth of 100 centimeters below the surface (cmbs) and were between 45 and 50 centimeters in diameter. The depth of STP excavations was most commonly limited by water infiltration, tree roots, gravels, and glaciomarine sediments. In general, STP excavations were terminated between 80-100 cmbs. All sediments from STPs were screened through a 1/4-inch hardware mesh. All excavation results were documented on ASM forms, which include provenience, cultural material descriptions, information on sediment type, termination depth, and general observations. All excavations were backfilled after documentation. The location of all subsurface excavations was recorded on project maps. Digital photographs recorded the general condition of the survey area and the character of sediment deposits observed in subsurface investigations. Results from STP excavation are in Appendix C.

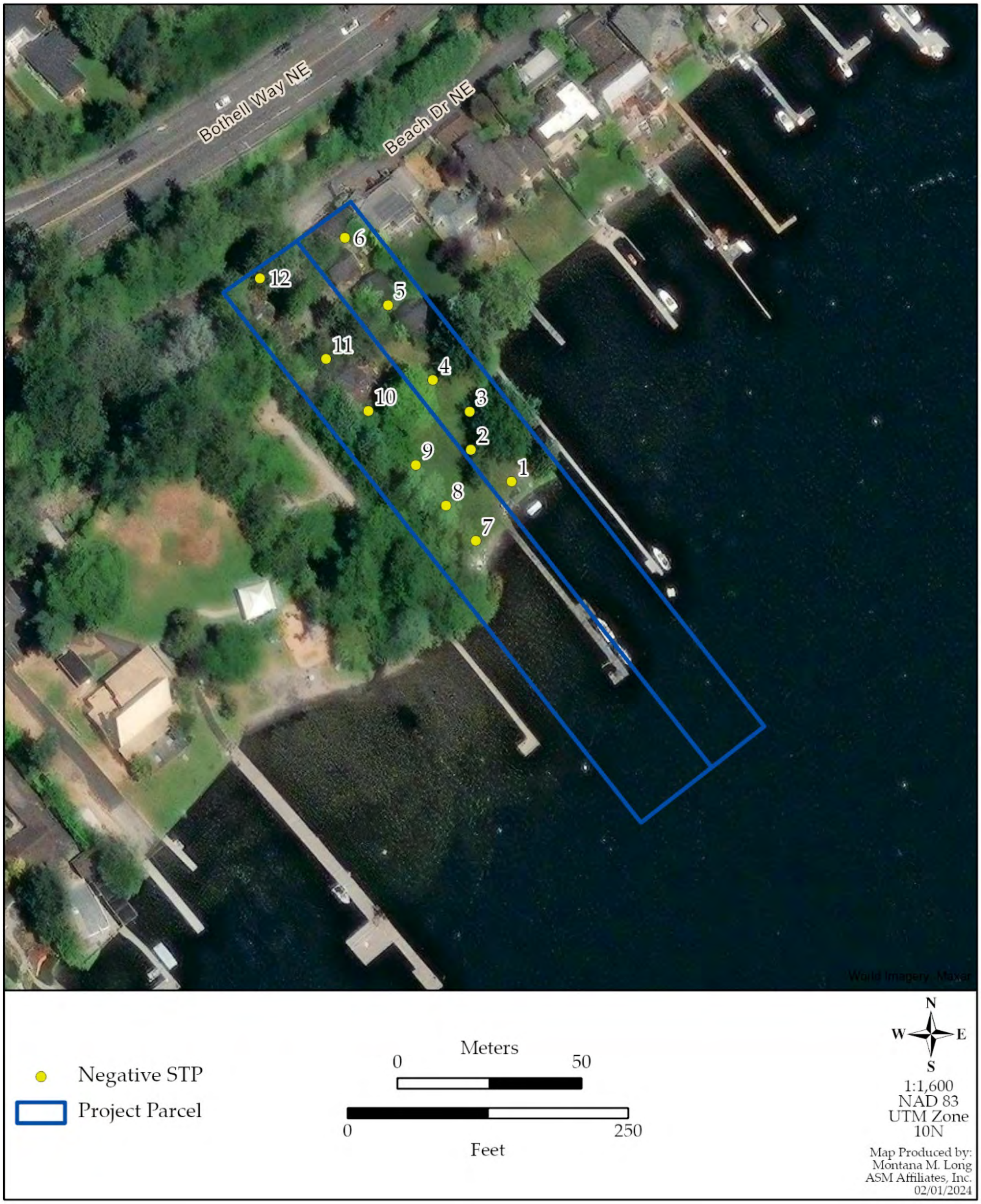


Figure 2. Field Results

# 4. Field Results

ASM completed both pedestrian and subsurface surveys of the project area. No significant cultural resources were encountered. The project is located on the northern tip of Lake Washington in Lake Forest Park, Washington (Figure 3). The project area consists of several residential lots with multiple houses and other structures. Some of the structures within the project area were previously evaluated for HPI, the remaining structures that appeared to be older than 50 years were photographed for further documentation. Vegetation on the property was consistent with a residential neighborhood and included Western Red Cedar and Fir trees, Rhododendrons, Camellias, several large Oak trees, and other various shrubs and small trees (Figure 4).

Figure 3. Southwest Overview of the Project Area.

Figure 4. Northwestern Overview of the Project Area.

## Pedestrian Survey

ASM completed a pedestrian survey of the ground surface within the project area. The archaeologists scanned the ground surface looking for evidence of cultural resources. The archaeologists also inspected the surface for areas of past ground disturbances including buried utilities, old foundations, surface manipulation and past excavation within the project area. The ground surface was negative for any cultural resources. There were however some items that would have been associated with the structures such as old plastic pathway lighting and plastic gardening tools. These items are modern and do not represent a protected cultural resource.

## Subsurface Survey

ASM completed the excavation of 12 STPs throughout the property. During STP excavations the archaeologists noted a consistent soil profile made up of 3 distinct layers (Figure 5). The first layer consisted of dark brown silty sand with very few rounded gravels; this layer is typical for a topsoil. Beneath this, a layer consisting of grayish brown sand with rounded to subrounded gravels overlaying a layer composed of grey sand with rounded to subrounded gravels. Modern plastic refuse, woody debris and nails were often found in this layer. The lower layer of each STP consisted of a bluish gray sand. Water filled up the bottom of most STPs, limiting the depth of the excavations. Several of the STP excavations were limited by roots and compaction. These STPs were located near some of the houses and were on or near extremely compact gravel driveways. STP 3 contained a large decaying piece of wood containing multiple rusted nails (Figure 6).

Figure 5. STP 7 Showing Typical Sediment Profile

Figure 7. Woody Debris and Nails in STP 3

# 5. Conclusions and Management Recommendations

ASM Affiliates, Inc. (ASM) contracted with the DCG/Watershed to conduct a cultural resources assessment for the proposed Lake Forest Park Lakefront Improvements Project 17345 and 17347 Beach Dr NE in Lake Forest Park, King County, Washington. The proposed project consists of acquiring and developing a 1.91-acres adjacent to the Lyon Creek Waterfront Preserve. The project includes funding through the Washington State Recreation and Conservation Office using the Washington Wildlife and Recreation Program (PRISM Project #20-1862). The purpose of the assessment was to evaluate the project for the potential effects on archaeological or historic resources. ASM's efforts included a literature review of site forms and previous cultural resources reports on file at the Washington State Department of Archaeology and Historic Preservation as well as pertinent environmental, historic, and ethnographic maps and documentation; a field inventory of the Project area; and preparation of this technical report to fully document the results of the inventory in compliance with Governor's Executive Order 21-02.

During the assessment ASM identified seven historic structures at 17345 and 17347 Beach Drive. Although the structures are over 50 years old and thus represents a historic resource, they have previously been determined ineligible for the National Register of Historic Places (Borth 2021).

# References Cited


Ames, Kenneth M., and Herbert D. G. Maschner

1999 *Peoples of the Northwest Coast: Their Archaeology and Prehistory*. Thames and Hudson, London.

Anderson Map Company

1907 *Plat Book of King County Washington*. Anderson Map Company, Seattle.

Barnosky, Cathy W., Patricia M. Anderson, and Patrick J. Bartlein

1987 The Northwestern U.S. during Deglaciation: Vegetational History and Paleoclimatic Implications. In *The Geology of North America, Volume K-3: North America and Adjacent Oceans during the Last Deglaciation*, edited by W. F. Ruddiman and Herbert E. Wright, Jr., pp. 289-321. Geological Society of America, Boulder, Colorado.

Beale, Harriet

1991 *Relative Rise in Sea-Level during the Past 5,000 Years at Six Salt Marshes in Northern Puget Sound, Washington*. Shorelands and Coastal Management Program, Washington Department of Ecology, Olympia.

Beck, Charlotte, and George T. Jones

2014 Complexities of the Colonization Process: A View from the North American West. In *Paleoamerican Odyssey*, edited by Kelly E. Graf, Caroline V. Ketron, and Michael R. Waters, pp. 273-291. Texas A&M University Press, College Station.

Boggs, Brian, Chobot, Katherine and Johnson, Paula

2009 *Lake Forest Park Water District Water Supply Project, Lake Forest Park, King County, Washington*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Borth, Holly

2021 Historic Property Inventory: 41542. Form on file at the Department of Archaeology and Historic Preservation, Olympia.

Brubaker, Linda B.

1991 Climate Change and the Origin of Old-Growth Douglas-Fir Forests in the Puget Sound Lowland. In *Wildlife and Vegetation of Unmanaged Douglas-Fir Forests*, edited by Leonard F. Ruggiero, Keith B. Aubry, Andrew B. Carey, and Mark F. Huff, pp. 17-24. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-285.

Bureau of Land Management

2021 U.S. Department of the Interior Bureau of Land Management. General Land Office Records. Electronic document http://www.glorecords.blm.gov/default.aspx.

Breidenthal, Matt and Tim Gerrish

2020 *Technical Memo – Cultural Resources Survey of the Log Boom Park, Kenmore, Washington*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Cannon, Aubrey, and Dongya Y. Yang

2006 Early Storage and Sedentism on the Pacific Northwest Coast: Ancient DNA Analysis of Salmon Remains from Namu, British Columbia. *American Antiquity* 71:123-140.

Carlson, Roy L.

1990 Cultural Antecedents. In *Northwest Coast*, edited by Wayne Suttles, pp. 60-69. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Carpenter, Cecelia S.

1986 *Fort Nisqually: A Documented History of Indian and British Interaction*, Tahoma Research Services, Tahoma, Washington.

Chatters, James C., Jason B. Cooper, Philippe D. LeTourneau, and Lara C. Rooke

2011 *Understanding Olcott: Data Recovery at 45SN28 and 45SN303 Snohomish County, Washington.* Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Department of Veteran Affairs

2023 Department of Veteran Affairs. Object 2: Bounty land warrant. Electric Document https://department.va.gov/history/100-objects/object-2-bounty-land-warrant/.

Dillehay, Tom, and Michael Collins

1988 Early Cultural Evidence from Monte Verde in Chile. *Nature* 332:150-152.

Dillehay, Tom D., and David J. Meltzer (Editors)

1991 *The First Americans: Search and Research*. ORC Press, Boca Raton, Florida.

Eronen, Matti, Tuovi Kankamen, and Matsuo Tsukada

1987 Late Holocene Sea-level Record in a Core from the Puget Lowland, Washington. *Quaternary Research* 27:147-159.

Fariña, Richard A.

2015 Bone Surface Modifications, Reasonable Certainty, and Human Antiquity in the Americas: The Case of the Arroyo del Vizcaíno Site. *American Antiquity* 80:193-200.

Gibbs, George

1877 Tribes of Western Washington and Northwestern Oregon. In *Contributions to North American Ethnology*, Vol. 1, pp. 157-241, Department of the Interior, Washington, D.C.

Goetz, Linda and John Warner

1997 *Results of a Cultural Resources Assessment for the Tolt Pipeline No 2, Phase IV Project, North King County, Washington*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Guidon, Niède, and Gaston Delibrias

1986 Carbon-14 Dates Point to Man in the Americas 32,000 Years Ago. *Nature* 321:769-771.

Haeberlin, H., and E. Gunther

1930 The Indians of Puget Sound. *University of Washington Publications in Anthropology* 4(1):1-84. Seattle.

Holm, Bill

1990 Art. In *Northwest Coast*, edited by Wayne Suttles, pp. 602-632. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Hudson, Lorelea and Meg Nelson.

1997 *45KI451 Railway Grade of the Seattle, Lake Shore, and Eastern Railroad State of Washington.* Archaeological Site Inventory Form On file at the Washington State Office of Archaeology and Histone Preservation, Lacey.

Hymes, Dell

1990 Mythology. In *Northwest Coast*, edited by Wayne Suttles, pp. 593-601. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Kershner, Kate

2013 *Covington — Thumbnail History*. HistoryLink.org Essay 10337.

Kidd, Stuart S.

1964 *A Synthesis of Western Washington Prehistory from the Perspective of Three Occupation Sites.* Master's Thesis, Anthropology, University of Washington, Seattle.

King County

2021 King County Department of Assessments: eReal Property. Electronic document https://blue.kingcounty.com/Assessor/eRealProperty/default.aspx

Kopperl, Robert E. (Editor)

2016 *Results of Data Recovery at the Bear Creek Site (45KI839) King County, Washington, Vol. 1.* Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Kroll Map Company

1912 *Atlas of King County, Washington.* Kroll Map Company, Seattle, Washington.

Lahren, Sylvester.

2013 *A Cultural Resources Survey and Presence/Absence Testing for the Lake Forest Park Water District, Lake Forest Park, King County, Washington*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Lane, Barbara

1975a *Identity and Treaty Status of the Duwamish Tribe of Indians*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

1975b *Identity, Treaty Status and Fisheries of the Snoqualmie Tribe of Indians*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Marino, Cesare

1990 History of Western Washington since 1846. In *Northwest Coast*, edited by Wayne Suttles, pp. 169-179. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Mattson, John L.

1985 *Puget Sound Prehistory: Postglacial Adaptations in the Puget Sound Basin with Archaeological Implications for a Solution to the "Cascade Problem"*. Unpublished Ph.D. dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.

Meany, Edmond S.

1957 *Vancouver's Discovery of Puget Sound*. Binfords and Mort, Portland, Oregon.

Meltzer, David J., and Robert C. Dunnell

1987 Fluted Points from the Pacific Northwest. *Current Research in the Pleistocene*, 4:64-67.

Metsker, Charles F.

1936 *Metsker's Atlas of King County Washington*. Metsker Map Company, Seattle.

Moss, Madonna L.

2011 *Northwest Coast: Archaeology as Deep History*. Society for American Archaeology, Washington, D.C.

National Park Service

1995 *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. U.S. Government Printing Office, Washington.

Nelson, Charles M.

1990 Prehistory of the Puget Sound Region. In *Northwest Coast*, edited by Wayne Suttles, pp. 481-484. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

O'Connor, Lee.
2011 *Survey Report: Historic Property Reconnaissance-Level Survey, Kenmore, Washington*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Pitblado, Bonnie L.
2011 A Tale of Two Migrations: Reconciling Recent Biological and Archaeological Evidence for the Pleistocene Peopling of the Americas. *Journal of Archaeological Research* 19:327-375.

Porter, Stephen C., and Terry W. Swanson
1998 Radiocarbon Age Constraints on Rates of Advance and Retreat of the Puget Lobe of the Cordilleran Ice Sheet during the Last Glaciation. *Quaternary Research* 50:205-213.

Rorabaugh, Adam N.
2019 Hunting Social Networks on the Salish Sea Before and After the Bow and Arrow. *Journal of Archaeological Science: Reports* 23:822-843.

Rorabaugh, Adam N., and Tiffany J. Fulkerson
2015 Timing of the Introduction of Arrow Technologies in the Salish Sea, Northwest North America. *Lithic Technology* 40 (1):21-39

Ruby, Robert H., and John A. Brown
1986 *A Guide to the Indian Tribes of the Pacific Northwest*. University of Oklahoma Press, Norman.

Saunders, Kathy
1990 *Harry Vanderbilt Wurdemann House - National Register of Historic Places Registration Form.* Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Shong, Michael, and Kenneth E. Juell
2004 *Cultural Resources Assessment of Puget Sound Energy's Kent-Black Diamond Road Supply Main Project Phase IA, King County, Washington*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

Smith, Marian W.
1941 The Coast Salish of Puget Sound. *American Anthropologist* 43:197-211.

Soil Survey Staff
2023 Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Electronic document http://websoilsurvey.nrcs.usda.gov.

Spier, Leslie
1936 *Tribal Distribution in Washington.* General Series in Anthropology No. 3. Menasha, Wisconsin.

Suttles, Wayne, and Barbara Lane

1990 Southern Coast Salish. In *Northwest Coast*, edited by Wayne Suttles, pp. 485-502. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Thorson, Robert. M.

1981 *Isostatic Effects of the Last Glaciation in the Puget Lowland, Washington*. U.S. Geological Survey, Open-File Report 81-370.

United States Geological Survey

1895 Snohomish Washington, 1:125,000. U.S. Geological Survey, Washington D.C.

1909 Seattle Washington, 1:125,000 U.S. Geological Survey, Washington D.C.

1953 Edmonds Washington, 1:24,000 U.S. Geological Survey, Washington D.C.

1968 Edmonds Washington, 1:24,000 U.S. Geological Survey, Washington D.C.

United States Surveyor General

1867a General Land Office Notes, Township 22 North, Range 5 East, Willamette Meridian. U.S. Surveyor General's Office, Olympia, Washington.

1880 General Land Office Notes, Township 22 North, Range 6 East, Willamette Meridian. U.S. Surveyor General's Office, Olympia, Washington.

Waterman, Thomas T.

1973 Notes on the Ethnology of the Indians of the Puget Sound. *Indian Notes and Monographs No. 59*. Museum of the American Indian, Heye Foundation, New York.

Waterman, Thomas T., and Ruth Greiner

1921 Indian Houses of Puget Sound. *Indian Notes and Monographs No. 9*. Museum of the American Indian, Heye Foundation, New York.

Waters, Michael R., and Thomas Wier Stafford, Jr.

2014 The First Americans: A Review of the Evidence for the Late-Pleistocene Peopling of the Americas. In *Paleoamerican Odyssey*, edited by Kelly E. Graf, Caroline V. Ketron, and Michael R. Waters, pp. 541-560. Texas A&M University Press, College Station.

Whitlock, Cathy

1992 Vegetational and Climatic History of the Pacific Northwest during the Last 20,000 Years: Implications for Understanding Present-Day Biodiversity. *Northwest Environmental Journal* 8:5-28.

Zuccotti, Lucy

2007 *Cultural Resources Investigations for the Burke Gilman Trail Redevelopment, King County, Washington*. Report on file at the Department of Archaeology and Historic Preservation, Olympia, Washington.

# Appendices

# Appendix A

## Previous Cultural Resource Studies

| Title | Author(s) | Date |
|---|---|---|
| Archaeological Survey for City of Kenmore Culvert Replacement | Bush and Baxley | 2021 |
| Technical Memo - Cultural Resources Survey of the Log Boom Park, City of Kenmore, Washington | Breidenthal and Gerrish | 2020 |
| A Cultural Resources Survey and Presence/Absence Testing for the Lake Forest Park Water District, Lake Forest Park | Lahren | 2013 |
| Survey Report: Historic Property Reconnaissance-Level Survey, Kenmore 2010-2011 | O'Connor | 2011 |
| Lake Forest Park Water District Water Supply Project, Lake Forest Park | Boggs et al. | 2009 |
| Cultural Resource Investigations for the Burke Gilman Trail Redevelopment | Zuccotti | 2007 |
| FINAL - Cultural Resource Assessment City of Kenmore | Dugas and Robbins | 2003 |
| SR522 Corridor Improvements Project Cultural Resource Assessment, Kenmore | Dugas and Robbins | 2002 |
| Results of a Cultural Resources Assessment for the Tolt Pipeline No. 2, Phase IV Project | Goetz and Warner | 1997 |
| Bones Found During WSDOT's work on SR 522 | Robinson | 1996 |

# Appendix B

## Previously Recorded Cultural Resources

| Trinomial | Description | Eligibility |
|---|---|---|
| 45KI451 | Railway Grade of the Seattle, Lake Shore, and Eastern Railroad | Determined Not Eligible |
| 45KI598 | Wurdemann House | Determined Eligible |

# Appendix C

## Subsurface Excavation Results

| STP | Depth (cm) | Soil Description |
|---|---|---|
| 1 | 100 | 1-10: Dark brown fine grain sandy silt, no gravels, low compaction. Grass rootlets<br>10-60: Gray tan coarse grained sand, no gravels, loose compaction.<br>60-100: Blue gray medium grained sand, no gravels, loose compaction. Very wet |
| 2 | 100 | 1-15: Dark brown fine grain sandy silt, no gravels, low compaction. Oak roots present. Grass rootlets<br>15-50: Gray tan coarse grained sand, no gravels, loose compaction.<br>50-100: Blue gray medium grained sand, no gravels, loose compaction. Very wet<br>Location adjusted to avoid oak tree. STP began to fill with water while digging. |
| 3 | 100 | 1-20: Dark brown fine grain sandy silt, no gravels, low compaction. Oak roots present. Grass rootlets<br>20-60: Gray tan coarse grained sand, 5-10% round gravels, loose compaction. Inclusion of wood fragments. **Deposit of rusted nails, rust stained soil and decayed wood found 30cm from the surface.**<br>60-100: Blue gray medium grained sand, no gravels, loose compaction. Very wet<br>STP began to fill with water while digging. |
| 4 | 100 | 1-20: Dark brown fine grain sandy silt, no gravels, low compaction. Oak roots present. Grass rootlets. Infrequent tree roots.<br>20-100: Blue gray coarse-grained sand, no gravels, loose compaction. Very wet.<br>STP began to fill with water while digging. |
| 5 | 100 | 0-100: Gray, brown medium grained loam silty loam with dark brown clay mottling 5-10% rounded gravels. Soil was sticky, heavy and waterlogged near the bottom. Bottom included rust colored mottling. |
| 6 | 100 | 1-15: Dark brown fine grained silty clay, medium compaction, grass rootlets.<br>15-100: Tan gray medium grained sand, no gravels, medium-high compaction. Tan gray clay lens at 50cm.<br>STP began to fill with water after completion, but much slower and less than other STPs. |
| 7 | 84 | 0-17: Dark brown fine grain sandy silt, no gravels, low compaction.<br>17-41: Tan coarse grained sand, 5-10% round gravels, loose compaction. One pc. red plastic.<br>41-84: Gray medium grained sand, no gravels, medium-high compaction. Water infiltration at base. |
| 8 | 91 | 0-13: Dark brown fine grain sandy silt, no gravels, low compaction.<br>13-91: Gray medium grained sand, no gravels, medium-high compaction. Water infiltration at base |
| 9 | 81 | 0-11: Dark brown fine grain sandy silt, no gravels, low compaction.<br>11-60: Gray, brown medium grained sandy silt with dark brown clay mottling<br>60-81: Gray coarse-grained sand, 5-10% round gravels, loose compaction. Water at base. |
| 10 | 94 | 0-21: Dark brown fine grain sandy silt, no gravels, low compaction.<br>21-63: Gray, brown medium grained sandy silt with dark brown clay mottling<br>63-94: Orangish-gray sand with 10% subrounded gravels. Water at base. |
| 11 | 9 | 0-9: Dark brown fine grain sandy silt, gravels throughout, high compaction, terminated due to compaction. |
| 12 | 34 | 0-34: Dark brown fine grain sandy silt and 10% gravels. Large root impasse |

Appendix G.

# Limited Hazardous Materials Survey

## City of Lake Forest Park Lakefront Improvements Project
## 17345 and 17347 Beach Dr. NE
## Lake Forest Park, Washington

EHSI Project No. 11720

Prepared for:
DCG/Watershed
9706 4th Ave NE #300
Seattle, Washington 98115

Prepared by:
EHS-International, Inc.
1011 Southwest Klickitat Way, Suite 104
Seattle, Washington 98134


Mike Harris, CIH

Marcus Gladden
Project Manger

Mike Harris
Senior Technical Reviewer


March 2024

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## APPENDICES

# EXECUTIVE SUMMARY

DCG/Watershed contracted EHS-International, Inc. (EHSI), a hazardous materials and industrial hygiene consulting firm, to conduct a Limited Hazardous Materials Survey of the Lake Forest Park Lakefront properties, located at 17345 and 17347 Beach Drive Northeast in Lake Forest Park, Washington (the Site). The scope for the project is to provide hazardous materials sampling of nine structures as shown on the Draft Lakefront Early Works Concept Demolition Drawing dated February 1, 2024 and figure SL-0 in this report. Buildings one through five are currently scheduled for demolition and renovations of buildings six through eight are anticipated. Building nine is additionally scheduled for demolition. The EHSI limited survey included all accessible materials associated with the nine structures.

During the limited hazardous materials survey, EHSI surveyed asbestos-containing materials (ACM); lead-containing paint (LCP); polychlorinated biphenyl (PCB)–containing light ballasts; mercury-containing fluorescent light tubes and thermostats; high-intensity discharge (HID) lights; and other regulated materials if encountered within the buildings. This survey was performed in accordance with federal, state, and local regulatory requirements. Each regulated material included in the survey is summarized below.

## Previous Reports

As part of the asbestos survey methodology, EHSI reviews any previous reports or abatement records available for a site. The following previous report was reviewed and used by EHSI to develop a sampling plan for this Limited Hazardous Materials Survey.

- 2019 Eco Compliance Corporation Phase 1 Environmental Site Assessment.

The 2019 Eco Compliance Environmental Site Assessment identified suspect asbestos containing materials as being present at the Site, however no hazardous materials sampling was included in the scope of the 2019 assessment.

## Asbestos-Containing Building Materials

EHSI collected one hundred and thirty-five (135) bulk samples of suspect ACM at the Site. Additionally, fourteen (14) split bulk samples were sent to a second laboratory for QA purposes. Specific sample locations of the suspect materials can be referenced in sample location Figures SL-0 through SL-10.

The following ACM and assumed ACM were identified at the Site, organized by area:

Building 2:

- **250 Square feet (SF): Assumed ACM red and gray fireplace brick with mortar**
- **600 Linear feet (LF): Assumed ACM cloth insulated electrical wiring**

Building 3:

- **250 SF: Assumed ACM red and gray fireplace brick with mortar**
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 4:

- **250 SF: Assumed ACM red and gray fireplace brick with mortar**
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 5:

- **25 SF: Dark gray cement board paneling** (on wood)
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 6:

- **350 SF: 9”x9” Red VFT on black mastic** (on wood)
- **100 SF: 9”x9” Black VFT on** black mastic (on wood)
- **250 SF:** Red external fireplace brick and gray internal fireplace brick on **ACM mortar**
- **200 SF: Assumed ACM vermiculite insulation**
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 7:

- **5 Each (EA): Blue and white mudded elbows** (on 4” OD metal boiler piping)
- **10 SF: TSI lining** (on boiler interior)
- **500 LF: Assumed ACM cloth insulated electrical wiring**

Building 8:

- **1,500 Square feet (SF): Beige joint compound** on GWB
- **300 Linear feet (LF): White interior window glazing** (on 9’x11’ metal framed window)
- **200 SF:** 4”x4” cream ceramic tile with **gray grout** (on plaster)
- **300 LF: TSI** (on 3” OD metal hot water piping)
- **1,500 LF: Assumed ACM cloth insulated electrical wiring**

Building 9:

- **800 SF: 9”x9” Brown vinyl flooring tile** on black mastic (on wood)
- **20 SF:** White grid pattern SV on brown mastic on **dark red/brown VFT** (on wood)
- **10 SF:** 2”x2” Olive ceramic tile on **yellow mastic** on black mastic and 4”x4” white ceramic tile with **yellow brittle mastic** (on wood)
- **30 SF:** 12”x12” White and black VFT on **brown mastic** (on wood)
- **40 SF:** 4”x4” White ceramic tile on gray grout on **brown mastic** (on wood paneling)
- **400 LF: Assumed ACM cloth insulated electrical wiring**

## Lead-Containing Paint

EHSI completed a limited lead assessment of the project area using an Olympus Delta DC-2000 X-Ray Fluorescence (XRF) Spectrum Analyzer. **Every building within the survey scope was found to have paint coatings with detectable levels of lead. Paint coatings meeting the definition of lead based paint with lead concentrations equal to or greater than 1.0 milligrams per square centimeter (mg/cm$^2$) were identified within buildings 1, 2, 3, 4, 5, and 9.** As EHSI's survey was limited and did not include a comprehensive paint color and substrate survey, EHSI recommends assuming all painted coatings within the project area contain at least detectable levels of lead. The XRF analytical results are included in Table 2.

The OSHA Lead in Construction Standard applies to construction-related tasks that impact any detectable level of lead. During demolition activities, we recommend that the contractor use precautions and follow health and safety guideline, since all painted surfaced within the project area are considered to contain detectable levels of lead. EHSI recommends that the provided XRF analytical data be used in conjunction with other applicable (e.g., air monitoring) data to evaluate the potential for elevated occupation lead exposures during demolition activities.

Additionally, the EPA Lead Renovation, Repair and Painting (RRP) Program (40 CFR Part 745) applies to child occupied facilities with lead based paint. Projects disturbing lead-based paint in facilities where RRP rules apply require the use of lead-safe certified contractors employing approved work practices to control lead dust and debris

## Polychlorinated Biphenyl (PCB) Light Ballasts, Mercury, and Other Regulated Materials

As part of the survey for regulated materials, EHSI quantified the number of light ballasts and prepared an inventory of other installed regulated materials that may classify as universal hazardous wastes or other regulated wastes that would be impacted by the proposed demolition of the buildings on the Site. The materials included in this survey are mercury-containing items such as fluorescent light tubes, HID lighting, and thermostats. All identified magnetic ballasts are assumed to contain PCBs. A similar assumption applies to mercury potentially present within fluorescent lamps and fluorescent light fixtures. Generally, it is not necessary to sample these materials because their presence in buildings represents a future cost for disposal of the facility's installed contents.

The following quantities of suspect PCB, mercury and chlorofluorocarbon (CFC) containing fixtures were identified at the site:

- Three fluorescent light fixtures with a total of three suspect PCB containing ballasts and six mercury containing light tubes

- Six suspect CFC containing refrigerators

- Three light fixtures with three suspect mercury containing compact fluorescent light bulbs.

The following regulated materials were identified at the Site, organized by area, and are listed in section 3.3 and Table 3.

# 1.0 INTRODUCTION

DCG/Watershed contracted EHS-International, Inc. (EHSI), a hazardous materials and industrial hygiene consulting firm, to conduct a Limited Hazardous Materials Survey of the Lake Forest Park Lakefront properties, located at 17345 and 17347 Beach Drive Northeast in Lake Forest Park, Washington (the Site). The scope for the project is to provide hazardous materials sampling of nine structures as shown on the Draft Lakefront Early Works Concept Demolition Drawing dated February 1, 2024 and figure SL-0 in this report. Buildings one through five are currently scheduled for demolition and renovations of buildings six through eight are anticipated. Building nine is additionally scheduled for demolition. The EHSI limited survey included all accessible materials associated with the nine structures.

## 1.1 Scope of Work

The scope of services for the limited hazardous materials survey included the following tasks:

- Review and incorporate past asbestos survey information into this survey.
- Collect bulk suspect asbestos-containing materials (ACM) samples as necessary to identify ACM within the site building. Where bulk sampling or access is not possible, review available historical drawings and/or make inventory assumptions to the likely quantities of ACM that can be assumed.
- Collect X-Ray fluorescence (XRF) samples representative of interior painted coatings to determine the lead content.
- Inventory universal wastes such as potential polychlorinated biphenyl (PCB)–containing light ballasts; mercury-containing fluorescent light tubes; high-pressure sodium lamps; mercury-containing fluorescent light tubes, switches, and thermostats; fire extinguishers; and various ozone-depleting substances.
- Prepare a summary report documenting the findings of the survey and provide tables summarizing hazardous materials, analytical data, comments, and recommendations for handling and control.

## 1.2 Building Description

The nine Site buildings included in the project scope are believed to have been originally constructed in the 1930's. Building 1 consists of a five-carport garage. Buildings 2,3,4 and 6 consist of one-bedroom cabins. Building five is a two-bedroom cabin and building 7 is a garage/mechanical maintenance area. Building 8 is described as the two story, main house and building 9 is a small two room lakefront cabin. The buildings feature a combination of brick masonry wood framing construction with slab-on-grade foundations. Building interiors are composed of vinyl composite tile (VCT) flooring, sheet vinyl flooring (SV), hardwood flooring and ceramic tiling. Wall finishes are composed of wood paneling, gypsum wallboard (GWB), and plaster. The site layout and building numbering is provided in Figure SL-0.

## 1.3 Limitations

The conclusions of the report are professional opinions based solely upon visual site observations and interpretations of sample analyses as described in this report. The opinions presented herein apply to conditions existing at the time of the investigation and interpretation of current regulations pertaining to ACM. Therefore, opinions and recommendations provided herein may not apply to future conditions that may exist at the Site. Current applicable regulations should always be verified prior to any work involving asbestos or other regulated materials. This survey is not intended to be used as an abatement design document. All existing conditions, quantities, and locations should be verified prior to abatement. ACM may be located within areas that were not accessible during this survey.

The purpose of the limited hazardous material survey is to reasonably test for evidence of asbestos and other hazardous materials in suspect or randomly selected materials at a facility. It should be noted that no survey can be comprehensive or exhaustive enough to eliminate the possibility that ACM present at the Site may not be detected during the survey. Therefore, the completion of this or any survey for ACM or other hazardous materials should not be considered a warranty or guarantee that these materials do not exist, even if they are not detected through a survey.

The survey did not include sampling of the following materials or locations at the Site either because the locations or materials were out of scope or due to limited access:

- Wet walls
- Materials associated with energized electrical equipment (e.g., panel boards, wiring)

Due to the age of the Site buildings, it is possible that materials associated with the above-noted structures or systems may contain asbestos. If suspect materials are determined to be present within the above-noted systems, the materials should be considered as presumed ACM until proven otherwise by sampling and laboratory analysis.

# 2.0 METHODOLOGY

This section describes the sampling methodology and applicable asbestos regulations. Information concerning the Site was obtained from site inspections conducted by EHSI employees Mr. Marcus Gladden, Mr. Matt Macfarlane, Mr. Reese Myers and Mr. Dimitri Lominadze. Staff Asbestos Hazard Emergency Response Act (AHERA) Building Inspector certifications are included as Appendix A. Photographs of surveyed areas and samples collected are included as Appendix B.

## 2.1 Asbestos Survey Methodology

A visual inspection of accessible areas was conducted to identify suspect and assumed ACM. The asbestos survey was performed by AHERA-certified building inspectors in accordance with a sampling protocol appropriate for the demolition of the Site buildings. The sampling protocol was developed in accordance with the following:

- US Environmental Protection Agency (EPA) Asbestos Regulation of the Toxic Substances Control Act (Part 763 of Title 40 of the Code of Federal Regulations)
- Puget Sound Clean Air Agency (PSCAA) Asbestos Control Standards (Regulation III, Article 4)

- Washington State Department of Labor and Industries Asbestos, Tremolite, Anthophyllite, and Actinolite Regulation (Section 077 of Chapter 296-62 of the Washington Administrative Code [WAC 296-62-077])

The sampling plan included the collection and analysis of samples as follows, at a minimum:

- **Thermal system insulation (TSI):** EHSI collected a minimum of five samples in a distributive manner from each homogeneous sampling area not presumed to contain asbestos. At least one bulk sample of patched TSI was collected from each homogenous area if the patch was less than 5,000 square feet (SF) in area.
- **Surfacing material:** EHSI collected a minimum of three samples in a distributive manner from each homogenous area that was 1,000 SF or less in area. Five samples were collected, at a minimum, from each homogenous area that was more than 1,000 SF in area but less than or equal to 5,000 SF in area. Seven samples were collected, at a minimum, from each homogenous area that was more than 5,000 SF in area.
- **Miscellaneous materials:** EHSI collected bulk samples of suspect ACM in a distributive manner as deemed sufficient by the AHERA-certified building inspector. At least one sample of each suspect miscellaneous material not presumed to contain asbestos was collected.
- **Non-suspect materials:** According to 40 CFR 763-86(4), where the accredited inspector has deemed the material to be fiberglass, foam glass, rubber, or other recognized non-ACM, sampling was not required.

EHSI collected one hundred and thirty-five (135) bulk samples of suspect ACM and an additional fourteen (14) samples for quality control. Samples were collected by carefully removing small portions of the suspect material with a sharp knife or other hand tool suitable for the material being sampled. The sampling instrument was wiped with a clean moist cloth to decontaminate the tool and minimize the potential release of asbestos fibers or cross-contamination of subsequent samples. Once collected, each bulk sample was sealed in a new clean plastic bag to eliminate the possibility of cross-contamination, labeled with the sample name, and shipped to the analytical laboratory under standard chain-of-custody protocols. Bulk ACM sample locations are illustrated on Figures SL-0 through SL-10.

### *2.1.1 Previous Reports*

As part of the asbestos survey methodology, EHSI reviews any previous reports or abatement records available for a site. The following previous reports were reviewed and used by EHSI to develop a sampling plan for this Limited Hazardous Materials Survey. These previous reports are included as part of a single document in Appendix E.

- 2019 Eco Compliance Corporation Phase 1 Environmental Site Assessment

The 2019 Eco Compliance Environmental Site Assessment identified suspect asbestos containing materials as being present at the Site, however no hazardous materials sampling was included in the scope of the 2019 assessment.

### *2.1.2 Sample Documentation*

A unique sample identification system was employed for bulk samples of suspect ACM collected during the survey that includes the project number, and sample sequence number.

Example:

EHSI project number

Sample sequence number

11720-ASB-01QA

"QA" added onto designated quality assurance sample IDs only

Data pertinent to each sample (e.g., date, sample name, material description, and material category) was recorded on a field data sheet. The material determination of friability was made by the AHERA-certified building inspector in the field. Details regarding the bulk samples of suspect ACM and friability are summarized in Table 1.

### *2.1.3 Laboratory Analysis*

As specified in 40 CFR 763.87, each sample was analyzed using polarized light microscopy (PLM) with dispersion staining in accordance with EPA Method 600/R-93/116. Samples were analyzed for asbestos content NVL Laboratories Inc. of Seattle, Washington (NVL). NVL participates in the National Institute for Standards and Technology National Voluntary Laboratory Accreditation Plan (NVLAP). Only materials containing greater than 1 percent (%) total asbestos were classified as "asbestos containing" based on EPA, state, and local regulations.

Split samples were collected from some sample locations for quality assurance (QA) purposes and sent to a separate laboratory for analysis. QA samples were submitted to Eurofins Labcor Inc. of Seattle, Washington (Eurofins). Eurofins is also a NVLAP-accredited laboratory.

Laboratory analytical reports and chain-of-custody forms are provided in Appendix C. Laboratory certifications are provided in Appendix D.

## 2.2 Lead Survey

EHSI's lead survey consisted of a combination of XRF testing of suspect paints and building materials. EHSI used an Olympus Delta DC-2000 XRF Spectrum Analyzer to measure lead content of paint coatings and suspect lead-containing materials. The Olympus Delta DC-2000 limit of detection (LOD) is 0.01 mg/cm². During the survey, EHSI followed the manufacturer's instructions for pre- and post-calibration checks of the XRF analyzer using the National Institute of Standards and Technology lead calibration cards. XRF readings of paint are considered representative of all layers of paint at each sample location. Results of the XRF testing are included in Table 2.

## 2.3 Visual Survey of PCBs, Mercury, and Other Regulated Materials

Verifying the presence or absence of PCBs, mercury, or other regulated materials by laboratory analysis, excluding ACM, was beyond the scope of this survey. The survey did not include visual identification and determination of quantities of potential PCB-containing fluorescent light ballasts. All light ballasts were assumed to contain PCBs. A similar assumption applies to mercury potentially present within fluorescent lamps in fluorescent light fixtures, high-intensity discharge (HID) lamps, and thermostats.

# 3.0 RESULTS

This section summarizes the results of the Limited Hazardous Materials Survey conducted at the buildings on the Site.

## 3.1 Asbestos

EHSI collected one hundred and thirty-five (135) bulk samples of suspect ACM at the Site. Additionally, fourteen (14) split bulk samples were sent to a second laboratory for QA purposes. Specific sample locations of the suspect materials can be referenced in sample location Figures SL-0 through SL-10.

The following ACM and assumed ACM were identified at the Site, organized by area:

Building 2:

- **250 Square feet (SF): Assumed ACM red and gray fireplace brick with mortar**
- **600 Linear feet (LF): Assumed ACM cloth insulated electrical wiring**

Building 3:

- **250 SF: Assumed ACM red and gray fireplace brick with mortar**
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 4:

- **250 SF: Assumed ACM  red and gray fireplace brick with mortar**
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 5:

- **25 SF: Dark gray cement board paneling** (on wood)
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 6:

- **350 SF: 9”x9” Red VFT on black mastic** (on wood)
- **100 SF: 9”x9” Black VFT on** black mastic (on wood)
- **250 SF:** Red external fireplace brick and gray internal fireplace brick on **ACM mortar**
- **200 SF: Assumed ACM vermiculite insulation**
- **600 LF: Assumed ACM cloth insulated electrical wiring**

Building 7:

- **5 Each (EA): Blue and white mudded elbows** (on 4” OD metal boiler piping)
- **10 SF: TSI lining** (on boiler interior)
- **500 LF: Assumed ACM cloth insulated electrical wiring**

Building 8:

- **1,500 Square feet (SF): Beige joint compound** on GWB
- **300 Linear feet (LF): White interior window glazing** (on 9’x11’ metal framed window)
- **200 SF:** 4”x4” cream ceramic tile with **gray grout** (on plaster)
- **300 LF: TSI** (on 3” OD metal hot water piping)
- **1,500 LF: Assumed ACM cloth insulated electrical wiring**

Building 9:

- **800 SF: 9”x9” Brown vinyl flooring tile** on black mastic (on wood)
- **20 SF:** White grid pattern SV on brown mastic on **dark red/brown VFT** (on wood)
- **10 SF:** 2”x2” Olive ceramic tile on **yellow mastic** on black mastic and 4”x4” white ceramic tile with **yellow brittle mastic** (on wood)
- **30 SF:** 12”x12” White and black VFT on **brown mastic** (on wood)
- **40 SF:** 4”x4” White ceramic tile on gray grout on **brown mastic** (on wood paneling)
- **400 LF: Assumed ACM cloth insulated electrical wiring**

A detailed summary of all suspect ACM, including the sample number, homogenous material description, material classification, analytical results, and quantity, is provided in Table 1. Analytical laboratory reports and chain-of-custody forms for bulk samples of suspect ACM are included in Appendix C. Bulk suspect ACM sample locations are illustrated on Figures SL-0 through SL-10.

## 3.2 Lead

EHSI completed a limited lead assessment of the project area using an Olympus Delta DC-2000 X-Ray Fluorescence (XRF) Spectrum Analyzer. **Every building within the survey scope was found to have paint coatings with detectable levels of lead. Paint coatings meeting the definition of lead based paint with lead concentrations equal to or greater than 1.0 milligrams per square centimeter (mg/cm$^2$) were identified within buildings 1, 2, 3, 4, 5 and 9.** As EHSI's survey was limited and did not include a comprehensive paint color and substrate survey, EHSI recommends assuming all painted coatings within the project area contain at least detectable levels of lead. The XRF analytical results are included in Table 2.

The OSHA Lead in Construction Standard applies to construction-related tasks that impact any detectable level of lead. During demolition activities, we recommend that the contractor take precautions and follow health and safety guideline, since all painted surfaced within the project area are considered to contain detectable levels of lead. EHSI recommends that the provided XRF analytical data be used in conjunction with other applicable (e.g., air monitoring) data to evaluate the potential for elevated occupation lead exposures during demolition activities.

Additionally, the EPA Lead Renovation, Repair and Painting (RRP)Program (40 CFR Part 745) applies to child occupied facilities with lead based paint. Projects disturbing lead-based paint in facilities where RRP rules apply require the use of lead-safe certified contractors employing approved work practices to control lead dust and debris.

The following painted coatings or materials at the Site were identified as having detectable concentrations of lead, organized by area. Coatings with lead concentrations equal to or greater than 1.0 mg/cm$^2$ are additionally noted as being *Lead Based Paint*.

Building 1:

- Brown paint (on wood) *Lead Based Paint*

Building 2:

- Brown paint (on wood) *Lead Based Paint*
- White paint (on wood) *Lead Based Paint*
- Red paint (on concrete)
- Black paint (on wood)

Building 3:

- Brown paint (on wood) *Lead Based Paint*
- Red paint (on concrete)
- Black paint (on wood)

Building 4:

- Black paint (on wood) *Lead Based Paint*
- White paint (on wood)
- Brown paint (on wood) *Lead Based Paint*

Building 5:

- Brown paint (on wood) *Lead Based Paint*
- White paint (on wood)
- Black paint (on wood)

Building 6:

- Brown paint (on wood)

Building 7:

- Gray paint (on wood)

Building 8:

- Brown paint (on wood)
- White paint (on plaster)
- White paint (on wood)

Building 9:

- Brown paint (on wood) *Lead Based Paint*
- White paint (on wood)

## 3.3 PCBs, Mercury, and Other Regulated Materials

As part of the survey for regulated materials, EHSI quantified the number of light ballasts and prepared an inventory of other installed regulated materials that may classify as universal hazardous wastes or other regulated wastes that would be impacted by the proposed demolition of the buildings on the Site. The materials included in this survey are mercury-containing items such as fluorescent light tubes, HID lighting, and thermostats. All identified magnetic ballasts are assumed to contain PCBs. A similar assumption applies to mercury potentially present within fluorescent lamps and fluorescent light fixtures. Generally, it is not necessary to sample these materials because their presence in buildings represents a future cost for disposal of the facility's installed contents.

The following regulated materials were identified at the Site, organized by area, and are listed in Table 3.

Building 1:

- 1EA: 2’x4’ light fixture with two 4’ fluorescent light tubes

Building 2:

- 1 EA: CFC-containing refrigerator

Building 3:

- 2 EA: 6” OD Light fixture with one CFL lightbulb
- 1 EA: CFC-containing refrigerator

Building 4:

- 1 EA: CFC-containing refrigerator

Building 5:

- 1 EA: CFC-containing refrigerator

Building 6:

- 2 EA: 6” OD Light fixture with one CFL lightbulb
- 1 EA: CFC-containing refrigerator

Building 7:

- 1 EA: 2’ x 8’ light fixture with two 8’ fluorescent light tubes
- 1 EA: 2’ x 4’ light fixture with two 4’ fluorescent light tubes

Building 8:

- 2 EA: 6” OD Light fixture with one CFL lightbulb
- 1 EA: CFC-containing refrigerator

# 4.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations for each regulated material category are summarized below. A copy of this report must be provided to any contractor bidding and/or conducting work at the Site. The contractor must also retain a copy of this report at the Site during renovation activities.

## 4.1 Asbestos-Containing Materials

ACM was identified throughout the surveyed area. An asbestos abatement contractor licensed in accordance with WAC 296-62-077 and PSCAA Regulation III, Article 4 must remove all asbestos-containing and asbestos-contaminated building materials prior to renovation.

According to ASHARA (Asbestos School Hazard Abatement Reauthorization) regulations, a project design is not required when developing the renovation phase of the project. However, If a design is developed for the project, it is required that a credited AHERA project designer assist in determining the appropriate abatement and disposal requirements for the ACM identified herein.

The contractor should also use caution when performing renovation activities within the project areas even after asbestos abatement activities have been conducted. Concealed materials may be encountered during a renovation project. ACM may be located between walls, between pipe flanges, within energized operating building systems, other inaccessible areas, or beyond the limits of this survey.

If additional suspect building materials are identified during renovation activities that were not identified specifically in this report as either ACM or non-ACM, the materials should be treated as ACM until sampled by an AHERA-certified building inspector and proven to not contain asbestos through laboratory analysis.

## 4.2 Lead Paint

The Washington State Department of Labor and Industries considers any detectable concentration of lead to be a potential hazard during construction activities. EHSI recommends that the contractor use precautions and follow applicable health and safety guidelines when removing materials during asbestos abatement activities, building renovation, or demolition.

For work on building components containing lead or other heavy metals, which may result in personnel exposures, the contractor must assess the hazard. Based on the assessment and previous similar work and exposure monitoring results, the contractor may be required to provide any or all the following for employees per WAC 296-155-176:

- Respiratory protection
- Protective clothing
- Clean change areas
- Clean handwashing facilities
- Biological monitoring to consist of blood sampling and analysis for lead and zinc protoporphyrin levels
- Hazard communication training

Initial employee exposure monitoring must be conducted for each separate task involving the handling of LCP-coated building materials. If 8-hour time-weighted average exposures exceed the action level of 30 micrograms per cubic meter, the contractor must continue to conduct periodic air monitoring at specified intervals and institute medical surveillance and comprehensive training programs. If the OSHA 8-hour time-weighted average permissible exposure limit of 50 micrograms per cubic meter of lead is exceeded, more stringent and additional requirements become effective, such as engineering controls, respiratory protection, regulated work areas, and warning signs in lead work areas.

The general contractor performing renovation or demolition work should be informed of the presence of lead in the project area. All personnel impacting LCP (or other lead-containing materials) should be provided with additional training concerning the health effects of lead, proper work methods, appropriate use of personal protective equipment, and regulations governing lead exposures. Air monitoring to assess lead exposures should be performed for all personnel involved in the demolition process where LCP may be removed.

Six of the nine buildings surveyed at the site were found to have lead concentrations meeting the EPA / US Department of Housing and Urban Development definition of lead based paint. The EPA Lead Renovation, Repair and Painting Program (RRP, 40 CFR Part 745) applies to child occupied facilities with lead based paint.

A child-occupied facility is a building, or a portion of a building, constructed prior to 1978, visited regularly by the same child, under six years of age, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least three hours and the combined weekly visits last at least six hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may be located in public or commercial buildings or in target housing.

Requirements of the RRP program include, but not limited to, the following:

- The use of RRP certified renovation firms
- The use of workers with RRP training
- The use of lead safe work practices

## 4.3 PCBs, Mercury, and Other Regulated Materials

Some PCB and mercury-containing materials were identified in the buildings on the Site. As a result, handling, recycling, and disposal is required during any proposed demolition project. EHSI has identified the handling, recycling, or disposal requirements for each type of regulated material observed.

### *4.3.1 PCB Light Ballasts*

The Washington State Dangerous Waste Regulation, WAC 173-303, designates that discarded transformers, capacitors, or bushings containing PCBs at concentrations of 2 parts per million or greater be treated as a PCB-containing material. Light ballasts fall under this regulation. Previous regulations dictated that any material with less than 50 parts per million PCBs could be labeled as a non-PCB-containing material. Because of this regulatory change, EHSI recommends that all light ballasts be tracked, removed, managed, and disposed of in an appropriate manner. Ballasts with a label stating “No PCBs” or similar language shall be packaged for recycling by an approved recycling facility.

### *4.3.2 Mercury*

Many fluorescent light tubes, HID lamps, thermostats, and switches contain mercury that is harmful to the environment and human health. EPA and the Washington State Department of Ecology have placed these materials in a special category of dangerous waste known as universal waste. Some of the requirements included within the Standards for Universal Waste Management (WAC 173-303-573) include the following:

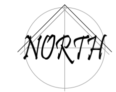
- Immediately place lamps showing evidence of leakage, damage, etc. into a container following removal.
- Containerize the materials in closed, structurally sound, and compatible containers. Cardboard containers may be used for indoor storage only.
- Label the container as follows: “Waste Lamps” or “Universal Waste Lamps.”
- Track the length of time since waste lamp generation. Acceptable methods of proof include date on the label, an inventory system, etc.
- Respond immediately to potential releases. If a release occurs, contain the material and determine whether it designates as a dangerous waste.
- Do not dispose of universal waste as general or construction debris.
- Do not crush fluorescent light tubes on the Site. In addition, measures should be taken to prevent breakage of fluorescent light tubes while the light tubes are in transit.
- Provide training to employees on the proper handling and emergency procedures for universal waste lamps.
- Track shipments of universal waste lamps and keep records (invoices, manifests, etc.) for a minimum of 3 years.

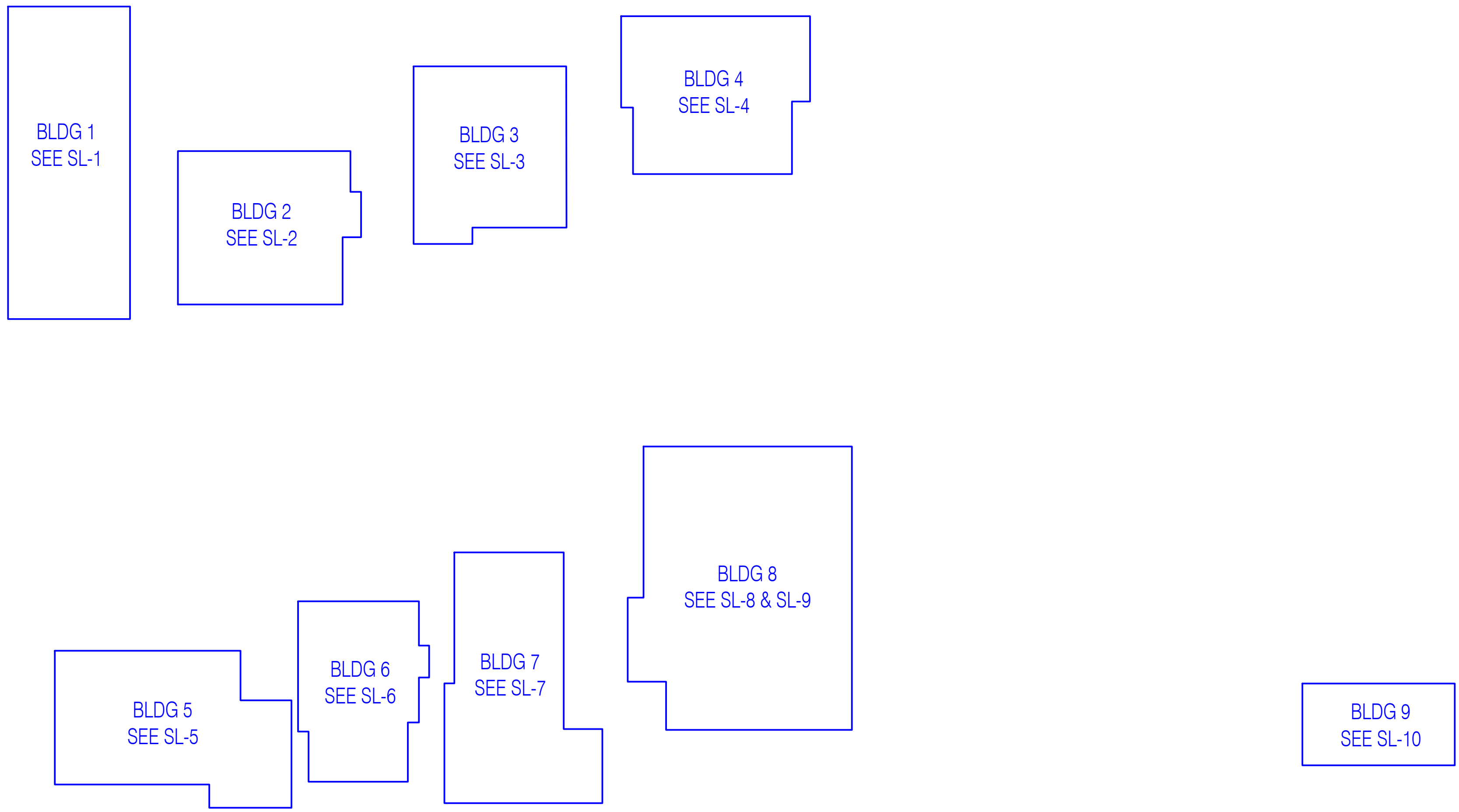
### *4.3.3 CFC-Containing Items*

Installed items containing CFCs, such as refrigerators, water fountains, fire extinguishers, etc. should be removed from the buildings prior to demolition. Items containing CFCs are not permitted to be disposed of as solid waste. EHSI recommends recycling CFC-containing items at an approved facility to help ensure that CFCs and other refrigerants are safely removed from the item prior to disposal.

# Figures

GENERAL NOTES:
1. BACKGROUND DRAWING WAS PREPARED BASED ON SKETCHES IN THE FIELD AND IS NOT TO SCALE. EHSI MAKES NO WARRANTY TO THE ACCURACY OF THE BASE DRAWING.

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PROJECT INFO:
LIMITED HAZMAT SURVEY
LAKE FOREST PARK LAKEFRONT IMPROVEMENTS
17345 & 17347 BEACH DRIVE NE
LAKE FOREST PARK, WA
DCG/WATERSHED INC
SEATTLE, WA

SURVEY DATES: 02/28/24

PROJECT MANAGER: M. GLADDEN

DRAWN BY: F. DIMALANTA

INSPECTORS: M. GLADDEN, M. MACFARLANE

LEGEND:

DRAWING TITLE: OVERALL PLAN

ISSUE DATE: 03/13/2024

SCALE: NTS

EHSI PROJECT #: 11720

SHEET: SL-0

GENERAL NOTES:
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2. REFER TO REPORT FOR MORE INFORMATION ABOUT SAMPLES COLLECTED.
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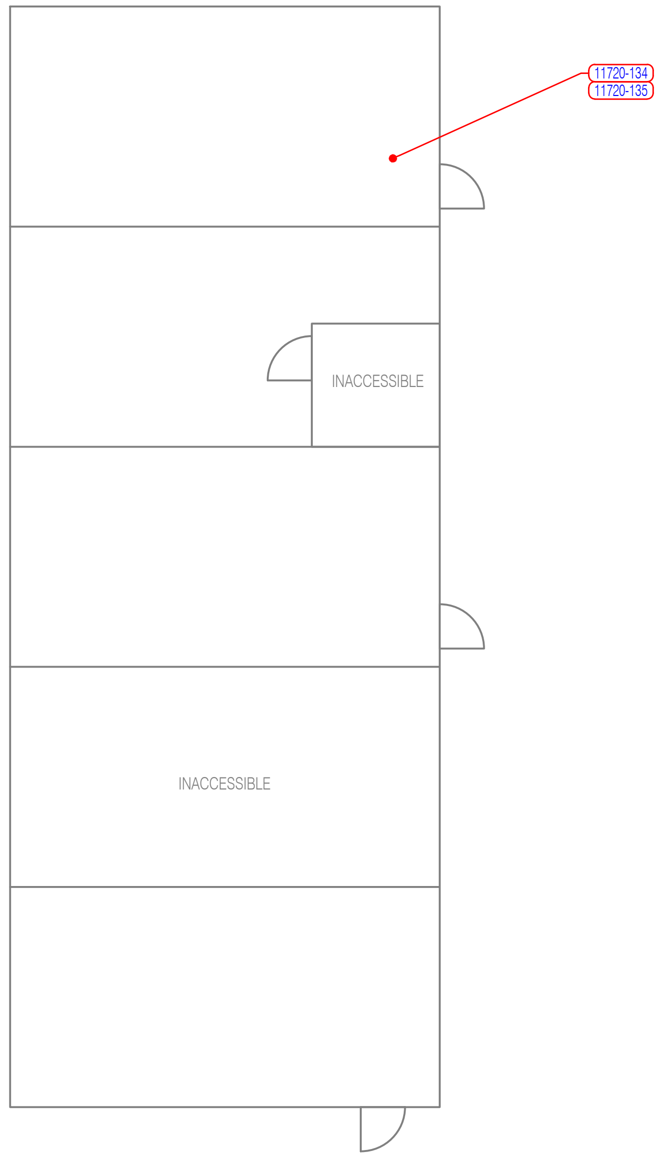


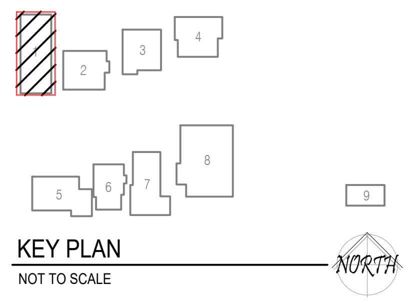


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17345 & 17347 BEACH DRIVE NE
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DCG/WATERSHED INC
SEATTLE, WA

SURVEY DATES: 02/28/24

PROJECT MANAGER: M. GLADDEN

DRAWN BY: F. DIMALANTA

INSPECTORS: M. GLADDEN, M. MACFARLANE

LEGEND: 11720-XX BULK ASBESTOS SAMPLE LOCATIONS

DRAWING TITLE: BLDG 1 STREET SIDE CARPORTS FLOOR PLAN

ISSUE DATE: 03/13/2024

SCALE: NTS

EHSI PROJECT #: 11720

SHEET: SL-1

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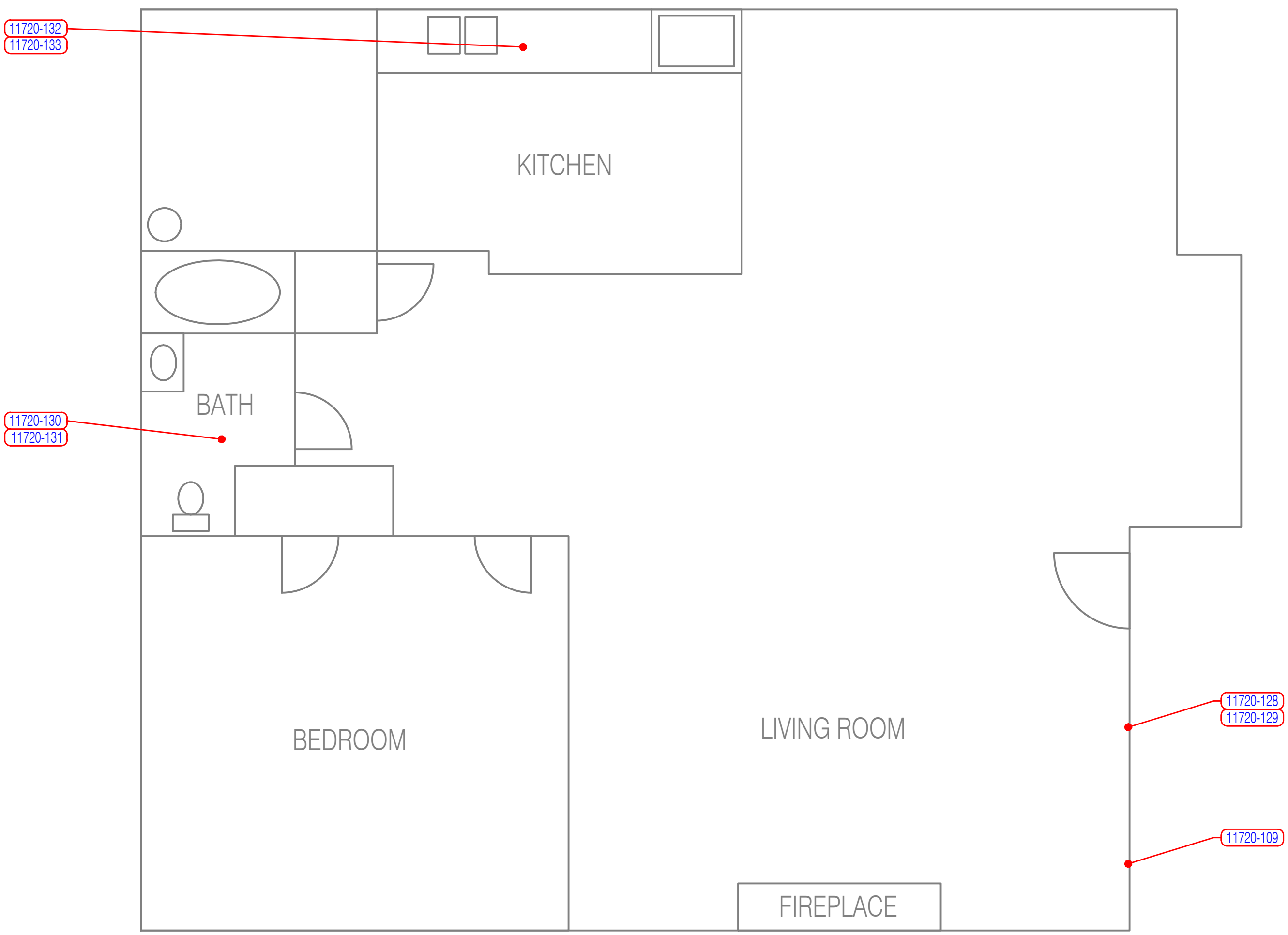


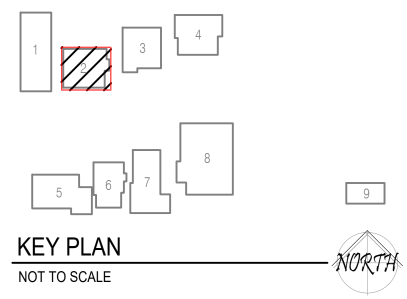


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| SURVEY DATES: | 02/28/24 |
| PROJECT MANAGER: | M. GLADDEN |
| DRAWN BY: | F. DIMALANTA |
| INSPECTORS: | M. GLADDEN<br>M. MACFARLANE |
| LEGEND: | 11720-XX BULK ASBESTOS SAMPLE LOCATIONS |
| DRAWING TITLE: | BLDG 2<br>ONE BEDROOM CABIN<br>FLOOR PLAN |
| ISSUE DATE: | 03/13/2024 |
| SCALE: | NTS |
| EHSI PROJECT #: | 11720 |
| SHEET: | SL-2 |

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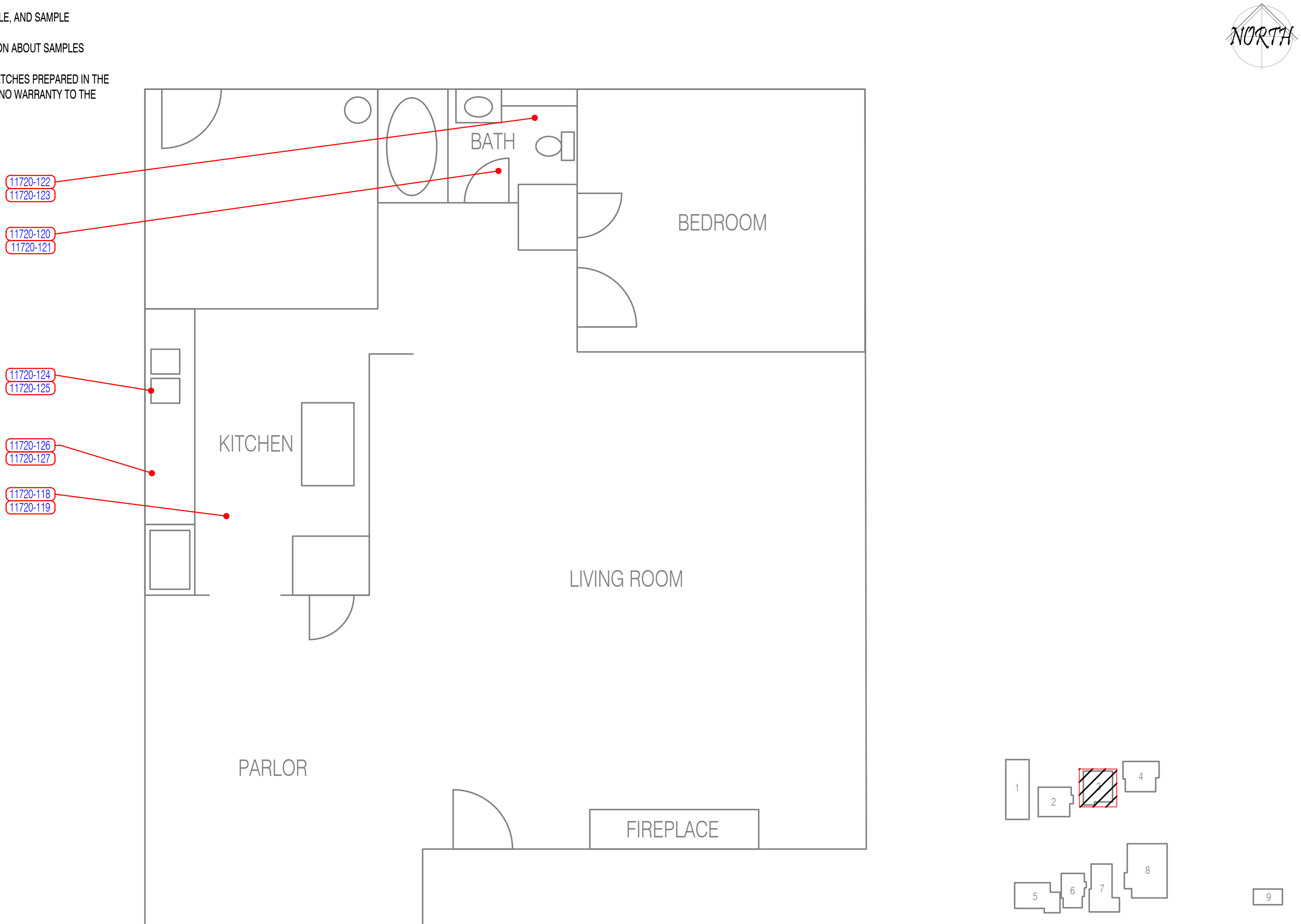


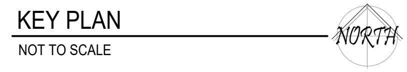


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| ehsi<br>A Subsidiary of SoundEarth Strategies<br>1011 SW Klickitat Way, Suite 104<br>Seattle, Washington 98134<br>Ph: 206.381.1128<br>Fax: 206.254.4279 | PROJECT INFO:<br>LIMITED HAZMAT SURVEY<br>LAKE FOREST PARK LAKEFRONT IMPROVEMENTS<br>17345 & 17347 BEACH DRIVE NE<br>LAKE FOREST PARK, WA<br>DCG/WATERSHED INC<br>SEATTLE, WA | SURVEY DATES:<br>02/28/24 | PROJECT MANAGER:<br>M. GLADDEN<br>DRAWN BY:<br>F. DIMALANTA | INSPECTORS:<br>M. GLADDEN<br>M. MACFARLANE | LEGEND:<br>11720-XX BULK ASBESTOS SAMPLE LOCATIONS | DRAWING TITLE:<br>BLDG 3<br>ONE BEDROOM CABIN<br>FLOOR PLAN | ISSUE DATE:<br>03/13/2024<br>SCALE:<br>NTS | EHSI PROJECT #<br>11720<br>SHEET<br>SL-3 |

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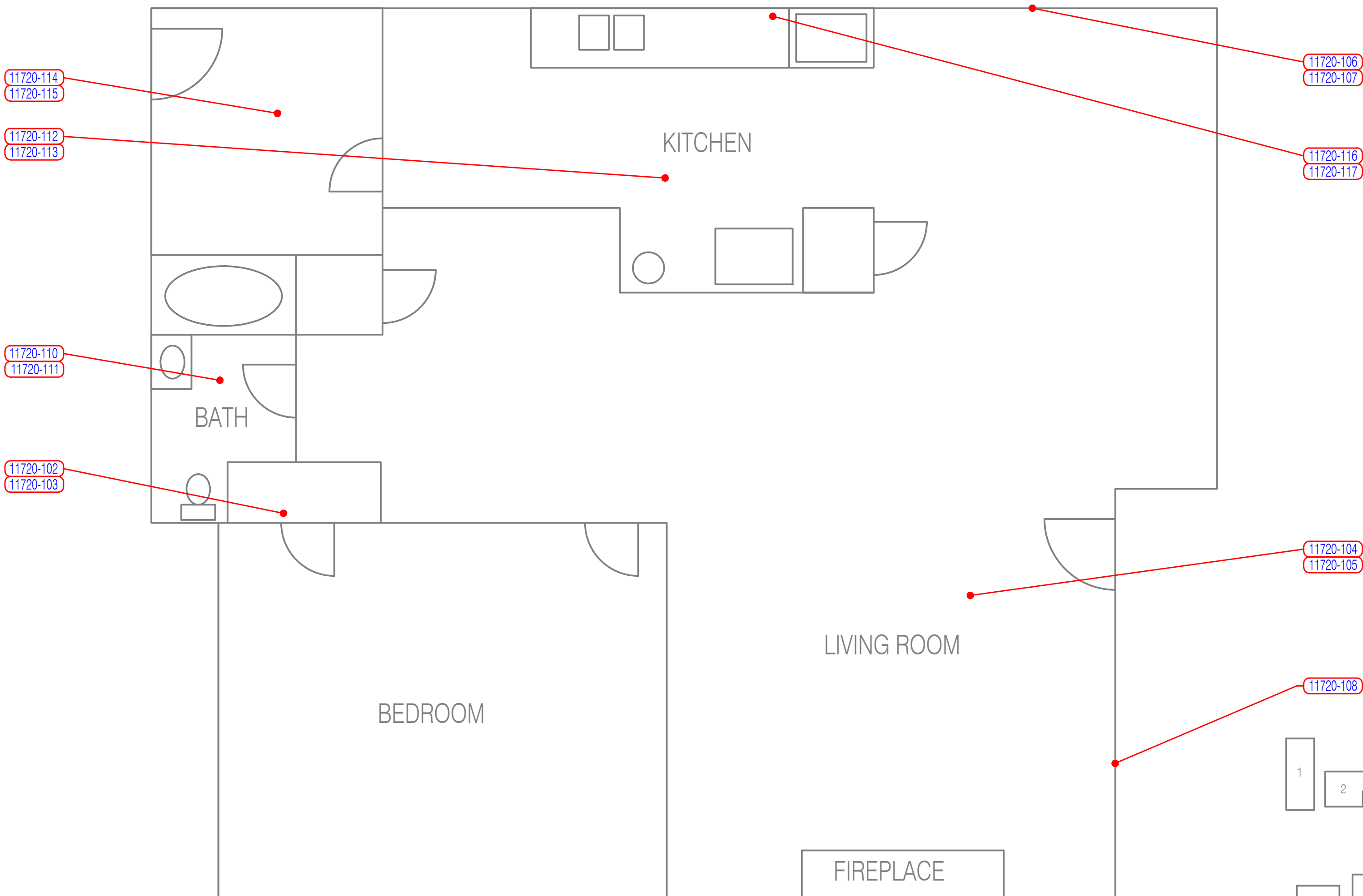


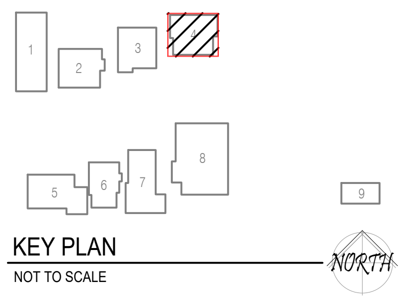


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GENERAL NOTES:

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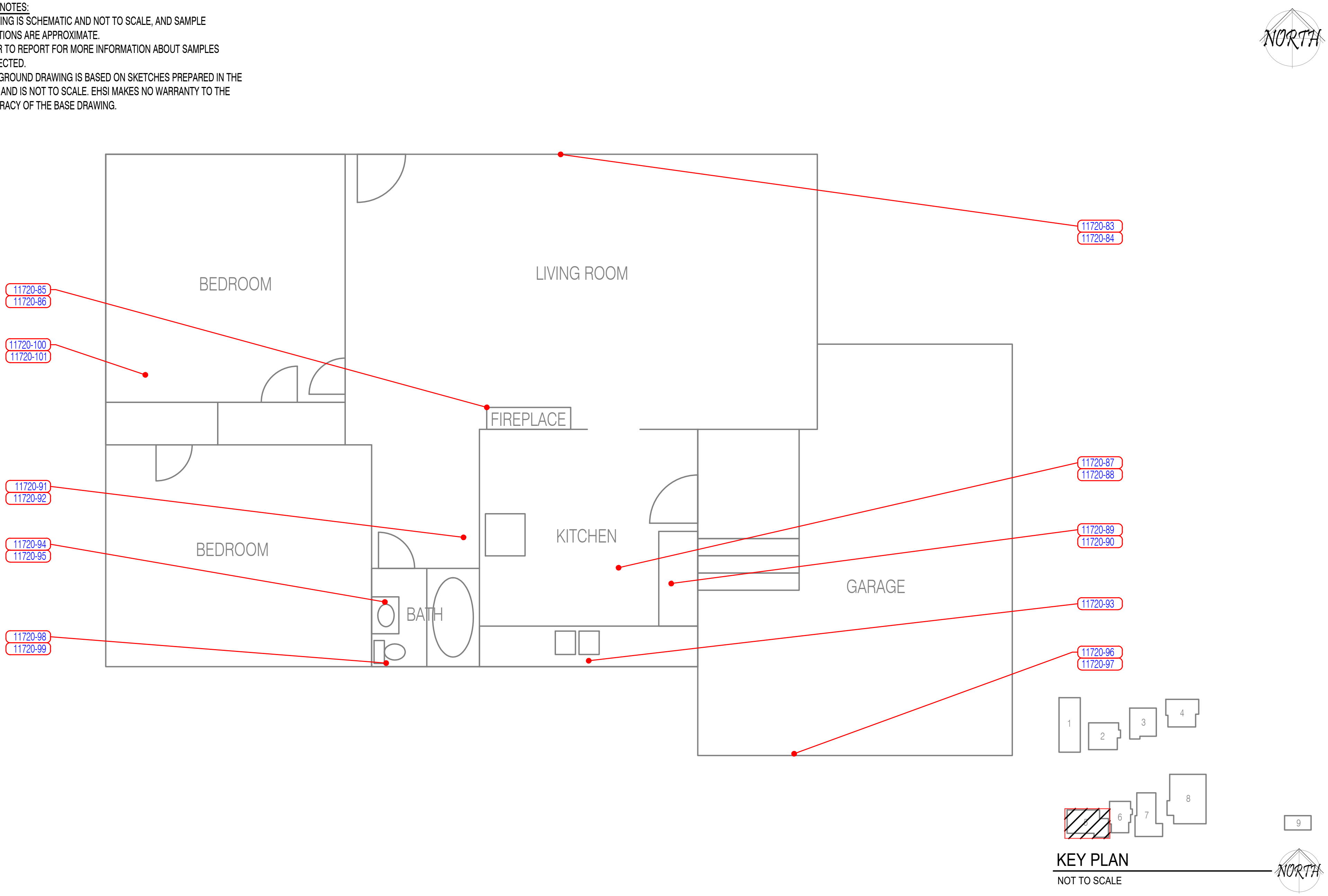


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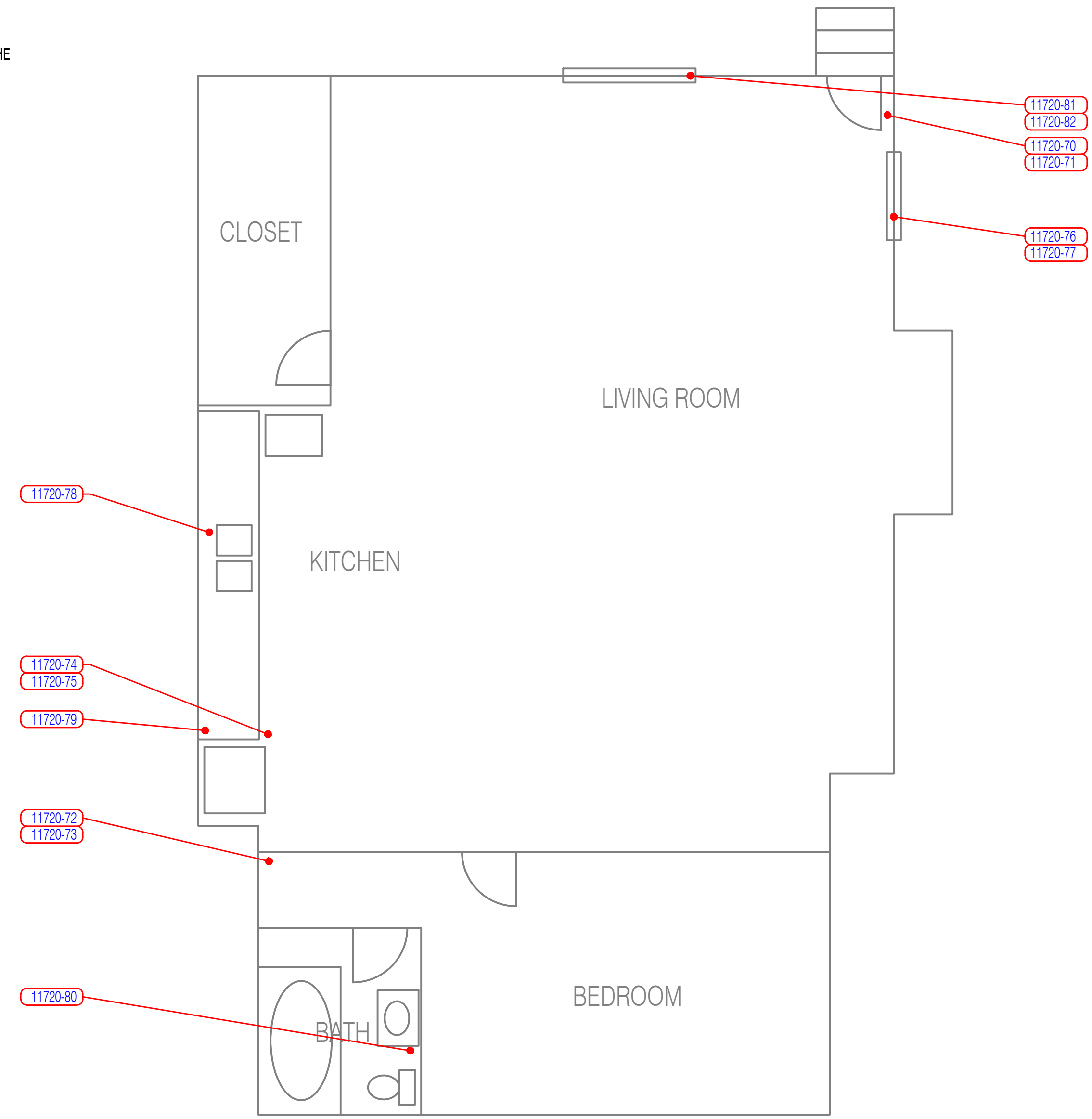
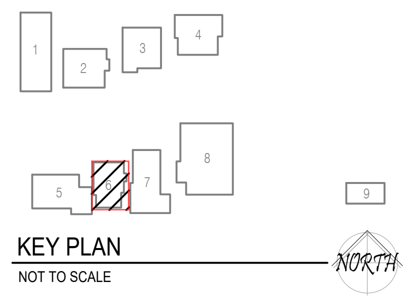
| ehsi A Subsidiary of SoundEarth Strategies 1011 SW Klickitat Way, Suite 104 Seattle, Washington 98134 Ph: 206.381.1128 Fax: 206.254.4279 | PROJECT INFO: LIMITED HAZMAT SURVEY LAKE FOREST PARK LAKEFRONT IMPROVEMENTS 17345 & 17347 BEACH DRIVE NE LAKE FOREST PARK, WA DCG/WATERSHED INC SEATTLE, WA | SURVEY DATES: 02/28/24 | PROJECT MANAGER: M. GLADDEN DRAWN BY: F. DIMALANTA | INSPECTORS: M. GLADDEN M. MACFARLANE | LEGEND: 11720-XX BULK ASBESTOS SAMPLE LOCATIONS | DRAWING TITLE: BLDG 5 TWO BEDROOM CABIN FLOOR PLAN | ISSUE DATE: 03/13/2024 SCALE: NTS | EHSI PROJECT #: 11720 SHEET: SL-5 |

GENERAL NOTES:

1. DRAWING IS SCHEMATIC AND NOT TO SCALE, AND SAMPLE LOCATIONS ARE APPROXIMATE.
2. REFER TO REPORT FOR MORE INFORMATION ABOUT SAMPLES COLLECTED.
3. BACKGROUND DRAWING IS BASED ON SKETCHES PREPARED IN THE FIELD AND IS NOT TO SCALE. EHSI MAKES NO WARRANTY TO THE ACCURACY OF THE BASE DRAWING.

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| ehsi A Subsidiary of SoundEarth Strategies 1011 SW Klickitat Way, Suite 104 Seattle, Washington 98134 Ph: 206.381.1128 Fax: 206.254.4279 | PROJECT INFO: LIMITED HAZMAT SURVEY LAKE FOREST PARK LAKEFRONT IMPROVEMENTS 17345 & 17347 BEACH DRIVE NE LAKE FOREST PARK, WA DCG/WATERSHED INC SEATTLE, WA | SURVEY DATES: 02/28/24 | PROJECT MANAGER: M. GLADDEN DRAWN BY: F. DIMALANTA | INSPECTORS: M. GLADDEN M. MACFARLANE | LEGEND: 11720-XX BULK ASBESTOS SAMPLE LOCATIONS | DRAWING TITLE: BLDG 6 ONE BEDROOM CABIN FLOOR PLAN | ISSUE DATE: 03/13/2024 SCALE: NTS | EHSI PROJECT # 11720 SHEET SL-6 |

GENERAL NOTES:
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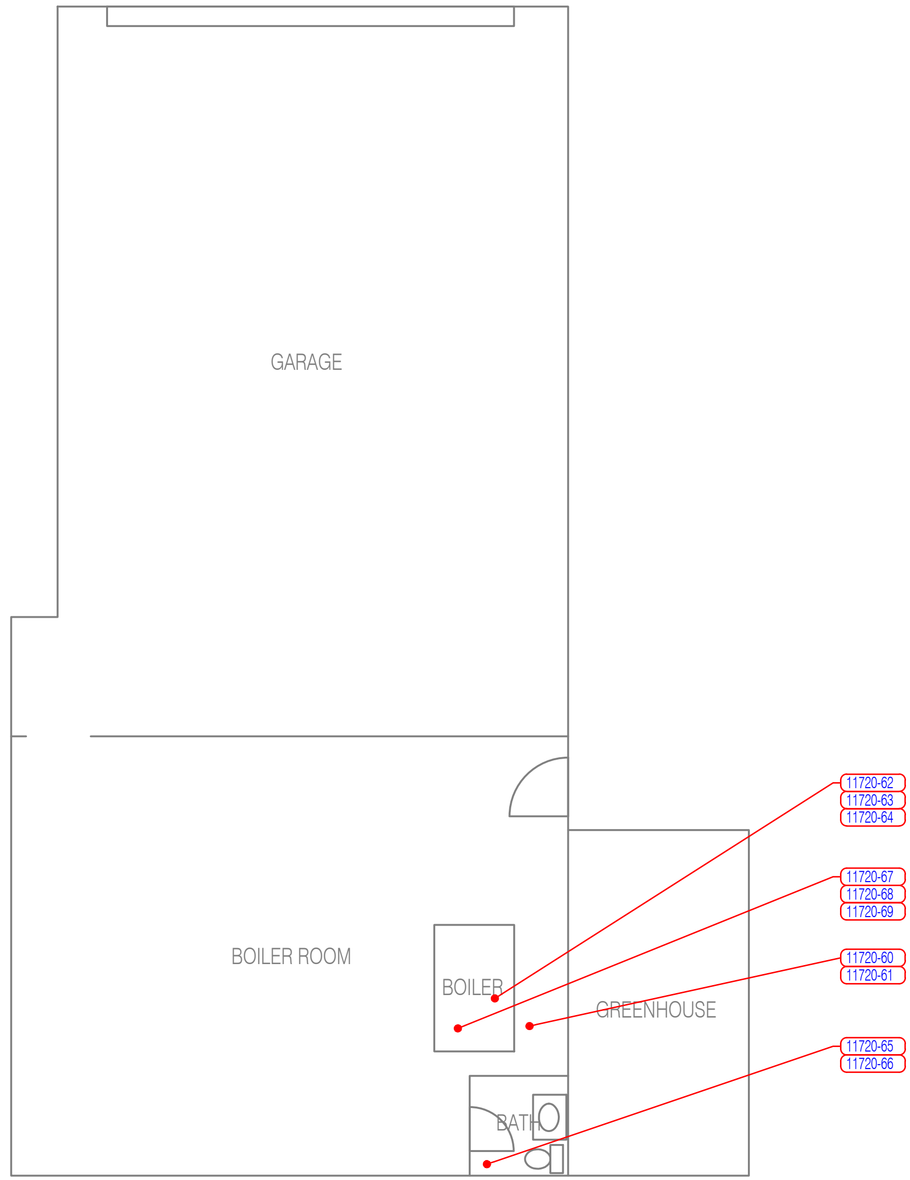



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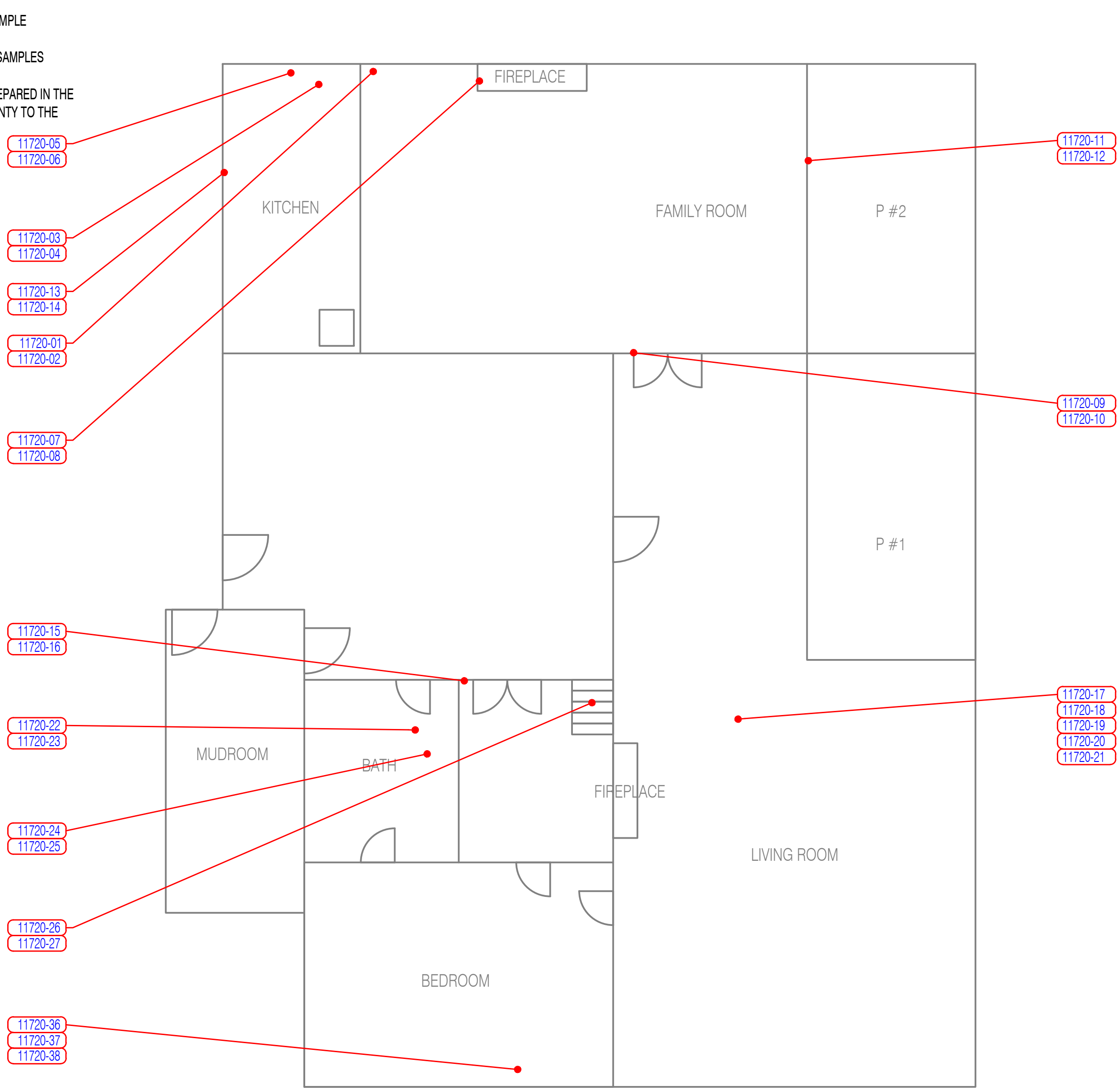
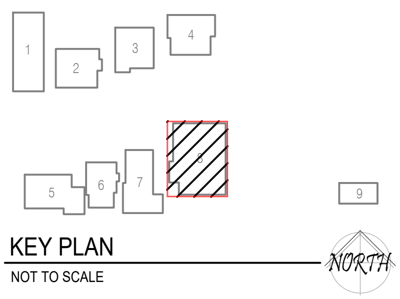
| ehsi A Subsidiary of SoundEarth Strategies<br>1011 SW Klickitat Way, Suite 104<br>Seattle, Washington 98134<br>Ph: 206.381.1128<br>Fax: 206.254.4279 | PROJECT INFO:<br>LIMITED HAZMAT SURVEY<br>LAKE FOREST PARK LAKEFRONT IMPROVEMENTS<br>17345 & 17347 BEACH DRIVE NE<br>LAKE FOREST PARK, WA<br>DCG/WATERSHED INC<br>SEATTLE, WA | SURVEY DATES:<br>02/28/24 | PROJECT MANAGER:<br>M. GLADDEN<br>DRAWN BY:<br>F. DIMALANTA | INSPECTORS:<br>M. GLADDEN<br>M. MACFARLANE | LEGEND:<br>11720-XX BULK ASBESTOS SAMPLE LOCATIONS | DRAWING TITLE:<br>BLDG 7<br>GARAGE / MECHANICAL<br>FLOOR PLAN | ISSUE DATE:<br>03/13/2024<br>SCALE:<br>NTS | EHSI PROJECT #<br>11720<br>SHEET<br>SL-7 |

GENERAL NOTES:
1. DRAWING IS SCHEMATIC AND NOT TO SCALE, AND SAMPLE LOCATIONS ARE APPROXIMATE.
2. REFER TO REPORT FOR MORE INFORMATION ABOUT SAMPLES COLLECTED.
3. BACKGROUND DRAWING IS BASED ON SKETCHES PREPARED IN THE FIELD AND IS NOT TO SCALE. EHSI MAKES NO WARRANTY TO THE ACCURACY OF THE BASE DRAWING.

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| ehsi A Subsidiary of SoundEarth Strategies<br>1011 SW Klickitat Way, Suite 104<br>Seattle, Washington 98134<br>Ph: 206.381.1128<br>Fax: 206.254.4279 | PROJECT INFO:<br>LIMITED HAZMAT SURVEY<br>LAKE FOREST PARK LAKEFRONT IMPROVEMENTS<br>17345 & 17347 BEACH DRIVE NE<br>LAKE FOREST PARK, WA<br>DCG/WATERSHED INC<br>SEATTLE, WA | SURVEY DATES:<br>02/28/24 | PROJECT MANAGER:<br>M. GLADDEN<br>DRAWN BY:<br>F. DIMALANTA | INSPECTORS:<br>M. GLADDEN<br>M. MACFARLANE | LEGEND:<br>11720-XX BULK ASBESTOS SAMPLE LOCATIONS | DRAWING TITLE:<br>BLDG 8<br>MAIN HOUSE<br>1st FLOOR PLAN | ISSUE DATE:<br>03/13/2024<br>SCALE:<br>NTS | EHSI PROJECT #<br>11720<br>SHEET<br>SL-8 |

GENERAL NOTES:
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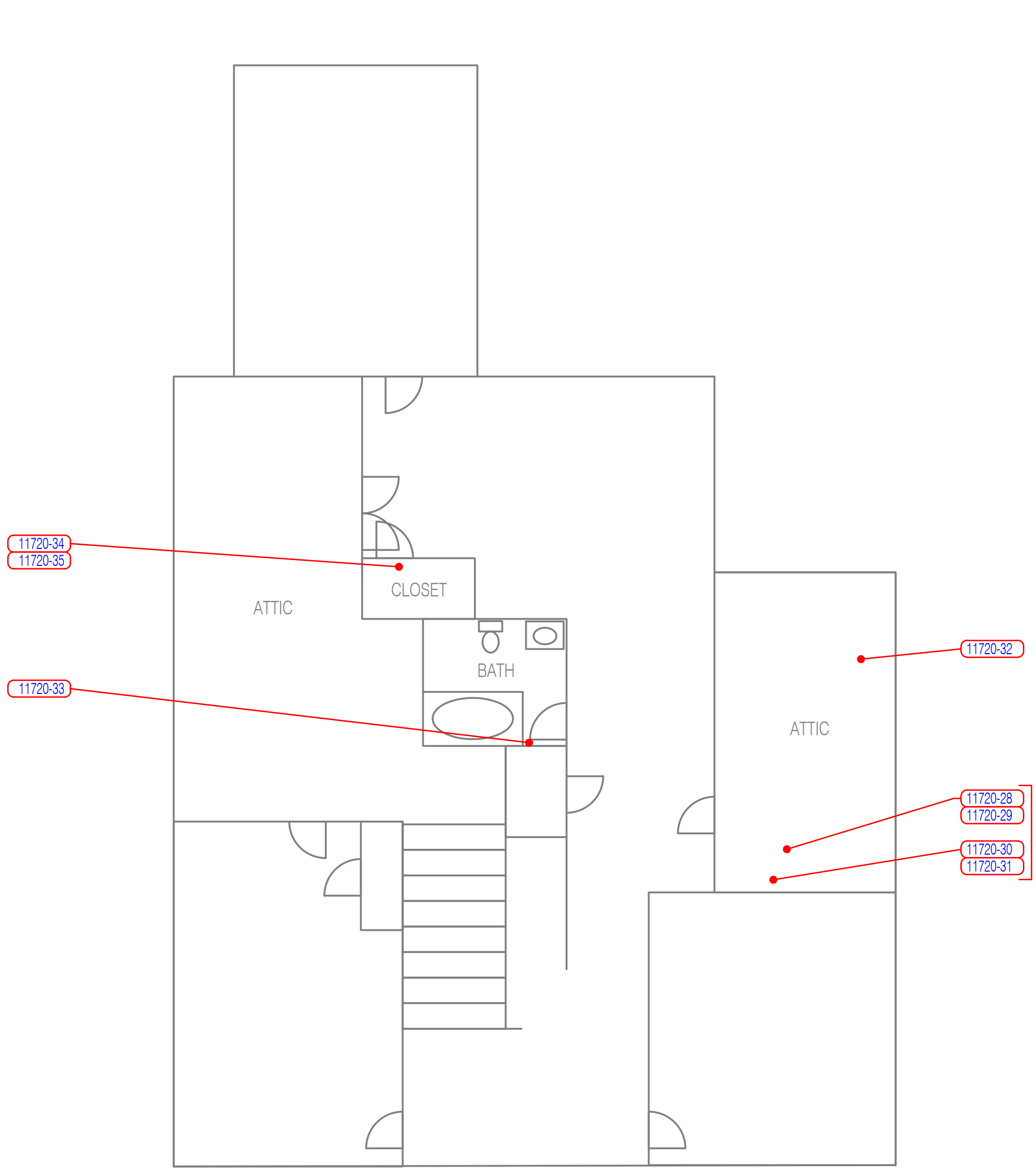


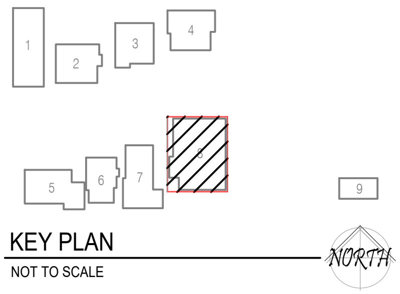


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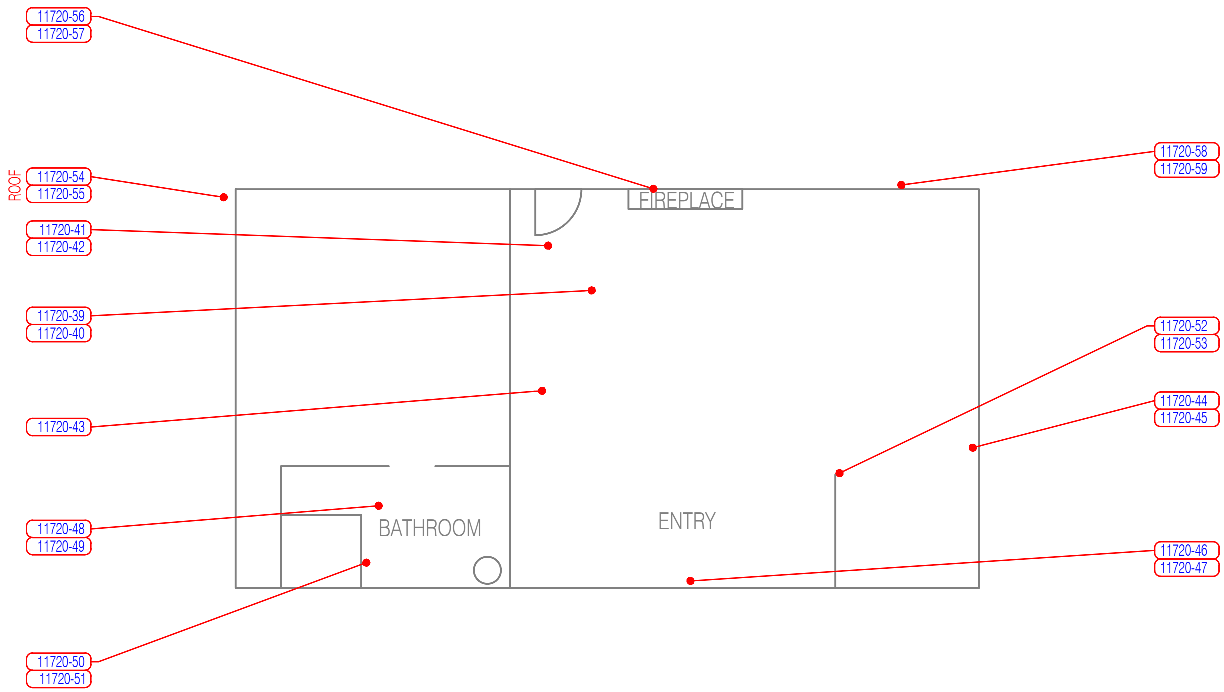
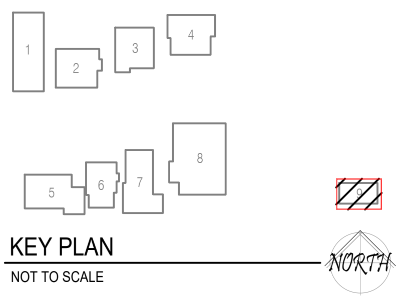
| PROJECT INFO: | SURVEY DATES: | PROJECT MANAGER: | INSPECTORS: | LEGEND: | DRAWING TITLE: | ISSUE DATE: | EHSI PROJECT # |
|---|---|---|---|---|---|---|---|
| LIMITED HAZMAT SURVEY<br>LAKE FOREST PARK LAKEFRONT IMPROVEMENTS<br>17345 & 17347 BEACH DRIVE NE<br>LAKE FOREST PARK, WA<br>DCG/WATERSHED INC<br>SEATTLE, WA | 02/28/24 | M. GLADDEN<br>DRAWN BY:<br>F. DIMALANTA | M. GLADDEN<br>M. MACFARLANE | 11720-XX BULK ASBESTOS SAMPLE LOCATIONS | BLDG 8<br>MAIN HOUSE<br>2nd FLOOR PLAN | 03/13/2024<br>SCALE:<br>NTS | 11720<br>SHEET<br>SL-9 |

GENERAL NOTES:
1. DRAWING IS SCHEMATIC AND NOT TO SCALE, AND SAMPLE LOCATIONS ARE APPROXIMATE.
2. REFER TO REPORT FOR MORE INFORMATION ABOUT SAMPLES COLLECTED.
3. BACKGROUND DRAWING IS BASED ON SKETCHES PREPARED IN THE FIELD AND IS NOT TO SCALE. EHSI MAKES NO WARRANTY TO THE ACCURACY OF THE BASE DRAWING.

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| ehsi A Subsidiary of SoundEarth Strategies<br>1011 SW Klickitat Way, Suite 104<br>Seattle, Washington 98134<br>Ph: 206.381.1128<br>Fax: 206.254.4279 | PROJECT INFO:<br>LIMITED HAZMAT SURVEY<br>LAKE FOREST PARK LAKEFRONT IMPROVEMENTS<br>17345 & 17347 BEACH DRIVE NE<br>LAKE FOREST PARK, WA<br>DCG/WATERSHED INC<br>SEATTLE, WA | SURVEY DATES:<br>02/28/24 | PROJECT MANAGER:<br>M. GLADDEN<br>DRAWN BY:<br>F. DIMALANTA | INSPECTORS:<br>M. GLADDEN<br>M. MACFARLANE | LEGEND:<br>11720-XX BULK ASBESTOS SAMPLE LOCATIONS | DRAWING TITLE:<br>BLDG 9<br>WATERFRONT<br>ONE BEDROOM CABIN<br>FLOOR PLAN | ISSUE DATE:<br>03/13/2024<br>SCALE:<br>NTS | EHSI PROJECT #<br>11720<br>SHEET<br>SL-10 |

# Tables

**Table 1**
**Summary of Asbestos Bulk Sampling and Analytical Results**
**Lake Forest Park - Lake Front Improvements**
**17345 and 17347 Beach Dr. NE**
**Lake Forest Park, Washington**
**EHSI Project No.: 11720**

| Sample Number | Floor | HSA Location | Sample Description | Result | Quantity | Unit | Material Type | Friable/ Non-Friable |
|---|---|---|---|---|---|---|---|---|
| **Building 8** | | | | | | | | |
| 11720-01<br>11720-02 | 1 | Kitchen | White laminate countertop on clear mastic (on wood) | ND (all layers) | 200 | SF | Misc. | NF |
| 11720-03<br>11720-04 | 1 | Kitchen Closet | 12"x12" Beige ceramic floor tile on grout (on concrete) | ND (all layers) | 300 | SF | Misc. | NF |
| **11720-05**<br>**11720-05QA**<br>**11720-06** | **1** | **Kitchen Closet** | **Beige joint compound** on GWB | **3% Chrysotile** | **1,500** | **SF** | **Misc.** | **F** |
| 11720-07<br>1172-08 | 1 | Living Room | Red fireplace brick on gray mortar | ND (all layers) | 80 | SF | Misc. | NF |
| 11720-09<br>11720-10 | 1 | Dining Room Fire Place, Building Interior and Exterior | Red brick on light gray mortar | ND (all layers) | 4,500 | SF | Misc. | NF |
| **11720-11**<br>**11720-11QA**<br>**11720-12** | **1** | **Living Room Interior - Northwest** | **White interior window glazing** (on 9'x11' metal frame window) | **4% Chrysotile** | **300** | **LF** | **Misc.** | **F** |
| 11720-13<br>11720-14 | 1 | Kitchen interior - West | Black interior window caulking (on 5'x3' metal frame window) | ND | 120 | LF | Misc. | NF |
| 11720-15<br>11720-16 | 1 | Entryway | Brown laminate flooring on wood | ND (all layers) | 350 | SF | Misc. | NF |
| 11720-17<br>11720-18<br>11720-19<br>11720-20<br>11720-21<br>11720-21QA | 1-2 | Throughout | White ceiling and wall texture on lathe and plaster (on wood frame) | ND (all layers) | 3,800 | SF | Surfacing | F |
| 11720-22<br>11720-23 | 1 | Entryway Bathroom | Brown and white terrazzo ceramic floor tile (on wood) | ND (all layers) | 320 | SF | Misc. | NF |
| **11720-24**<br>**11720-25** | **1** | **Entryway Bathroom** | 4"x4" cream ceramic tile with **gray grout** (on plaster) | **4% Chrysotile** | **200** | **SF** | **Misc.** | **NF** |
| 11720-26<br>11720-27 | 1-2 | Throughout | Black subfloor vapor barrier | ND | 3,000 | SF | Misc. | F |
| 11720-28<br>11720-29 | 2 | Closet/Attic - West | Black paper backing on fiberglass insulation | ND (all layers) | 600 | SF | Misc. | F |
| 11720-30<br>11720-31 | Roof | Roof Exterior | Black tri-tab roofing system on vapor barrier (on wood) | ND | 1,800 | SF | Misc. | NF |
| 11720-32 | 2 | Attic - East | Yellow pebble SV on mastic (on wood) | ND (all layers) | 25 | SF | Misc. | NF |

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**Table 1**
**Summary of Asbestos Bulk Sampling and Analytical Results**
**Lake Forest Park - Lake Front Improvements**
**17345 and 17347 Beach Dr. NE**
**Lake Forest Park, Washington**
**EHSI Project No.: 11720**

| Sample Number | Floor | HSA Location | Sample Description | Result | Quantity | Unit | Material Type | Friable/ Non-Friable |
|---|---|---|---|---|---|---|---|---|
| 11720-33 | 2 | Hallway Bathroom | White and black patterned ceramic floor tile (on wood) | ND (all layers) | 150 | SF | Misc. | NF |
| 11720-34<br>11720-35 | 2 | Closet - North | Hardwood floor squeak sheet | ND | 3,000 | SF | Misc. | F |
| **11720-36<br>11720-37<br>11720-38<br>11720-60<br>11720-60QA<br>11720-61** | **Crawl space** | **Crawl Space - East, Garage Building** | **TSI** (on 3" OD metal hot water piping) | **44% Chrysotile** | **300** | **LF** | **TSI** | **F** |
| **Assumed** | **Throughout** | **Throughout** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **1,500** | **LF** | **Misc.** | **NF** |
| | | | **Building 9** | | | | | |
| **11720-39<br>11720-40** | **1** | **Main Floor** | **9"x 9" Brown VFT** on black mastic (on wood) | **9% Chrysotile** | **800** | **SF** | **Misc.** | **NF** |
| **11720-41<br>11720-42<br>11720-42QA** | **1** | **Main Floor** | White grid pattern SV on brown mastic on **dark red/brown VFT** (on wood) | **5% Chrysotile** | **20** | **SF** | **Misc.** | **NF** |
| 11720-43 | 1 | Main Floor | White leveling compound (on wood) | ND (all layers) | 50 | SF | Misc. | NF |
| **11720-44<br>11720-45** | **1** | **Shower Area** | 2"x2" Olive ceramic tile on **yellow mastic** on black mastic and 4"x4" white ceramic tile on **yellow brittle mastic** (on wood) | **2% Chrysotile** | **10** | **SF** | **Misc.** | **NF** |
| 11720-46<br>11720-47 | 1 | Throughout | Black vapor barrier (on wood frame) | ND | 1,000 | SF | Misc. | F |
| **11720-48<br>11720-49** | **1** | **Bathroom** | 12"x12" White and black VFT on **brown mastic** (on wood) | **46% Chrysotile** | **30** | **SF** | **Misc.** | **NF** |
| **11720-50<br>11720-51** | **1** | **Bathroom** | 4"x4" White ceramic tile on gray grout on **brown mastic** (on wood paneling) | **4% Chrysotile** | **40** | **SF** | **Misc.** | **NF** |
| 11720-52<br>11720-53 | 1 | Throughout | Joint compound on GWB | ND | 10 | SF | Misc. | F |
| 11720-54<br>11720-55 | Roof | Roof Exterior | Tri-tab roofing system with vapor barrier (on wood, beneath polycarbonate roofing system) | ND (all layers) | 1,500 | SF | Misc. | NF |
| 11720-56<br>11720-57 | 1 | Fire Place Exterior | Red fireplace brick on light gray mortar | ND (all layers) | 150 | SF | Misc. | NF |
| 11720-58<br>11720-59 | 1 | Building Exterior | Black paper on white exterior window glazing (on metal framd window) | ND | 400 | LF | Misc. | F |
| **Assumed** | **1** | **Throughout** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **400** | **LF** | Misc. | **NF** |
| | | | **Building 7** | | | | | |

**Table 1**
**Summary of Asbestos Bulk Sampling and Analytical Results**
**Lake Forest Park - Lake Front Improvements**
**17345 and 17347 Beach Dr. NE**
**Lake Forest Park, Washington**
**EHSI Project No.: 11720**

| Sample Number | Floor | HSA Location | Sample Description | Result | Quantity | Unit | Material Type | Friable/ Non-Friable |
|---|---|---|---|---|---|---|---|---|
| **11720-62 11720-63 11720-64** | **1** | **Garage** | **Blue and white mudded elbows** (on 4" OD metal boiler piping) | **12% Chrysotile 5% Amosite** | **5** | **EA** | **TSI** | **F** |
| 11720-65 11720-66 | 1 | Garage | Joint compound on GWB | ND | 3,500 | SF | Misc. | F |
| **11720-67 11720-68 11720-69** | **1** | **Garage** | **TSI lining** (on boiler interior) | **85% Chrysotile** | **10** | **SF** | **TSI** | **F** |
| **Assumed** | **1** | **Garage** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **500** | **LF** | **Misc.** | **NF** |
| **Building 6** | | | | | | | | |
| **11720-70 11720-71 11720-71QA** | **1** | **Living Room** | **9"x 9" Red VFT on black mastic** (on wood) | **5% Chryostile <1% Chrysotile** | **350** | **SF** | **Misc.** | **NF** |
| **11720-72 11720-73** | **1** | **Bedroom** | **9"x9" Black VFT** on black mastic (on wood) | **4% Chrysotile** | **100** | **SF** | **Misc.** | **NF** |
| 11720-74 11720-75 | 1 | Kitchen | 9"x18" Cream VFT with adhesive strip on leveling compound (on wood) | ND (all layers) | 100 | SF | Misc. | NF |
| **11720-76 11720-77** | **1** | **Living Room** | Red external fireplace brick and gray internal fireplace brick on **ACM mortar** | **4% Chrysotile** | **250** | **SF** | **Misc.** | **NF** |
| 11720-78 | 1 | Kitchen | Gray sink undercoat (on metal sink) | ND | 1 | EA | Misc. | NF |
| 11720-79 | 1 | Kitchen | Yellow laminate countertop on brown mastic (on wood) | ND (all layers) | 40 | SF | Misc. | NF |
| 11720-80 | 1 | Bathroom | White and gold speckled laminate countertop on yellow mastic (on wood) | ND (all layers) | 5 | SF | Misc. | NF |
| 11720-81 11720-82 | 1 | Living Room | White interior window glazing (on 10'x5' wood framed window) | ND | 120 | LF | Misc. | F |
| **Assumed** | **Attic** | **Attic Space - South** | **Assumed ACM vermiculite insulation** | **Assumed** | **200** | **SF** | **Misc.** | **F** |
| **Assumed** | **1** | **Throughout** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **600** | **LF** | **Misc.** | **NF** |
| **Building 5** | | | | | | | | |
| 11720-83 11720-84 | 1 | Building Exterior | White exterior window glazing (on wood frame window) | ND | 350 | LF | Misc. | F |
| 11720-85 11720-86 | 1 | Living Room | Red and gray fireplace brick on gray mortar | ND (all layers) | 500 | SF | Misc. | NF |
| 11720-87 11720-88 | 1 | Kitchen | 9"x 9" White pattern SV on cream SV on beige backing on black fibrous paper on white mastic (on wood) | ND (all layers) | 250 | SF | Misc. | NF |

**Table 1**
**Summary of Asbestos Bulk Sampling and Analytical Results**
**Lake Forest Park - Lake Front Improvements**
**17345 and 17347 Beach Dr. NE**
**Lake Forest Park, Washington**
**EHSI Project No.: 11720**

| Sample Number | Floor | HSA Location | Sample Description | Result | Quantity | Unit | Material Type | Friable/ Non-Friable |
|---|---|---|---|---|---|---|---|---|
| 11720-89<br>11720-89QA<br>11720-90 | 1 | Kitchen | White laminate countertop on yellow mastic (on wood) | ND (all layers) | 50 | SF | Misc. | NF |
| **11720-91<br>11720-92** | **1** | **Bathroom Exterior** | **Dark gray cement board paneling** (on wood) | **31% Chrysotile** | **25** | **SF** | **Misc.** | **NF** |
| 11720-93 | 1 | Kitchen | White fibrous sink gasket on brown fibrous sink gasket (on 4" OD plastic pipe) | ND | 1 | EA | Misc. | NF |
| 11720-94<br>11720-95 | 1 | Bathroom | 12"x12" gray VFT on clear mastic (on wood) | ND | 80 | SF | Misc. | NF |
| 11720-96<br>11720-96QA<br>11720-97 | 1 | Throughout | Brown vapor barrier | ND | 1,000 | SF | Misc. | F |
| 11720-98<br>11720-98QA<br>11720-99 | 1 | Bathroom | Gray shower paneling on brown mastic (on wood) | ND (all layers) | 50 | SF | Misc. | NF |
| 11720-100<br>11720-101 | 1 | Throughout | Hardwood floor squeak sheet | ND (all layers) | 1,200 | SF | Misc. | NF |
| 11720-102<br>11720-102QA<br>11720-103 | 1 | Bathroom | Dark gray backsplash paneling on tan mastic (on wood) | ND (all layers) | 30 | SF | Misc. | NF |
| **Assumed** | **1** | **Throughout** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **600** | **LF** | **Misc.** | **NF** |
| **Building 4** | | | | | | | | |
| 11720-104<br>11720-105<br>11720-105QA | 1 | Living Room | Hardwood floor squeak sheet | ND | 2,000 | SF | Misc. | NF |
| 11720-106<br>11720-107 | 1 | Building Exterior | White exterior window frame caulking (on wood frame window) | ND | 160 | LF | Misc. | NF |
| 11720-108<br>11720-109 | Roof | Roof Exterior - Building 2 & 4 | Tri-tab asphaltic roofing system (on wood frame) | ND (all layers) | 2,000 | SF | Misc. | NF |
| 11720-110<br>11720-111 | 1 | Bathroom | 4"x4" yellow pattern SV on brown mastic (on wood) | ND (all layers) | 30 | SF | Misc. | NF |
| 11720-112<br>11720-113 | 1 | Kitchen | Beige speckled SV on yellow mastic (on wood) | ND (all layers) | 80 | SF | Misc. | NF |
| 11720-114<br>11720-115 | 1 | Laundry Room | White and black tile pattern SV (on wood) | ND (all layers) | 25 | SF | Misc. | NF |
| 11720-116<br>11720-117 | 1 | Kitchen | Blue laminate countertop on brown mastic (on wood) | ND (all layers) | 15 | SF | Misc. | NF |
| **Assumed** | **1** | **Throughout** | **Assumed ACM red and gray fireplace brick with mortar** | **Assumed** | **250** | **SF** | **Misc.** | **NF** |

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**Table 1**
**Summary of Asbestos Bulk Sampling and Analytical Results**
**Lake Forest Park - Lake Front Improvements**
**17345 and 17347 Beach Dr. NE**
**Lake Forest Park, Washington**
**EHSI Project No.: 11720**

| Sample Number | Floor | HSA Location | Sample Description | Result | Quantity | Unit | Material Type | Friable/ Non-Friable |
|---|---|---|---|---|---|---|---|---|
| **Assumed** | **1** | **Throughout** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **600** | **LF** | **Misc.** | **NF** |
| **Building 3** | | | | | | | | |
| 11720-118<br>11720-119 | 1 | Kitchen | Green and yellow linoleum on paper backing on brown mastic (on wood) | ND (all layers) | 60 | SF | Misc. | NF |
| 11720-120<br>11720-121 | 1 | Bathroom | 12"x12" cream VFT on yellow mastic (on wood) | ND (all layers) | 20 | SF | Misc. | NF |
| 11720-122<br>11720-123 | 1 | Bathroom | White and gold speckled laminate countertop on yellow mastic (on wood) | ND (all layers) | 5 | SF | Misc. | NF |
| 11720-124<br>11720-124QA<br>11720-125 | 1 | Kitchen | Yellow speckled SV on white mastic (on wood) | ND (all layers) | 6 | SF | Misc. | NF |
| 11720-126<br>11720-127 | 1 | Kitchen | Beige and white hex-pattern laminate countertop on black mastic (on wood) | ND (all layers) | 12 | SF | Misc. | NF |
| **Assumed** | **1** | **Living Room** | **Assumed ACM red and gray fireplace brick with mortar** | **Assumed** | **250** | **SF** | **Misc.** | **NF** |
| **Assumed** | **1** | **Throughout** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **600** | **LF** | **Misc.** | **NF** |
| **Building 2** | | | | | | | | |
| 11720-128<br>11720-129<br>11720-129QA | 1 | Living Room | White and black window sealant (on wood frame window) | ND | 140 | LF | Misc. | NF |
| 11720-130<br>11720-131 | 1 | Bathroom | 3"x3" Beige SV on brown mastic on yellow SV (on wood) | ND (all layers) | 20 | SF | Misc. | NF |
| 11720-132<br>11720-133 | 1 | Kitchen | Yellow laminate countertop on clear mastic (on wood) | ND (all layers) | 15 | SF | Misc. | NF |
| **Assumed** | **1** | **Living Room** | **Assumed ACM red and gray fireplace brick with mortar** | **Assumed** | **250** | **SF** | **Misc.** | **NF** |
| **Assumed** | **1** | **Throughout** | **Assumed ACM cloth insulated electrical wiring** | **Assumed** | **600** | **LF** | **Misc.** | **NF** |
| **Building 1** | | | | | | | | |
| 11720-134<br>11720-135<br>11720-135QA | 1 | North Garage Stall | Brown vapor barrier (on wood frame) | ND | 1,200 | SF | Misc. | F |

NOTES:

**Bold text** indicates sample contains or is assumed to contain detectable levels of asbestos.

< = less than
ACM = asbestos-containing material
EA = each
F = friable

NF = non-friable
Misc. = miscellaneous
OD = outside diameter
SV = sheet vinyl

GWB = gypsum wal
HSA = homogenous
JC = joint compound
LF = linear feet

ND = non-detect
SV = sheet vinyl
SF = square feet
TSI = thermal system insulation

A Subsidiary of SoundEarth Strategies

# Table 2
## Summary of XRF Results
## Lake Forest Park - Lake Front Improvements
## 17345 and 17347 Beach Dr. NE
## Lake Forest Park, Washington
## EHSI Project No.: 11720

| Reading No. | Building | Location | Component | Substrate | Color | Results ($mg/cm^2$) |
|---|---|---|---|---|---|---|
| **3** | **8** | **Living Room** | **Paint** | **Plaster** | **White** | **0.17** |
| **4** | **8** | **Living Room** | **Paint** | **Plaster** | **White** | **0.24** |
| 5 | 8 | Building Exterior | Paint | Wood | Brown | <LOD |
| **6** | **8** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.17** |
| **7** | **9** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.61** |
| **8** | **9** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.52** |
| **9** | **9** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **1.14** |
| **10** | **9** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.69** |
| **11** | **9** | **Main Floor** | **Paint** | **Wood** | **White** | **0.2** |
| 12 | 7 | Building Exterior | Paint | Wood | Brown | <LOD |
| 13 | 7 | Building Exterior | Paint | Wood | Brown | <LOD |
| 14 | 7 | Building Exterior | Paint | Wood | Brown | <LOD |
| 15 | 7 | Shop | Paint | GWB | White | <LOD |
| **16** | **7** | **Shop** | **Paint** | **Wood** | **Gray** | **0.34** |
| **17** | **7** | **Shop** | **Paint** | **Wood** | **Gray** | **0.22** |
| **18** | **6** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.26** |
| **19** | **5** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.18** |
| **20** | **5** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.8** |
| **21** | **5** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **5** |
| **22** | **5** | **Exterior Doorframe** | **Paint** | **Wood** | **Brown** | **5** |
| **23** | **5** | **Kitchen** | **Paint** | **Wood** | **White** | **1.06** |
| 24 | 5 | Southwest Bathroom | Paint | Wood | White | <LOD |
| **25** | **1** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **4.77** |
| **26** | **1** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **5** |
| 27 | 1 | Building Exterior | Paint | Wood | Brown | <LOD |
| **28** | **2** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.75** |
| **29** | **2** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **0.48** |
| **30** | **2** | **Exterior Doorframe** | **Paint** | **Wood** | **Brown** | **4.05** |
| **31** | **2** | **Bathroom** | **Paint** | **Wood** | **White** | **1.63** |
| **32** | **2** | **Bathroom** | **Paint** | **Wood** | **White** | **0.65** |
| **33** | **2** | **Kitchen** | **Paint** | **Wood** | **White** | **0.42** |
| **34** | **2** | **Building Exterior** | **Paint** | **Concrete** | **Red** | **0.1** |
| **35** | **2** | **Building Exterior** | **Paint** | **Concrete** | **Red** | **0.28** |
| **36** | **3** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **1.72** |
| 37 | 3 | Bathroom | Paint | Wood | Orange | <LOD |
| 38 | 3 | Bathroom | Paint | Wood | Orange | <LOD |
| 39 | 3 | Bathroom | Paint | Wood | Orange | <LOD |
| **40** | **3** | **Building Exterior** | **Paint** | **Concrete** | **Red** | **0.31** |
| **41** | **3** | **Building Exterior** | **Paint** | **Wood** | **Black** | **0.94** |
| **42** | **3** | **Building Exterior** | **Paint** | **Wood** | **Black** | **0.06** |
| **43** | **2** | **Building Exterior** | **Paint** | **Wood** | **Black** | **0.06** |
| **44** | **4** | **Building Exterior** | **Paint** | **Wood** | **Black** | **0.79** |

A Subsidiary of SoundEarth Strategies

**Table 2**
**Summary of XRF Results**
**Lake Forest Park - Lake Front Improvements**
**17345 and 17347 Beach Dr. NE**
**Lake Forest Park, Washington**
**EHSI Project No.: 11720**

| Reading No. | Building | Location | Component | Substrate | Color | Results ($mg/cm^2$) |
|---|---|---|---|---|---|---|
| **45** | **4** | **Exterior Doorframe** | **Paint** | **Wood** | **Black** | **1.75** |
| **46** | **4** | **Bathroom** | **Paint** | **Wood** | **White** | **0.01** |
| 47 | 4 | Bathroom | Paint | Wood | White | <LOD |
| 48 | 4 | Kitchen | Paint | Metal | Blue | <LOD |
| **49** | **4** | **Building Exterior** | **Paint** | **Wood** | **Brown** | **1.63** |
| **50** | **5** | **Building Exterior** | **Paint** | **Wood** | **Black** | **0.02** |
| 51 | 6 | Building Exterior | Paint | Wood | Black | <LOD |

NOTES:

All readings were collected on the Olympus Delta DC-2000 XRF Spectrum Analyzer. Results were collected on February 28, 2024

LOD: Limit of detection 0.01 $mg/cm^2$

GWB = gypsum wall board

$mg/cm^2$ = milligrams per square centimeter

**Table 3**
**Summary of PCB Light Ballasts, Mercury, and Other Regulated Materials Results**
**Lake Forest Park - Lake Front Improvements**
**17345 and 17347 Beach Dr. NE**
**Lake City Park, Washington**
**EHSI Project No.: 11720**

| Material Description | Quantity | Fixtures | Light Tubes/Bulbs | Magnetic Ballasts |
|---|---|---|---|---|
| **Building 8** | | | | |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 9** | | | | |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 7** | | | | |
| 2' x 8' light fixture with two 8' fluorescent light tubes | 1 | 1 | 2 | 1 |
| 2' x 4' light fixture with two 4' fluorescent light tube | 1 | 1 | 2 | 1 |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 6** | | | | |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 5** | | | | |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 4** | | | | |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 3** | | | | |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 2** | | | | |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |
| CFC-containing refrigerator | 1 | - | - | - |
| **Building 1** | | | | |
| 2' x 4' light fixture with two 4' fluorescent light tubes | 1 | 1 | 2 | 1 |
| 6" OD light fixture with one CFL lightbulb | 2 | 2 | 2 | 2 |

NOTES:

Magnetic ballasts are assumed to contain polychlorinated biphenyls (PCBs)

- = not applicable

CFL = compact flourescent lamp

CFC = chlorofluorocarbon

OD = outside diameter

# Appendix A

## AHERA Building Inspector Certifications

A Subsidiary of SoundEarth Strategies

# Certificate of Completion

This is to certify that

## Marcus Gladden

has satisfactorily completed
4 hours of online refresher training as an

### AHERA Building Inspector

to comply with the training requirements of

TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

190734
Certificate Number

Instructor: David Welch

Sep 14, 2023 Expires in 1 year.

Date(s) of Training

Exam Score: N/A
(if applicable)

Terracon
Explore with us

- Facilities
- Environmental
- Geotechnical
- Materials

# Certificate of Completion

This is to certify that

## Matthew Macfarlane

has satisfactorily completed
4 hours of online refresher training as an

## AHERA Building Inspector

to comply with the training requirements of

TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

190110
Certificate Number

Instructor: David Welch

Jul 13, 2023 Expires in 1 year.

Date(s) of Training

Exam Score: N/A
(if applicable)

Terracon
Explore with us

- Facilities
- Environmental
- Geotechnical
- Materials

# Certificate of Completion

This is to certify that

## Reese Myers

has satisfactorily completed
4 hours of online refresher training as an

### AHERA Building Inspector

to comply with the training requirements of

TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

190746
Certificate Number

Instructor: David Welch

Sep 14, 2023 Expires in 1 year.

Date(s) of Training

Exam Score: N/A
(if applicable)

Terracon
Explore with us

- Facilities
- Environmental
- Geotechnical
- Materials

# Certificate of Completion

This is to certify that

## Dimitri Lominadze

has satisfactorily completed
4 hours of online refresher training as an

## AHERA Building Inspector

to comply with the training requirements of

TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

189286
Certificate Number

Instructor: Tracy Bockla

May 8, 2023 Expires in 1 year.
Date(s) of Training

Exam Score: N/A
(if applicable)

Terracon
Explore with us

- Facilities
- Environmental
- Geotechnical
- Materials

# Appendix B

## Photographic Log

A Subsidiary of SoundEarth Strategies

Photo #1: **Samples 11720-05/05QA & 06: Beige joint compound (**on GWB.) **(3% Chrysotile)**
**Location: Building 8 Kitchen**

Photo #2: **Samples 11720-11/11QA & 12: White interior window glazing** (on 9'x11' metal frame window.) **(4% Chrysotile)**
**Location: Building 8 Living Room Interior**


Photo #3: **Samples 11720-24 &25:** 4"x4" cream ceramic tile with **gray grout** (on plaster.) **(4% Chrysotile)**
**Location: Building 8 Entryway Bathroom**


Photo #4: **Sample 11720-36 through 38 & 60/60QA & 61: TSI** (on 3" OD metal hot water piping). **(44% Chrysotile)**
**Location: Building 8 Crawl Space and East Garage Building**

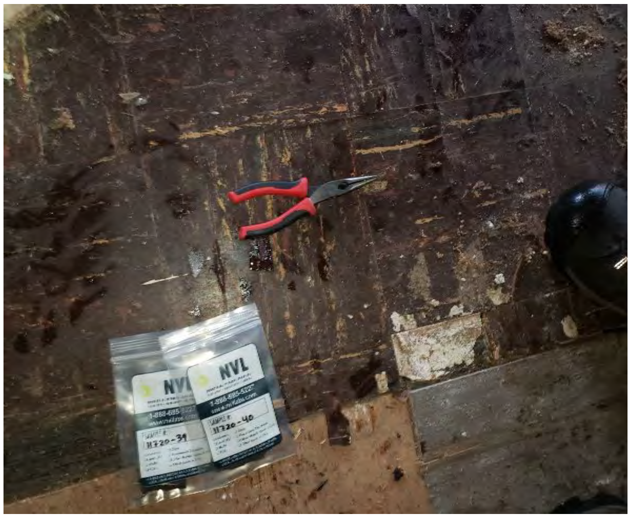


Photo #5: **Samples 11720-39 & 40: 9”x9” Brown VFT** on black mastic (on wood.) **(9% Chrysotile)**
**Location: Building 9 Main Floor**


Photo #6**: Samples 11720-44 & 45:** 2”x2” Olive ceramic tile on **yellow mastic** on black mastic and 4”x3” white ceramic tile with **yellow mastic** (on wood.) **(2% Chrysotile)**
**Location: Building 9 Shower Area**


Photo #7: **Samples 11720-48 & 49:** 12”x12” White and black VFT on **brown mastic** (on wood) **(46% Chrysotile)**
**Location: Building 9 Bathroom**

Photo #8: **Samples 11720-50 & 51:** 4”x4” White ceramic tile on gray grout on **brown mastic** (on wood paneling.) **(4% Chrysotile)**
**Location: Building 9 Bathroom**

Photo #9**: Samples 11720-62,63 & 64: Blue and white mudded elbows** (on 4" OD metal boiler piping.) **(12% Chrysotile, 5% Amosite)**
**Location: Building 7 Garage Area**

Photo #10**: Samples 11720-67, 68 & 69: TSI lining** (on boiler interior.) **(85% Chrysotile)**
**Location: Building 7 Garage Area**

Photo #11: **Samples 11720-70,71/71QA: 9"x9" Red VFT on black mastic** (on wood.) **(5% Chrysotile, <1% Chrysotile)**
**Location: Building 6 Living Room**

Photo #12: **Samples 11720-72 & 73: 9"x9" Black VFCT** on black mastic (on wood.) **(4% Chrysotile)**
**Location: Building 6 Bedroom**

EHS-International, Inc.

Photo #13: **Samples 11720-76 & 77:** Red external fireplace brick and gray internal fireplace brick on **ACM mortar. (4% Chrysotile)**
**Location: Building 6 Living Room**

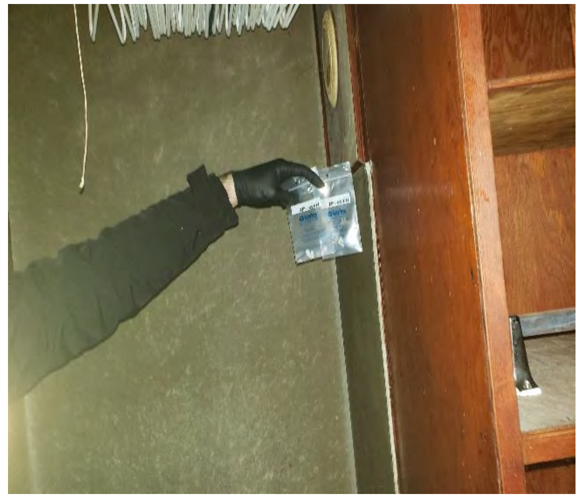

Photo #14**: Samples 11720-91 & 92: Dark gray cement board paneling** (on wood.) **(31% Chrysotile)**
**Location: Building 5 Bathroom Exterior**

Photo #15: **Assumed ACM vermiculite insulation.**
**Location: Building 6 Attic Space South**

Photo #16: **Assumed ACM cloth insulated electrical wiring.**
**Location: Throughout Buildings 2-9**

Photo #17: **Assumed ACM red and gray fireplace brick with mortar.**
**Location: Throughout Building 2-4**

# Appendix C

## Laboratory Analytical Reports

## and

## Chain-of-Custody Forms

March 6, 2024

INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

Marcus Gladden
EHS-International, Inc.
1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**RE: Bulk Asbestos Fiber Analysis; NVL Batch # 2403582.00**

Client Project: 11720
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Dear Mr. Gladden,

Enclosed please find test results for the 45 sample(s) submitted to our laboratory for analysis on 2/28/2024.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with **U. S. EPA 40 CFR Appendix E to Subpart E of Part 763**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116**, Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Testing

Lab Code: 102063-0

Enc.: Sample Results

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Lab ID: 24020927** **Client Sample #: 11720-ASB-01**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with white surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 53% | **None Detected ND** |

**Layer 2 of 2** **Description:** Thin tan soft mastic with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Fine particles, Debris | Cellulose <1% | **None Detected ND** |

---

**Lab ID: 24020928** **Client Sample #: 11720-ASB-02**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with white surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 55% | **None Detected ND** |

**Layer 2 of 2** **Description:** Trace tan soft mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Fine particles | Cellulose <1% | **None Detected ND** |

---

**Lab ID: 24020929** **Client Sample #: 11720-ASB-03**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown ceramic material with beige surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Ceramic/Binder, Fine grains, Fine particles | None Detected ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan brittle material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | None Detected ND | **None Detected ND** |
| Paint | | |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Lab ID: 24020930** **Client Sample #: 11720-ASB-04**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Layer 1 of 3** **Description:** Brown ceramic material with beige surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Fine grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | None Detected | ND | **None Detected ND** |

**Layer 3 of 3** **Description:** Gray crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Fine grains | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24020931** **Client Sample #: 11720-ASB-05**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Off-white compacted powdery material with paper

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Calcareous binder, Calcareous particles | Cellulose | 42% | **Chrysotile 3%** |

**Layer 2 of 2** **Description:** Thin white chalky material with paper

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Gypsum/Binder, Fine grains, Fine particles | Cellulose | 33% | **None Detected ND** |

---

**Lab ID: 24020932** **Client Sample #: 11720-ASB-06**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Off-white compacted powdery material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Calcareous binder, Calcareous particles, Paint | Cellulose | <1% | **Chrysotile 3%** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

---

**Layer 2 of 3** **Description:** Off-white compacted powdery material with paper

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Calcareous binder, Calcareous particles | Cellulose 41% | **Chrysotile 3%** |

**Layer 3 of 3** **Description:** White chalky material with paper

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Gypsum/Binder, Fine grains, Fine particles | Cellulose 27% | **None Detected ND** |

---

**Lab ID: 24020933** **Client Sample #: 11720-ASB-07**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Dark red brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Fine grains | None Detected ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Pale gray brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Cellulose <1% | **None Detected ND** |
| Mineral grains | | |

---

**Lab ID: 24020934** **Client Sample #: 11720-ASB-08**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Dark red brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Fine grains | None Detected ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Pale gray brittle material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Cellulose <1% | **None Detected ND** |
| Mineral grains, Debris | | |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Lab ID: 24020935** **Client Sample #: 11720-ASB-09**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

| Layer | Description | Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|---|---|
| Layer 1 of 2 | Thin red ceramic material | Ceramic/Binder, Fine particles, Fine grains | None Detected ND | **None Detected ND** |
| Layer 2 of 2 | Beige crumbly brittle material | Binder/Filler, Fine particles, Fine grains | None Detected ND | **None Detected ND** |

**Lab ID: 24020936** **Client Sample #: 11720-ASB-10**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

| Layer | Description | Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|---|---|
| Layer 1 of 2 | Thin red ceramic material | Ceramic/Binder, Fine particles, Fine grains | None Detected ND | **None Detected ND** |
| Layer 2 of 2 | Beige crumbly brittle material | Binder/Filler, Fine particles, Fine grains | Cellulose <1% | **None Detected ND** |

**Lab ID: 24020937** **Client Sample #: 11720-ASB-11**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Wet sample was dried prior to analysis.

| Layer | Description | Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|---|---|
| Layer 1 of 1 | Loose gray crumbly brittle material with debris | Binder/Filler, Fine particles, Fine grains<br>Mineral grains, Debris | Cellulose <1% | **Chrysotile 2%** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24020938** **Client Sample #: 11720-ASB-12**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Wet sample was dried prior to analysis.
**Layer 1 of 1** **Description:** Loose gray crumbly brittle material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Fine grains Mineral grains, Debris | None Detected | ND | **Chrysotile 3%** |

**Lab ID: 24020939** **Client Sample #: 11720-ASB-13**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Gray rubbery material with black and red soft coating

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Paint | None Detected | ND | **None Detected ND** |

**Lab ID: 24020940** **Client Sample #: 11720-ASB-14**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Gray rubbery material with thin black and red soft coating

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Paint | Cellulose | <1% | **None Detected ND** |

**Lab ID: 24020941** **Client Sample #: 11720-ASB-15**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Brown and green fibrous material with brown mastic and wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Mastic/Binder Wood flakes | Cellulose | 79% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24020942** **Client Sample #: 11720-ASB-16**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Beige crumbly vinyl material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Fine particles, Fine grains | Cellulose 27% | **None Detected ND** |

**Layer 2 of 2** **Description:** Brown and green fibrous backing

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 75% | **None Detected ND** |

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**Lab ID: 24020943** **Client Sample #: 11720-ASB-17**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** White compacted powdery material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Calcareous binder, Calcareous particles, Paint | None Detected ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan crumbly material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Mineral grains Paint | None Detected ND | **None Detected ND** |

**Layer 3 of 3** **Description:** Off-white sandy material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Sand | Cellulose 1% | **None Detected ND** |

---

**Lab ID: 24020944** **Client Sample #: 11720-ASB-18**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** White compacted powdery material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Calcareous binder, Calcareous particles, Paint | None Detected ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 2 of 3** **Description:** Tan crumbly material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | None Detected | ND | **None Detected ND** |
| Paint | | | |

**Layer 3 of 3** **Description:** Off-white sandy material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Sand | Cellulose | 2% | **None Detected ND** |

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**Lab ID: 24020945** **Client Sample #: 11720-ASB-19**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** White compacted powdery material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Calcareous binder, Calcareous particles, Paint | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan crumbly material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | Cellulose | <1% | **None Detected ND** |
| Paint | | | |

**Layer 3 of 3** **Description:** Off-white sandy material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Sand | Cellulose | 3% | **None Detected ND** |

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**Lab ID: 24020946** **Client Sample #: 11720-ASB-20**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** White compacted powdery material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Calcareous binder, Calcareous particles, Paint | None Detected | ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

**Layer 2 of 3** **Description:** Tan crumbly material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | None Detected | ND | **None Detected ND** |
| Paint | | | |

**Layer 3 of 3** **Description:** Off-white sandy material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Sand | Cellulose | 1% | **None Detected ND** |

**Lab ID: 24020947** **Client Sample #: 11720-ASB-21**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** White compacted powdery material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Calcareous binder, Calcareous particles, Paint | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan crumbly material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | None Detected | ND | **None Detected ND** |
| Paint | | | |

**Layer 3 of 3** **Description:** Off-white sandy material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Fine particles, Sand | Cellulose | 2% | **None Detected ND** |
| Debris | Spider silk | <1% | |

**Lab ID: 24020948** **Client Sample #: 11720-ASB-22**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Layer 1 of 2** **Description:** White ceramic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected | ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Gray speckled ceramic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24020949** **Client Sample #: 11720-ASB-23**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Gray speckled ceramic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected | ND | **None Detected ND** |

**Layer 2 of 2** **Description:** White crumbly brittle material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | Cellulose | <1% | **None Detected ND** |
| Debris | | | |

---

**Lab ID: 24020950** **Client Sample #: 11720-ASB-24**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Unsure of correct layer sequence.

**Layer 1 of 3** **Description:** Off-white ceramic material with off-white surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Off-white crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Talc fibers | 4% | **Chrysotile 3%** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 3 of 3** **Description:** Off-white rubbery material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Rubber/Binder, Fine particles, Debris | Cellulose <1% | **None Detected ND** |

---

**Lab ID: 24020951** **Client Sample #: 11720-ASB-25**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Unsure of correct layer sequence.

**Layer 1 of 3** **Description:** Off-white ceramic material with off-white surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Off-white crumbly material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Talc fibers 4% | **Chrysotile 4%** |
| Debris | Spider silk <1% | |

**Layer 3 of 3** **Description:** Off-white/beige rubbery material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Rubber/Binder, Fine particles, Debris | Cellulose <1% | **None Detected ND** |

---

**Lab ID: 24020952** **Client Sample #: 11720-ASB-26**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic material with thin black asphaltic mastic and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 60% | **None Detected ND** |

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**Lab ID: 24020953** **Client Sample #: 11720-ASB-27**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention:** **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Layer 1 of 1** **Description:** Black asphaltic material with thin black asphaltic mastic and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 63% | **None Detected ND** |

**Lab ID: 24020954** **Client Sample #: 11720-ASB-28**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Black asphaltic fibrous material with black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles | Cellulose 57% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan loose fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 87% | **None Detected ND** |

**Lab ID: 24020955** **Client Sample #: 11720-ASB-29**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Black asphaltic fibrous material with black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles | Cellulose 55% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan loose fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 86% | **None Detected ND** |

**Lab ID: 24020956** **Client Sample #: 11720-ASB-30**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material with granules and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Granules | Cellulose 31% | **None Detected ND** |
| Debris | Spider silk <1% | |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Lab ID: 24020957** **Client Sample #: 11720-ASB-31**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material with granules and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Granules Debris | Cellulose 29% | **None Detected ND** |

---

**Lab ID: 24020958** **Client Sample #: 11720-ASB-32**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Beige vinyl material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Fine particles, Fine grains | Cellulose 21% | **None Detected ND** |

**Layer 2 of 2** **Description:** Brown fibrous backing

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 78% | **None Detected ND** |

---

**Lab ID: 24020959** **Client Sample #: 11720-ASB-33**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Unsure of correct layer sequence.

**Layer 1 of 3** **Description:** Brown ceramic material with white surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected ND | **None Detected ND** |

**Layer 2 of 3** **Description:** White crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Mineral grains | None Detected ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention:** **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Layer 3 of 3** **Description:** Black crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 3% | **None Detected ND** |

---

**Lab ID: 24020960** **Client Sample #: 11720-ASB-34**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Tan fibrous material with black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Asphalt/Binder, Asphaltic Particles | Cellulose 77% | **None Detected ND** |

---

**Lab ID: 24020961** **Client Sample #: 11720-ASB-35**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Tan fibrous material with black asphaltic mastic with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Asphalt/Binder, Asphaltic Particles | Cellulose 74% | **None Detected ND** |
| Wood flakes | | |

---

**Lab ID: 24020962** **Client Sample #: 11720-ASB-36**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Layer 1 of 3** **Description:** Off-white fibrous mesh with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Debris | Cellulose 73% | **None Detected ND** |

**Layer 2 of 3** **Description:** Black asphaltic fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 53% | **None Detected ND** |

---

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 3 of 3** **Description:** Gray layered fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 70% | **Chrysotile 8%** |

---

**Lab ID: 24020963** **Client Sample #: 11720-ASB-37**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Layer 1 of 3** **Description:** Off-white fibrous mesh with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Organic debris | Cellulose 74% | **None Detected ND** |

**Layer 2 of 3** **Description:** Black asphaltic fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 53% | **None Detected ND** |

**Layer 3 of 3** **Description:** Gray layered fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 68% | **Chrysotile 9%** |

---

**Lab ID: 24020964** **Client Sample #: 11720-ASB-38**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Layer 1 of 3** **Description:** Off-white fibrous mesh with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Organic debris | Cellulose 75% | **None Detected ND** |

**Layer 2 of 3** **Description:** Black asphaltic fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 54% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. 

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Layer 3 of 3** **Description:** Gray layered fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles | Cellulose 71% | Chrysotile 8% |

**Lab ID: 24020965** **Client Sample #: 11720-ASB-39**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Dark red vinyl tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Fine grains, Fine particles | None Detected ND | Chrysotile 9% |

**Layer 2 of 2** **Description:** Black asphaltic mastic with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Wood flakes | Cellulose <1% | None Detected ND |

**Lab ID: 24020966** **Client Sample #: 11720-ASB-40**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Dark red vinyl tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Fine grains, Fine particles | None Detected ND | Chrysotile 8% |

**Layer 2 of 2** **Description:** Black asphaltic mastic with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Wood flakes | Cellulose 1% | None Detected ND |

**Lab ID: 24020967** **Client Sample #: 11720-ASB-41**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Off-white patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Synthetic foam | None Detected ND | None Detected ND |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 2 of 3** **Description:** Beige fibrous backing with off-white mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Mastic/Binder | Cellulose | 60% | **None Detected ND** |
| | Glass fibers | 15% | |

**Layer 3 of 3** **Description:** Dark red vinyl tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Fine grains, Fine particles | None Detected | ND | **Chrysotile 6%** |

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**Lab ID: 24020968** **Client Sample #: 11720-ASB-42**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Off-white patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Beige fibrous backing with off-white mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Mastic/Binder | Cellulose | 64% | **None Detected ND** |
| | Glass fibers | 13% | |

**Layer 3 of 3** **Description:** Thin dark red vinyl tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Fine grains, Fine particles | None Detected | ND | **Chrysotile 5%** |

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**Lab ID: 24020969** **Client Sample #: 11720-ASB-43**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Off-white crumbly material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Cellulose | 3% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Debris

**Layer 2 of 2** **Description:** Trace black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles | Cellulose <1% | **None Detected ND** |

**Lab ID: 24020970** **Client Sample #: 11720-ASB-44**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Layer 1 of 6** **Description:** Off-white ceramic tile with beige surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected ND | **None Detected ND** |

**Layer 2 of 6** **Description:** Yellow brittle mastic with white fibrous mesh and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Mastic/Binder, Fine particles, Debris | Synthetic fibers 15% | **Chrysotile 2%** |
| | Wollastonite 1% | |

**Layer 3 of 6** **Description:** Black crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Cellulose <1% | **None Detected ND** |

**Layer 4 of 6** **Description:** Beige ceramic tile with brown surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected ND | **None Detected ND** |

**Layer 5 of 6** **Description:** Yellow brittle mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Mastic/Binder, Fine particles | Cellulose <1% | **Chrysotile 2%** |

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403582.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Layer 6 of 6** **Description:** Thin gray brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Cellulose | <1% | **None Detected ND** |

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**Lab ID: 24020971** **Client Sample #: 11720-ASB-45**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Layer 1 of 5** **Description:** Off-white ceramic tile with beige surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected | ND | **None Detected ND** |

**Layer 2 of 5** **Description:** Yellow brittle mastic with white fibrous mesh and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Mastic/Binder, Fine particles, Debris | Synthetic fibers | 17% | **Chrysotile 2%** |
| | Wollastonite | 2% | |

**Layer 3 of 5** **Description:** Black crumbly material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Fine particles, Fine grains | Cellulose | <1% | **None Detected ND** |
| Debris | | | |

**Layer 4 of 5** **Description:** Beige ceramic tile with brown surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Fine particles, Fine grains | None Detected | ND | **None Detected ND** |

**Layer 5 of 5** **Description:** Yellow brittle mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Mastic/Binder, Fine particles | Wollastonite | 2% | **Chrysotile 2%** |

**Sampled by:** Client
**Analyzed by:** Hilary Crumley **Date:** 03/06/2024
**Reviewed by:** Kunga Woser **Date:** 03/06/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# ASBESTOS LABORATORY SERVICES

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403582.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk

**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 1 | 24020927 | 11720-ASB-01 | | A |
| 2 | 24020928 | 11720-ASB-02 | | A |
| 3 | 24020929 | 11720-ASB-03 | | A |
| 4 | 24020930 | 11720-ASB-04 | | A |
| 5 | 24020931 | 11720-ASB-05 | | A |
| 6 | 24020932 | 11720-ASB-06 | | A |
| 7 | 24020933 | 11720-ASB-07 | | A |
| 8 | 24020934 | 11720-ASB-08 | | A |
| 9 | 24020935 | 11720-ASB-09 | | A |
| 10 | 24020936 | 11720-ASB-10 | | A |
| 11 | 24020937 | 11720-ASB-11 | | A |
| 12 | 24020938 | 11720-ASB-12 | | A |
| 13 | 24020939 | 11720-ASB-13 | | A |
| 14 | 24020940 | 11720-ASB-14 | | A |
| 15 | 24020941 | 11720-ASB-15 | | A |
| 16 | 24020942 | 11720-ASB-16 | | A |
| 17 | 24020943 | 11720-ASB-17 | | A |
| 18 | 24020944 | 11720-ASB-18 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hilary Crumley | | NVL | 3/6/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:00 PM
Entered By: Kelly AuVu

# ASBESTOS LABORATORY SERVICES

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403582.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk

**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 19 | 24020945 | 11720-ASB-19 | | A |
| 20 | 24020946 | 11720-ASB-20 | | A |
| 21 | 24020947 | 11720-ASB-21 | | A |
| 22 | 24020948 | 11720-ASB-22 | | A |
| 23 | 24020949 | 11720-ASB-23 | | A |
| 24 | 24020950 | 11720-ASB-24 | | A |
| 25 | 24020951 | 11720-ASB-25 | | A |
| 26 | 24020952 | 11720-ASB-26 | | A |
| 27 | 24020953 | 11720-ASB-27 | | A |
| 28 | 24020954 | 11720-ASB-28 | | A |
| 29 | 24020955 | 11720-ASB-29 | | A |
| 30 | 24020956 | 11720-ASB-30 | | A |
| 31 | 24020957 | 11720-ASB-31 | | A |
| 32 | 24020958 | 11720-ASB-32 | | A |
| 33 | 24020959 | 11720-ASB-33 | | A |
| 34 | 24020960 | 11720-ASB-34 | | A |
| 35 | 24020961 | 11720-ASB-35 | | A |
| 36 | 24020962 | 11720-ASB-36 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hilary Crumley | | NVL | 3/6/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:00 PM
Entered By: Kelly AuVu

# ASBESTOS LABORATORY SERVICES

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403582.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk

**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 37 | 24020963 | 11720-ASB-37 | | A |
| 38 | 24020964 | 11720-ASB-38 | | A |
| 39 | 24020965 | 11720-ASB-39 | | A |
| 40 | 24020966 | 11720-ASB-40 | | A |
| 41 | 24020967 | 11720-ASB-41 | | A |
| 42 | 24020968 | 11720-ASB-42 | | A |
| 43 | 24020969 | 11720-ASB-43 | | A |
| 44 | 24020970 | 11720-ASB-44 | | A |
| 45 | 24020971 | 11720-ASB-45 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hilary Crumley | | NVL | 3/6/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:00 PM
Entered By: Kelly AuVu

2403582

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

# ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ❑ 1 Hour ❑ 24 Hours ❑ 4 Days
- ❑ 2 Hours ❑ 2 Days ☒ 5 Days
- ❑ 4 Hours ❑ 3 Days ❑ 10 Days

Please call for TAT less than 24 Hours

Company: EHS International
Address: 1011 SW Klickatat Way #104
Seattle, WA, 98134
Phone: 206-381-1128

Project Manager: Marcus Gladden
Cell: (206) 819 - 4213
Email: marcusg@ehsintl.com
Fax: ( ) -

Project Name/Number: 11720
Project Location: 17345, 17347 BEACH DRIVE NE LAKE FOREST PARK, WA

- ❑ PCM Air (NIOSH 7400)
- ❑ TEM (NIOSH 7402)
- ❑ TEM (AHERA)
- ❑ TEM (EPA Level II Modified)
- ☒ PLM (EPA 600/R-93-116)
- ❑ EPA 400 Points (600/R-93-116)
- ❑ EPA 1000Points (600/R-93-116)
- ❑ PLM Gravimetry (600/R-93-116)
- ❑ Asbestos in Vermiculite (EPA 600/R-04/004)
- ❑ Asbestos in Sediment (EPA 1900 Points)
- ❑ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ❑ Other

Reporting Instructions: email to marcusg@ehsintl.com, REESEM@EHSINTL.COM
❑ Call ( ) - ❑ Fax ( ) - ☒ Email

**Total Number of Samples** 135

| | Sample ID | Description | A/R |
|---|---|---|---|
| 1 | 11720-ASB-01 | | |
| 2 | 11720-ASB-02 | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | 11720-ASB-135 | | |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| Sampled by | Marcus Gladden | Marcus Gladden | EHSI | 2/28/24 | 8:00 |
| Relinquish by | Marcus Gladden | Marcus Gladden | EHSI | 2/28/24 | 15:30 |

**Office Use Only**

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| Received by | Rachelle Miller | [signature] | NVL | 2/28/24 | 1540 |
| Analyzed by | | | | | |
| Called by | | | | | |
| Faxed/Email by | | | | | |

March 4, 2024

INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

Marcus Gladden
EHS-International, Inc.
1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**RE: Bulk Asbestos Fiber Analysis; NVL Batch # 2403583.00**

Client Project: 11720
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Dear Mr. Gladden,

Enclosed please find test results for the 45 sample(s) submitted to our laboratory for analysis on 2/28/2024.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with **U. S. EPA 40 CFR Appendix E to Subpart E of Part 763**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116**, Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Testing
Lab Code: 102063-0

Enc.: Sample Results

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24020972** **Client Sample #: 11720-ASB-46**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 71% | **None Detected ND** |

**Lab ID: 24020973** **Client Sample #: 11720-ASB-47**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 73% | **None Detected ND** |

**Lab ID: 24020974** **Client Sample #: 11720-ASB-48**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 4** **Description:** White vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Layer 2 of 4** **Description:** Clear adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Layer 3 of 4** **Description:** Tan patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected ND | **None Detected ND** |

**Layer 4 of 4** **Description:** Gray fibrous backing with mastic and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Mastic, Debris | Cellulose 27% | **Chrysotile 46%** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24020975** **Client Sample #: 11720-ASB-49**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 4** **Description:** White vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 2 of 4** **Description:** Clear adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 3 of 4** **Description:** Tan patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected | ND | **None Detected ND** |

**Layer 4 of 4** **Description:** Gray fibrous backing with mastic and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mastic, Debris | Cellulose | 23% | **Chrysotile 41%** |

---

**Lab ID: 24020976** **Client Sample #: 11720-ASB-50**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** White brittle tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan mastic with paint and wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Mastic/Binder, Paint, Debris | Wollastonite | 2% | **Chrysotile 3%** |

---

**Lab ID: 24020977** **Client Sample #: 11720-ASB-51**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Layer 1 of 2** **Description:** White brittle tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan mastic with paint and wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Mastic/Binder, Paint, Debris | Wollastonite | 3% | **Chrysotile 4%** |

---

**Lab ID: 24020978** **Client Sample #: 11720-ASB-52**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** White chalky material with paper and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Gypsum/Binder, Binder/Filler, Debris | Cellulose | 35% | **None Detected ND** |

---

**Lab ID: 24020979** **Client Sample #: 11720-ASB-53**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** White chalky material with paper and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Gypsum/Binder, Binder/Filler, Debris | Cellulose | 32% | **None Detected ND** |

---

**Lab ID: 24020980** **Client Sample #: 11720-ASB-54**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Black asphaltic material with granules

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Granules | Glass fibers | 22% | **None Detected ND** |

**Layer 2 of 3** **Description:** Black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected | ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

**Layer 3 of 3** **Description:** Black asphaltic material with plastic and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Plastic | Spider silk | 4% | **None Detected ND** |
| Insect parts, Debris | Cellulose | 2% | |

**Lab ID: 24020981** **Client Sample #: 11720-ASB-55**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Black asphaltic material with granules

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Granules | Glass fibers | 26% | **None Detected ND** |

**Layer 2 of 3** **Description:** Black asphaltic mastic with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Spider silk | 7% | **None Detected ND** |
| Insect parts, Fine particles | Cellulose | 3% | |

**Layer 3 of 3** **Description:** Black asphaltic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected | ND | **None Detected ND** |

**Lab ID: 24020982** **Client Sample #: 11720-ASB-56**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Red brittle material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 2 of 2** **Description:** White crumbly material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention:** **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24020983** **Client Sample #: 11720-ASB-57**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Red brittle material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | Spider silk | 4% | **None Detected ND** |

**Layer 2 of 2** **Description:** White crumbly material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24020984** **Client Sample #: 11720-ASB-58**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Gray crumbly material with coating and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Synthetic/Binder, Debris, Fine particles | Synthetic fibers | 4% | **None Detected ND** |
| | Organic fibers | 3% | |

---

**Lab ID: 24020985** **Client Sample #: 11720-ASB-59**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Gray crumbly material with coating and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Synthetic/Binder, Debris, Fine particles | Synthetic fibers | 2% | **None Detected ND** |
| | Organic fibers | <1% | |

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**Lab ID: 24020986** **Client Sample #: 11720-ASB-60**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Layer 1 of 3** **Description:** Tan woven fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 66% | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan compressed fibrous material with clear coating

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 87% | **None Detected ND** |

**Layer 3 of 3** **Description:** Gray fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 30% | **Chrysotile 41%** |

---

**Lab ID: 24020987** **Client Sample #: 11720-ASB-61**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Tan woven fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 68% | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan compressed fibrous material with clear coating

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 85% | **None Detected ND** |

**Layer 3 of 3** **Description:** Gray fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 32% | **Chrysotile 44%** |

---

**Lab ID: 24020988** **Client Sample #: 11720-ASB-62**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** White woven fibrous mesh with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Paint, Fine particles | Cellulose 27% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 2 of 2** **Description:** White crumbly fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | Chrysotile 9% |
| | | Amosite 4% |

---

**Lab ID: 24020989** **Client Sample #: 11720-ASB-63**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** White woven fibrous mesh with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Paint, Fine particles | Cellulose 31% | None Detected ND |

**Layer 2 of 2** **Description:** White crumbly fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | Chrysotile 7% |
| | | Amosite 3% |

---

**Lab ID: 24020990** **Client Sample #: 11720-ASB-64**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** White woven fibrous mesh with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Paint, Fine particles | Cellulose 28% | None Detected ND |

**Layer 2 of 2** **Description:** White crumbly fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | Chrysotile 12% |
| | | Amosite 5% |

---

**Lab ID: 24020991** **Client Sample #: 11720-ASB-65**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Layer 1 of 1** **Description:** White chalky material with paper and paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Gypsum/Binder, Paint, Fine grains | Cellulose 37% | **None Detected ND** |

---

**Lab ID: 24020992** **Client Sample #: 11720-ASB-66**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** White chalky material with paper and paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Gypsum/Binder, Paint, Fine grains | Cellulose 34% | **None Detected ND** |

---

**Lab ID: 24020993** **Client Sample #: 11720-ASB-67**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Gray fibrous material with coating and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | **Chrysotile 82%** |

---

**Lab ID: 24020994** **Client Sample #: 11720-ASB-68**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Gray fibrous material with coating and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | **Chrysotile 85%** |

---

**Lab ID: 24020995** **Client Sample #: 11720-ASB-69**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Gray fibrous material with coating and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | **Chrysotile 79%** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24020996** **Client Sample #: 11720-ASB-70**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Possible contamination of Layer 2 by Layer 1. Insufficient mastic remaining for further analysis.

**Layer 1 of 2** **Description:** Red vinyl tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected | ND | **Chrysotile 4%** |

**Layer 2 of 2** **Description:** Trace black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected | ND | **Chrysotile <1%** |

---

**Lab ID: 24020997** **Client Sample #: 11720-ASB-71**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Possible contamination of Layer 2 by Layer 1. Insufficient mastic remaining for further analysis.

**Layer 1 of 2** **Description:** Red vinyl tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected | ND | **Chrysotile 5%** |

**Layer 2 of 2** **Description:** Trace black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected | ND | **Chrysotile <1%** |

---

**Lab ID: 24020998** **Client Sample #: 11720-ASB-72**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected | ND | **Chrysotile 3%** |

---

**Lab ID: 24020999** **Client Sample #: 11720-ASB-73**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

ASB-02

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

---

**Layer 1 of 1** **Description:** Black asphaltic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected | ND | **Chrysotile 4%** |

---

**Lab ID: 24021000** **Client Sample #: 11720-ASB-74**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Off-white sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | Glass fibers | 8% | **None Detected ND** |

**Layer 2 of 2** **Description:** Gray crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24021001** **Client Sample #: 11720-ASB-75**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Off-white sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | Glass fibers | 9% | **None Detected ND** |

**Layer 2 of 2** **Description:** Gray crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24021002** **Client Sample #: 11720-ASB-76**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Unsure of correct layer sequence.

**Layer 1 of 5** **Description:** Gray crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected | ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Layer 2 of 5** **Description:** Off-white crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected | ND | **Chrysotile 4%** |

**Layer 3 of 5** **Description:** Gray brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 4 of 5** **Description:** White sandy material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Calcareous binder, Mineral grains, Sand | None Detected | ND | **None Detected ND** |

**Layer 5 of 5** **Description:** Red brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24021003** **Client Sample #: 11720-ASB-77**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Unsure of correct layer sequence.

**Layer 1 of 5** **Description:** Gray crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 2 of 5** **Description:** Off-white crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected | ND | **Chrysotile 3%** |

**Layer 3 of 5** **Description:** Gray brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 4 of 5** **Description:** White sandy material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Calcareous binder, Mineral grains, Sand | None Detected | ND | **None Detected ND** |

**Layer 5 of 5** **Description:** Red brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

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**Lab ID: 24021004** **Client Sample #: 11720-ASB-78**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** White crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose | 5% | **None Detected ND** |

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**Lab ID: 24021005** **Client Sample #: 11720-ASB-79**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose | 78% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24021006** **Client Sample #: 11720-ASB-80**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose | 81% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 2 of 3** **Description:** Tan adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 3 of 3** **Description:** White soft material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Synthetic/Binder, Debris, Fine particles | Cellulose | 2% | **None Detected ND** |
| | Organic fibers | <1% | |

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**Lab ID: 24021007** **Client Sample #: 11720-ASB-81**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Off-white crumbly material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Insect parts, Debris | Cellulose | 7% | **None Detected ND** |
| Fine particles, Organic debris | Spider silk | 4% | |
| | Organic fibers | 2% | |

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**Lab ID: 24021008** **Client Sample #: 11720-ASB-82**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Off-white crumbly material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Insect parts, Debris | Cellulose | 5% | **None Detected ND** |
| Fine particles, Organic debris | Spider silk | 3% | |
| | Organic fibers | <1% | |

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**Lab ID: 24021009** **Client Sample #: 11720-ASB-83**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. 

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Layer 1 of 1** **Description:** White crumbly material with paint and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Paint, Debris | Mineral fibers | 2% | **None Detected ND** |

---

**Lab ID: 24021010** **Client Sample #: 11720-ASB-84**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** White crumbly material with paint and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Paint, Debris | Mineral fibers | 3% | **None Detected ND** |

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**Lab ID: 24021011** **Client Sample #: 11720-ASB-85**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Brown ceramic tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 3 of 3** **Description:** White crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

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**Lab ID: 24021012** **Client Sample #: 11720-ASB-86**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Brown ceramic tile

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Ceramic/Binder, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

**Layer 2 of 3** **Description:** Tan brittle material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 3 of 3** **Description:** White crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mineral grains, Fine particles | None Detected | ND | **None Detected ND** |

**Lab ID: 24021013** **Client Sample #: 11720-ASB-87**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Unsure of correct layer sequence.

**Layer 1 of 8** **Description:** White sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected | ND | **None Detected ND** |

**Layer 2 of 8** **Description:** Off-white fibrous backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Debris | Cellulose | 46% | **None Detected ND** |
| | Glass fibers | 22% | |

**Layer 3 of 8** **Description:** Tan sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

**Layer 4 of 8** **Description:** Black asphaltic fibrous backing

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose | 85% | **None Detected ND** |

**Layer 5 of 8** **Description:** White crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected | ND | **None Detected ND** |

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 6 of 8** **Description:** Silver flaky material

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Layer 7 of 8** **Description:** Beige vinyl with fibrous mesh

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | Cellulose 23% | **None Detected ND** |

**Layer 8 of 8** **Description:** Tan fibrous backing

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 90% | **None Detected ND** |

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**Lab ID: 24021014** **Client Sample #: 11720-ASB-88**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 8** **Description:** White sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected ND | **None Detected ND** |

**Layer 2 of 8** **Description:** Off-white fibrous backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Mastic/Binder, Debris | Cellulose 42% | **None Detected ND** |
| | Glass fibers 29% | |

**Layer 3 of 8** **Description:** Tan sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Layer 4 of 8** **Description:** Black asphaltic fibrous backing

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 82% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

**Layer 5 of 8** **Description:** White crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Layer 6 of 8** **Description:** Silver flaky material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Layer 7 of 8** **Description:** Beige vinyl with fibrous mesh

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | Cellulose 26% | **None Detected ND** |

**Layer 8 of 8** **Description:** Tan fibrous backing

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 88% | **None Detected ND** |

**Lab ID: 24021015** **Client Sample #: 11720-ASB-89**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 82% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Lab ID: 24021016** **Client Sample #: 11720-ASB-90**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 85% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403583.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Layer 2 of 2** **Description:** Tan adhesive with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | Cellulose 16% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/01/2024
**Reviewed by:** Kunga Woser **Date:** 03/04/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# ASBESTOS LABORATORY SERVICES

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403583.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk

**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 1 | 24020972 | 11720-ASB-46 | | A |
| 2 | 24020973 | 11720-ASB-47 | | A |
| 3 | 24020974 | 11720-ASB-48 | | A |
| 4 | 24020975 | 11720-ASB-49 | | A |
| 5 | 24020976 | 11720-ASB-50 | | A |
| 6 | 24020977 | 11720-ASB-51 | | A |
| 7 | 24020978 | 11720-ASB-52 | | A |
| 8 | 24020979 | 11720-ASB-53 | | A |
| 9 | 24020980 | 11720-ASB-54 | | A |
| 10 | 24020981 | 11720-ASB-55 | | A |
| 11 | 24020982 | 11720-ASB-56 | | A |
| 12 | 24020983 | 11720-ASB-57 | | A |
| 13 | 24020984 | 11720-ASB-58 | | A |
| 14 | 24020985 | 11720-ASB-59 | | A |
| 15 | 24020986 | 11720-ASB-60 | | A |
| 16 | 24020987 | 11720-ASB-61 | | A |
| 17 | 24020988 | 11720-ASB-62 | | A |
| 18 | 24020989 | 11720-ASB-63 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hieu Ta | | NVL | 3/1/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:01 PM
Entered By: Kelly AuVu

# ASBESTOS LABORATORY SERVICES

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403583.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk
**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 19 | 24020990 | 11720-ASB-64 | | A |
| 20 | 24020991 | 11720-ASB-65 | | A |
| 21 | 24020992 | 11720-ASB-66 | | A |
| 22 | 24020993 | 11720-ASB-67 | | A |
| 23 | 24020994 | 11720-ASB-68 | | A |
| 24 | 24020995 | 11720-ASB-69 | | A |
| 25 | 24020996 | 11720-ASB-70 | | A |
| 26 | 24020997 | 11720-ASB-71 | | A |
| 27 | 24020998 | 11720-ASB-72 | | A |
| 28 | 24020999 | 11720-ASB-73 | | A |
| 29 | 24021000 | 11720-ASB-74 | | A |
| 30 | 24021001 | 11720-ASB-75 | | A |
| 31 | 24021002 | 11720-ASB-76 | | A |
| 32 | 24021003 | 11720-ASB-77 | | A |
| 33 | 24021004 | 11720-ASB-78 | | A |
| 34 | 24021005 | 11720-ASB-79 | | A |
| 35 | 24021006 | 11720-ASB-80 | | A |
| 36 | 24021007 | 11720-ASB-81 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hieu Ta | | NVL | 3/1/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:01 PM
Entered By: Kelly AuVu

## ASBESTOS LABORATORY SERVICES

NVL

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403583.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk

**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 37 | 24021008 | 11720-ASB-82 | | A |
| 38 | 24021009 | 11720-ASB-83 | | A |
| 39 | 24021010 | 11720-ASB-84 | | A |
| 40 | 24021011 | 11720-ASB-85 | | A |
| 41 | 24021012 | 11720-ASB-86 | | A |
| 42 | 24021013 | 11720-ASB-87 | | A |
| 43 | 24021014 | 11720-ASB-88 | | A |
| 44 | 24021015 | 11720-ASB-89 | | A |
| 45 | 24021016 | 11720-ASB-90 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hieu Ta | | NVL | 3/1/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:01 PM
Entered By: Kelly AuVu

2403583

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

# ASBESTOS CHAIN OF CUSTODY

Turn Around Time
❑ 1 Hour ❑ 24 Hours ❑ 4 Days
❑ 2 Hours ❑ 2 Days ☒ 5 Days
❑ 4 Hours ❑ 3 Days ❑ 10 Days
Please call for TAT less than 24 Hours

Company: EHS International
Address: 1011 SW Klickatat Way #104
Seattle, WA, 98134
Phone: 206-381-1128

Project Manager: Marcus Gladden
Cell: (206) 819 - 4213
Email: marcusg@ehsintl.com
Fax: ( ) -

Project Name/Number: 11720
Project Location: 17345, 17347 BEACH DRIVE NE LAKE FOREST PARK, WA

❑ PCM Air (NIOSH 7400) ❑ TEM (NIOSH 7402) ❑ TEM (AHERA) ❑ TEM (EPA Level II Modified)
☒ PLM (EPA 600/R-93-116) ❑ EPA 400 Points (600/R-93-116) ❑ EPA 1000Points (600/R-93-116)
❑ PLM Gravimetry (600/R-93-116) ❑ Asbestos in Vermiculite (EPA 600/R-04/004) ❑ Asbestos in Sediment (EPA 1900 Points)
❑ Asbestos Friable/Non-Friable (EPA 600/R-93/116) ❑ Other

Reporting Instructions: email to marcusg@ehsintl.com, REESEM@EHSINTL.COM
❑ Call ( ) - ❑ Fax ( ) - ☒ Email

**Total Number of Samples** 135

| | Sample ID | Description | A/R |
|---|---|---|---|
| 1 | 11720-ASB-01 | | |
| 2 | 11720-ASB-02 | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | 11720-ASB-135 | | |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| Sampled by | Marcus Gladden | Marcus Gladden | EHSI | 2/28/24 | 8:00 |
| Relinquish by | Marcus Gladden | Marcus Gladden | EHSI | | 15:30 |

**Office Use Only**

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| Received by | Rochelle Miller | [signature] | NVL | 2/28/24 | 1540 |
| Analyzed by | | | | | |
| Called by | | | | | |
| Faxed/Email by | | | | | |

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

March 5, 2024

Marcus Gladden
EHS-International, Inc.
1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**RE: Bulk Asbestos Fiber Analysis; NVL Batch # 2403584.00**

Client Project: 11720
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Dear Mr. Gladden,

Enclosed please find test results for the 45 sample(s) submitted to our laboratory for analysis on 2/28/2024.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with **U. S. EPA 40 CFR Appendix E to Subpart E of Part 763**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116**, Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

NVLAP
Testing
Lab Code: 102063-0

Enc.: Sample Results

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24021017** **Client Sample #: 11720-ASB-91**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Gray cementitious material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Cement/Binder, Mineral grains, Fine particles | None Detected | ND | **Chrysotile 27%** |

**Lab ID: 24021018** **Client Sample #: 11720-ASB-92**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Gray cementitious material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Cement/Binder, Mineral grains, Fine particles | None Detected | ND | **Chrysotile 31%** |

**Lab ID: 24021019** **Client Sample #: 11720-ASB-93**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Tan compressed fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Insect parts | Cellulose | 70% | **None Detected ND** |
| | Spider silk | 9% | |

**Lab ID: 24021020** **Client Sample #: 11720-ASB-94**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 2** **Description:** Gray vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Debris, Fine particles | Synthetic fibers | 4% | **None Detected ND** |
| | Cellulose | 2% | |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 2 of 2** **Description:** Clear adhesive with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24021021** **Client Sample #: 11720-ASB-95**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Gray vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Debris, Fine particles | Synthetic fibers | 5% | **None Detected ND** |
| | Cellulose | 3% | |

**Layer 2 of 2** **Description:** Clear adhesive with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24021022** **Client Sample #: 11720-ASB-96**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose | 57% | **None Detected ND** |
| | Synthetic fibers | 9% | |

---

**Lab ID: 24021023** **Client Sample #: 11720-ASB-97**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose | 52% | **None Detected ND** |
| | Synthetic fibers | 11% | |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24021024** **Client Sample #: 11720-ASB-98**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 79% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan mastic with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Paint, Fine particles | None Detected ND | **None Detected ND** |

**Lab ID: 24021025** **Client Sample #: 11720-ASB-99**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 75% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan mastic with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Paint, Fine particles | None Detected ND | **None Detected ND** |

**Lab ID: 24021026** **Client Sample #: 11720-ASB-100**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 68% | **None Detected ND** |

**Lab ID: 24021027** **Client Sample #: 11720-ASB-101**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 66% | **None Detected ND** |

**Lab ID: 24021028** **Client Sample #: 11720-ASB-102**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Tan compressed fibrous material with coating

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 81% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Lab ID: 24021029** **Client Sample #: 11720-ASB-103**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Tan compressed fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 94% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Lab ID: 24021030** **Client Sample #: 11720-ASB-104**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 61% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser
Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention:** **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Lab ID: 24021031** **Client Sample #: 11720-ASB-105**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 63% | **None Detected ND** |

**Lab ID: 24021032** **Client Sample #: 11720-ASB-106**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Gray soft material with paint and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Synthetic/Binder, Paint, Debris | None Detected ND | **None Detected ND** |

**Lab ID: 24021033** **Client Sample #: 11720-ASB-107**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
**Layer 1 of 1** **Description:** Gray soft material with paint and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Synthetic/Binder, Paint, Debris | None Detected ND | **None Detected ND** |

**Lab ID: 24021034** **Client Sample #: 11720-ASB-108**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA
Comments: Wet sample was dried prior to analysis.
**Layer 1 of 5** **Description:** Black asphaltic material with granules

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Granules | Glass fibers 24% | **None Detected ND** |

**Layer 2 of 5** **Description:** Black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**

Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Layer 3 of 5** **Description:** Black asphaltic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected ND | **None Detected ND** |

**Layer 4 of 5** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Fine particles | Cellulose 64% | **None Detected ND** |

**Layer 5 of 5** **Description:** Tan compressed fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 98% | **None Detected ND** |

**Lab ID: 24021035** **Client Sample #: 11720-ASB-109**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Wet sample was dried prior to analysis.

**Layer 1 of 5** **Description:** Black asphaltic material with granules

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Granules | Glass fibers 27% | **None Detected ND** |

**Layer 2 of 5** **Description:** Black asphaltic mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected ND | **None Detected ND** |

**Layer 3 of 5** **Description:** Black asphaltic material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | None Detected ND | **None Detected ND** |

**Layer 4 of 5** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Fine particles | Cellulose 70% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Layer 5 of 5** **Description:** Tan compressed fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 96% | **None Detected ND** |

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**Lab ID: 24021036** **Client Sample #: 11720-ASB-110**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Off-white sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Off-white fibrous backing with mastic and wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Mastic/Binder, Debris | Cellulose 52% | **None Detected ND** |
| | Glass fibers 16% | |

---

**Lab ID: 24021037** **Client Sample #: 11720-ASB-111**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 4** **Description:** Off-white sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected ND | **None Detected ND** |

**Layer 2 of 4** **Description:** Tan fibrous backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose 47% | **None Detected ND** |
| | Glass fibers 29% | |

**Layer 3 of 4** **Description:** Tan sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Layer 4 of 4** **Description:** Off-white fibrous backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose | 43% | **None Detected ND** |
| | Glass fibers | 25% | |

---

**Lab ID: 24021038** **Client Sample #: 11720-ASB-112**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** White patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected | ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Off-white fibrous backing with mastic and wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose | 66% | **None Detected ND** |
| Debris | Glass fibers | 23% | |

---

**Lab ID: 24021039** **Client Sample #: 11720-ASB-113**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** White patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected | ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Off-white fibrous backing with mastic and wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose | 61% | **None Detected ND** |
| Debris | Glass fibers | 26% | |

---

**Lab ID: 24021040** **Client Sample #: 11720-ASB-114**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**


Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Layer 1 of 3** **Description:** White patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Off-white fibrous backing with mastic and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose | 47% | **None Detected ND** |
| Debris | Glass fibers | 33% | |

**Layer 3 of 3** **Description:** Gray crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose | 3% | **None Detected ND** |

**Lab ID: 24021041** **Client Sample #: 11720-ASB-115**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** White patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected | ND | **None Detected ND** |

**Layer 2 of 3** **Description:** Off-white fibrous backing with mastic and debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose | 42% | **None Detected ND** |
| Debris | Glass fibers | 35% | |

**Layer 3 of 3** **Description:** Gray crumbly material

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose | 2% | **None Detected ND** |

**Lab ID: 24021042** **Client Sample #: 11720-ASB-116**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 89% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | Cellulose 6% | **None Detected ND** |

---

**Lab ID: 24021043** **Client Sample #: 11720-ASB-117**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 91% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | Cellulose 7% | **None Detected ND** |

---

**Lab ID: 24021044** **Client Sample #: 11720-ASB-118**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Tan vinyl with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | Cellulose 5% | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan woven fibrous mesh

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 78% | **None Detected ND** |

**Layer 3 of 3** **Description:** Brown mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Lab ID: 24021045** **Client Sample #: 11720-ASB-119**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 3** **Description:** Tan vinyl with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | Cellulose 3% | **None Detected ND** |

**Layer 2 of 3** **Description:** Tan woven fibrous mesh

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 73% | **None Detected ND** |

**Layer 3 of 3** **Description:** Brown mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

---

**Lab ID: 24021046** **Client Sample #: 11720-ASB-120**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Off-white patterned vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Layer 2 of 2** **Description:** Yellow mastic with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Mastic/Binder, Debris, Fine particles | Cellulose 2% | **None Detected ND** |

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**Lab ID: 24021047** **Client Sample #: 11720-ASB-121**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Off-white patterned vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | **Asbestos Type: %** |
|---|---|---|
| Vinyl/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

**Attention:** **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

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**Layer 2 of 2** **Description:** Yellow mastic with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Mastic/Binder, Debris, Fine particles | None Detected | ND | **None Detected ND** |

---

**Lab ID: 24021048** **Client Sample #: 11720-ASB-122**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose | 85% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Adhesive/Binder, Debris, Fine particles | Cellulose | 9% | **None Detected ND** |

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**Lab ID: 24021049** **Client Sample #: 11720-ASB-123**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose | 87% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive with wood debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Adhesive/Binder, Debris, Fine particles | Cellulose | 8% | **None Detected ND** |

---

**Lab ID: 24021050** **Client Sample #: 11720-ASB-124**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 4** **Description:** Yellow patterned sheet vinyl

| Non-Fibrous Materials: | Other Fibrous Materials:% | | Asbestos Type: % |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected | ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

| Layer | Description | Non-Fibrous Materials | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|---|---|
| Layer 2 of 4 | White fibrous backing | Binder/Filler, Debris, Fine particles | Cellulose 73% | **None Detected ND** |
| Layer 3 of 4 | Black asphaltic fibrous material | Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 68% | **None Detected ND** |
| Layer 4 of 4 | Silver crumbly material | Binder/Filler, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Lab ID: 24021051** **Client Sample #: 11720-ASB-125**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

| Layer | Description | Non-Fibrous Materials | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|---|---|
| Layer 1 of 4 | Yellow patterned sheet vinyl | Vinyl/Binder, Synthetic foam, Debris | None Detected ND | **None Detected ND** |
| Layer 2 of 4 | White fibrous backing | Binder/Filler, Debris, Fine particles | Cellulose 70% | **None Detected ND** |
| Layer 3 of 4 | Black asphaltic fibrous material | Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 62% | **None Detected ND** |
| Layer 4 of 4 | Silver crumbly material | Binder/Filler, Debris, Fine particles | None Detected ND | **None Detected ND** |

**Lab ID: 24021052** **Client Sample #: 11720-ASB-126**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 94% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

---

**Lab ID: 24021053** **Client Sample #: 11720-ASB-127**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 91% | **None Detected ND** |

**Layer 2 of 2** **Description:** Tan adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

---

**Lab ID: 24021054** **Client Sample #: 11720-ASB-128**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** White soft material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Synthetic/Binder, Paint, Debris | None Detected ND | **None Detected ND** |

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**Lab ID: 24021055** **Client Sample #: 11720-ASB-129**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** White soft material with paint

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Synthetic/Binder, Paint, Debris | None Detected ND | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

Attention: **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Lab ID: 24021056** **Client Sample #: 11720-ASB-130**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Unsure of correct layer sequence.

**Layer 1 of 4** **Description:** White sheet vinyl with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | Cellulose | 3% | **None Detected ND** |
| | Organic fibers | 2% | |

**Layer 2 of 4** **Description:** Off-white backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Debris | Glass fibers | 14% | **None Detected ND** |

**Layer 3 of 4** **Description:** Off-white sheet vinyl with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | Cellulose | 3% | **None Detected ND** |

**Layer 4 of 4** **Description:** Tan fibrous backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose | 38% | **None Detected ND** |
| | Glass fibers | 17% | |

---

**Lab ID: 24021057** **Client Sample #: 11720-ASB-131**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 4** **Description:** White sheet vinyl with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | | **Asbestos Type: %** |
|---|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | Cellulose | 5% | **None Detected ND** |
| | Organic fibers | 3% | |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention: Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

---

**Layer 2 of 4** **Description:** Off-white backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Mastic/Binder, Debris | Glass fibers 18% | **None Detected ND** |

**Layer 3 of 4** **Description:** Off-white sheet vinyl with debris

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Vinyl/Binder, Synthetic foam, Debris | None Detected ND | **None Detected ND** |

**Layer 4 of 4** **Description:** Tan fibrous backing with mastic

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Mastic/Binder, Fine particles | Cellulose 45% | **None Detected ND** |
| | Glass fibers 21% | |

---

**Lab ID: 24021058** **Client Sample #: 11720-ASB-132**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

Comments: Insufficient adhesive for thorough analysis.

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 89% | **None Detected ND** |

**Layer 2 of 2** **Description:** Trace tan adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

---

**Lab ID: 24021059** **Client Sample #: 11720-ASB-133**

Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 2** **Description:** Brown flat hard compressed fibrous material with surface

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Binder/Filler, Debris, Fine particles | Cellulose 93% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

# Bulk Asbestos Fibers Analysis
By Polarized Light Microscopy

Client: EHS-International, Inc.
Address: 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134

**Attention:** **Mr. Marcus Gladden**
Project Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Batch #: 2403584.00**
Client Project #: 11720
Date Received: 2/28/2024
Samples Received: 45
Samples Analyzed: 45
Method: EPA/600/R-93/116

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**Layer 2 of 2** **Description:** Tan adhesive

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Adhesive/Binder, Debris, Fine particles | None Detected ND | **None Detected ND** |

---

**Lab ID: 24021060** **Client Sample #: 11720-ASB-134**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 54% | **None Detected ND** |

---

**Lab ID: 24021061** **Client Sample #: 11720-ASB-135**
Location: 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Layer 1 of 1** **Description:** Black asphaltic fibrous material

| Non-Fibrous Materials: | Other Fibrous Materials:% | Asbestos Type: % |
|---|---|---|
| Asphalt/Binder, Asphaltic Particles, Debris | Cellulose 58% | **None Detected ND** |

**Sampled by:** Client
**Analyzed by:** Hieu Ta **Date:** 03/04/2024
**Reviewed by:** Kunga Woser **Date:** 03/05/2024

Kunga Woser

Kunga Woser, Senior Laboratory Analyst

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

ASB-02

# ASBESTOS LABORATORY SERVICES

NVL

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403584.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk

**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 1 | 24021017 | 11720-ASB-91 | | A |
| 2 | 24021018 | 11720-ASB-92 | | A |
| 3 | 24021019 | 11720-ASB-93 | | A |
| 4 | 24021020 | 11720-ASB-94 | | A |
| 5 | 24021021 | 11720-ASB-95 | | A |
| 6 | 24021022 | 11720-ASB-96 | | A |
| 7 | 24021023 | 11720-ASB-97 | | A |
| 8 | 24021024 | 11720-ASB-98 | | A |
| 9 | 24021025 | 11720-ASB-99 | | A |
| 10 | 24021026 | 11720-ASB-100 | | A |
| 11 | 24021027 | 11720-ASB-101 | | A |
| 12 | 24021028 | 11720-ASB-102 | | A |
| 13 | 24021029 | 11720-ASB-103 | | A |
| 14 | 24021030 | 11720-ASB-104 | | A |
| 15 | 24021031 | 11720-ASB-105 | | A |
| 16 | 24021032 | 11720-ASB-106 | | A |
| 17 | 24021033 | 11720-ASB-107 | | A |
| 18 | 24021034 | 11720-ASB-108 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hieu Ta | | NVL | 3/4/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:02 PM
Entered By: Kelly AuVu

# ASBESTOS LABORATORY SERVICES

**Company** EHS-International, Inc.
**Address** 1011 SW Klickitat Way. Suite 104
Seattle, WA 98134
**Project Manager** Mr. Marcus Gladden
**Phone** (206) 381-1128
**Cell** (206) 819-4213

**NVL Batch Number** **2403584.00**
**TAT** 5 Days **AH** No
**Rush TAT**
**Due Date** 3/6/2024 **Time** 3:40 PM
**Email** marcusg@ehsintl.com
**Fax** (206) 254-4279

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk
**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 19 | 24021035 | 11720-ASB-109 | | A |
| 20 | 24021036 | 11720-ASB-110 | | A |
| 21 | 24021037 | 11720-ASB-111 | | A |
| 22 | 24021038 | 11720-ASB-112 | | A |
| 23 | 24021039 | 11720-ASB-113 | | A |
| 24 | 24021040 | 11720-ASB-114 | | A |
| 25 | 24021041 | 11720-ASB-115 | | A |
| 26 | 24021042 | 11720-ASB-116 | | A |
| 27 | 24021043 | 11720-ASB-117 | | A |
| 28 | 24021044 | 11720-ASB-118 | | A |
| 29 | 24021045 | 11720-ASB-119 | | A |
| 30 | 24021046 | 11720-ASB-120 | | A |
| 31 | 24021047 | 11720-ASB-121 | | A |
| 32 | 24021048 | 11720-ASB-122 | | A |
| 33 | 24021049 | 11720-ASB-123 | | A |
| 34 | 24021050 | 11720-ASB-124 | | A |
| 35 | 24021051 | 11720-ASB-125 | | A |
| 36 | 24021052 | 11720-ASB-126 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hieu Ta | | NVL | 3/4/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:02 PM
Entered By: Kelly AuVu

# ASBESTOS LABORATORY SERVICES

NVL

| | | | |
|---|---|---|---|
| **Company** | EHS-International, Inc. | **NVL Batch Number** | **2403584.00** |
| **Address** | 1011 SW Klickitat Way. Suite 104<br>Seattle, WA 98134 | **TAT** | 5 Days **AH** No |
| | | **Rush TAT** | |
| **Project Manager** | Mr. Marcus Gladden | **Due Date** | 3/6/2024 **Time** 3:40 PM |
| **Phone** | (206) 381-1128 | **Email** | marcusg@ehsintl.com |
| **Cell** | (206) 819-4213 | **Fax** | (206) 254-4279 |

**Project Name/Number:** 11720 **Project Location:** 17345, 17347 Beach Drive NE Lake Forest Park, WA

**Subcategory** PLM Bulk

**Item Code** ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

**Total Number of Samples** 45 Rush Samples

| | Lab ID | Sample ID | Description | A/R |
|---|---|---|---|---|
| 37 | 24021053 | 11720-ASB-127 | | A |
| 38 | 24021054 | 11720-ASB-128 | | A |
| 39 | 24021055 | 11720-ASB-129 | | A |
| 40 | 24021056 | 11720-ASB-130 | | A |
| 41 | 24021057 | 11720-ASB-131 | | A |
| 42 | 24021058 | 11720-ASB-132 | | A |
| 43 | 24021059 | 11720-ASB-133 | | A |
| 44 | 24021060 | 11720-ASB-134 | | A |
| 45 | 24021061 | 11720-ASB-135 | | A |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Sampled by** | Client | | | | |
| **Relinquished by** | Client | | | | |

| Office Use Only | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| **Received by** | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| **Analyzed by** | Hieu Ta | | NVL | 3/4/24 | |
| **Results Called by** | | | | | |
| ☐ **Faxed** ☐ **Emailed** | | | | | |

**Special Instructions:**

Date: 2/28/2024
Time: 4:02 PM
Entered By: Kelly AuVu

2403584

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

# ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour ☐ 24 Hours ☐ 4 Days
- ☐ 2 Hours ☐ 2 Days ☒ 5 Days
- ☐ 4 Hours ☐ 3 Days ☐ 10 Days

Please call for TAT less than 24 Hours

Company: EHS International
Address: 1011 SW Klickatat Way #104
Seattle, WA, 98134
Phone: 206-381-1128

Project Manager: Marcus Gladden
Cell: (206) 819 - 4213
Email: marcusg@ehsintl.com
Fax: ( ) -

Project Name/Number: 11720 | Project Location: 17345, 17347 BEACH DRIVE NE LAKE FOREST PARK, WA

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☒ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: email to marcusg@ehsintl.com, REESEM@EHSINTL.COM

☐ Call ( ) - ☐ Fax ( ) - ☒ Email

**Total Number of Samples** 135

| | Sample ID | Description | A/R |
|---|---|---|---|
| 1 | 11720 - ASB - 01 | | |
| 2 | 11720 - ASB - 02 | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | 11720 - ASB - 135 | | |

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| Sampled by | Marcus Gladden | Marcus Gladden | EHSI | 2/28/24 | 8:00 |
| Relinquish by | Marcus Gladden | Marcus Gladden | EHSI | | 15:30 |

**Office Use Only**

| | Print Name | Signature | Company | Date | Time |
|---|---|---|---|---|---|
| Received by | Rachelle Miller | | NVL | 2/28/24 | 1540 |
| Analyzed by | | | | | |
| Called by | | | | | |
| Faxed/Email by | | | | | |

eurofins | Built Environment Testing

Report for:

**Marcus Gladden**
**EHS International, Inc.**
1011 SW Klickitat Way, Ste. 104
Seattle, WA 98134

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: 11720; 17345, 17347 Beach Dr NE, Lake Forest Park, WA
EML ID: 3556163

Approved by:

Technical Manager
Kate March

Dates of Analysis:
Asbestos PLM: 03-04-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 101920-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

**Eurofins EPK Built Environment Testing, LLC**
7619 6th Ave NW, Seattle, WA 98117
(800) 651-4802 www.eurofinsus.com/Built

Client: EHS International, Inc.
C/O: Marcus Gladden
Re: 11720; 17345, 17347 Beach Dr NE, Lake Forest Park, WA

Date of Sampling: 02-28-2024
Date of Receipt: 02-28-2024
Date of Report: 03-04-2024

## ASBESTOS PLM REPORT

| | |
|---|---|
| **Total Samples Submitted:** | 14 |
| **Total Samples Analyzed:** | 14 |
| **Total Samples with Layer Asbestos Content > 1%:** | 3 |

### Location: 11720-ASB-05QA

Lab ID-Version‡: 17378813-1

| Sample Layers | Asbestos Content |
|---|---|
| Beige Joint Compound with Brown Paint | 3% Chrysotile |
| Cream Tape | ND |
| Cream Joint Compound | 2% Chrysotile |
| **Composite Non-Asbestos Content:** | 5% Cellulose |
| **Sample Composite Homogeneity:** | Good |

### Location: 11720-ASB-11QA

Lab ID-Version‡: 17378814-1

| Sample Layers | Asbestos Content |
|---|---|
| Brown Non-Fibrous Material with Yellow Mastic | 4% Chrysotile |
| **Composite Non-Asbestos Content:** | 3% Cellulose |
| **Sample Composite Homogeneity:** | Good |

### Location: 11720-ASB-21QA

Lab ID-Version‡: 17378815-1

| Sample Layers | Asbestos Content |
|---|---|
| Cream Joint Compound with Cream Paint | ND |
| Orange Plaster | ND |
| Light Gray Cementitious Material | ND |
| **Composite Non-Asbestos Content:** | 3% Cellulose |
| **Sample Composite Homogeneity:** | Moderate |

### Location: 11720-ASB-42QA

Lab ID-Version‡: 17378816-1

| Sample Layers | Asbestos Content |
|---|---|
| White Sheet Flooring with Fibrous Backing | ND |
| **Composite Non-Asbestos Content:** | 30% Cellulose<br>10% Glass Fibers |
| **Sample Composite Homogeneity:** | Good |



Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: EHS International, Inc.
C/O: Marcus Gladden
Re: 11720; 17345, 17347 Beach Dr NE, Lake Forest Park, WA

Date of Sampling: 02-28-2024
Date of Receipt: 02-28-2024
Date of Report: 03-04-2024

## ASBESTOS PLM REPORT

**Location: 11720-ASB-60QA** Lab ID-Version‡: 17378817-1

| Sample Layers | Asbestos Content |
|---|---|
| Brown Insulation | ND |
| **Composite Non-Asbestos Content:** | 95% Cellulose |
| **Sample Composite Homogeneity:** | Good |

**Location: 11720-ASB-71QA** Lab ID-Version‡: 17378818-1

| Sample Layers | Asbestos Content |
|---|---|
| Red Floor Tile | 4% Chrysotile |
| Black Mastic | ND |
| **Composite Non-Asbestos Content:** | 3% Cellulose |
| **Sample Composite Homogeneity:** | Good |

**Location: 11720-ASB-89QA** Lab ID-Version‡: 17378819-1

| Sample Layers | Asbestos Content |
|---|---|
| Brown Floor Tile with White Coating | ND |
| Brown Mastic | ND |
| **Composite Non-Asbestos Content:** | 80% Cellulose |
| **Sample Composite Homogeneity:** | Good |

**Location: 11720-ASB-96QA** Lab ID-Version‡: 17378820-1

| Sample Layers | Asbestos Content |
|---|---|
| Black Roofing Tar and Felt | ND |
| Brown Mastic | ND |
| **Composite Non-Asbestos Content:** | 50% Cellulose |
| **Sample Composite Homogeneity:** | Good |



Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: EHS International, Inc.
C/O: Marcus Gladden
Re: 11720; 17345, 17347 Beach Dr NE, Lake Forest Park, WA

Date of Sampling: 02-28-2024
Date of Receipt: 02-28-2024
Date of Report: 03-04-2024

## ASBESTOS PLM REPORT

**Location: 11720-ASB-98QA** Lab ID-Version‡: 17378821-1

| Sample Layers | Asbestos Content |
|---|---|
| Brown Floor Tile with White Coating | ND |
| **Composite Non-Asbestos Content:** | 80% Cellulose |
| **Sample Composite Homogeneity:** | Good |

**Location: 11720-ASB-102QA** Lab ID-Version‡: 17378822-1

| Sample Layers | Asbestos Content |
|---|---|
| Gray Paper | ND |
| Tan Fibrous Material | ND |
| Beige Mastic | ND |
| **Composite Non-Asbestos Content:** | 70% Cellulose |
| **Sample Composite Homogeneity:** | Good |

**Location: 11720-ASB-105QA** Lab ID-Version‡: 17378823-1

| Sample Layers | Asbestos Content |
|---|---|
| Black Roofing Tar and Felt | ND |
| **Composite Non-Asbestos Content:** | 70% Cellulose |
| **Sample Composite Homogeneity:** | Good |

**Location: 11720-ASB-124QA** Lab ID-Version‡: 17378824-1

| Sample Layers | Asbestos Content |
|---|---|
| White Fibrous Material with Coating | ND |
| Black Roofing Tar and Felt with Silver Coating | ND |
| **Composite Non-Asbestos Content:** | 50% Cellulose |
| **Sample Composite Homogeneity:** | Good |



Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

**Eurofins EPK Built Environment Testing, LLC**
7619 6th Ave NW, Seattle, WA 98117
(800) 651-4802  www.eurofinsus.com/Built

Client: EHS International, Inc.
C/O: Marcus Gladden
Re: 11720; 17345, 17347 Beach Dr NE, Lake Forest Park, WA

Date of Sampling: 02-28-2024
Date of Receipt: 02-28-2024
Date of Report: 03-04-2024

## ASBESTOS PLM REPORT

**Location: 11720-ASB-135QA**  Lab ID-Version‡: 17378825-1

| Sample Layers | Asbestos Content |
|---|---|
| Black Roofing Tar and Felt | ND |
| **Composite Non-Asbestos Content:** | 80% Cellulose |
| **Sample Composite Homogeneity:** | Good |

**Location: 11720-ASB-129QA**  Lab ID-Version‡: 17378826-1

| Sample Layers | Asbestos Content |
|---|---|
| White Sealant | ND |
| **Sample Composite Homogeneity:** | Good |



Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data.  The revision number is reflected by the value of "x".

# Appendix D

## Laboratory Certifications

**United States Department of Commerce**
**National Institute of Standards and Technology**

NVLAP®

ilac-MRA

# Certificate of Accreditation to ISO/IEC 17025:2017

**NVLAP LAB CODE: 102063-0**

**NVL Laboratories, Inc.**
Seattle, WA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:*

**Asbestos Fiber Analysis**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2023-10-01 through 2024-09-30
*Effective Dates*

DEPARTMENT OF COMMERCE • UNITED STATES OF AMERICA •

*For the National Voluntary Laboratory Accreditation Program*

**National Voluntary**
**Laboratory Accreditation Program**

# SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017


**NVL Laboratories, Inc.**
4708 Aurora Avenue N.
Seattle, WA 98103
Mr. Nghiep Vi Ly
Phone: 206-547-0100 Fax: 206-634-1936
Email: nick.l@nvllabs.com
http://www.nvllabs.com


## ASBESTOS FIBER ANALYSIS

**NVLAP LAB CODE 102063-0**

### Bulk Asbestos Analysis

| Code | Description |
|---|---|
| 18/A01 | EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples |
| 18/A03 | EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials |

*For the National Voluntary Laboratory Accreditation Program*

AIHA LAP

# AIHA Laboratory Accreditation Programs, LLC

*acknowledges that*

## NVL Laboratories, Inc.

### 4708 Aurora Ave N, Seattle, WA 98103-6516

**Laboratory ID: LAP-101861**

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs, LLC (AIHA LAP) accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

### LABORATORY ACCREDITATION PROGRAMS

| | | |
|---|---|---|
| ☑ | **INDUSTRIAL HYGIENE** | Accreditation Expires: July 01, 2025 |
| ☑ | **ENVIRONMENTAL LEAD** | Accreditation Expires: July 01, 2025 |
| ☑ | **ENVIRONMENTAL MICROBIOLOGY** | Accreditation Expires: July 01, 2025 |
| ☐ | **FOOD** | Accreditation Expires: |
| ☑ | **UNIQUE SCOPES** | Accreditation Expires: July 01, 2025 |
| ☐ | **BE FIELD/MOBILE** | Accreditation Expires: |

Specific Field(s) of Testing/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP website (www.aihaaccreditedlabs.org) for the most current Scope.

Cheryl O. Morton

*Cheryl O Morton*
*Managing Director, AIHA Laboratory Accreditation Programs, LLC*

Revision21: 10/24/2023

Date Issued: 07/01/2023

AIHA LAP™

# AIHA Laboratory Accreditation Programs, LLC

## SCOPE OF ACCREDITATION

**NVL Laboratories, Inc.**

4708 Aurora Ave N, Seattle, WA 98103-6516

**Laboratory ID: LAP-101861**

Issue Date: 07/01/2023
Expire Date: 07/01/2025

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

### Environmental Lead Laboratory Accreditation Program (ELLAP)

### Initial Accreditation Date: 02/07/1997

| Component, parameter, characteristic, material, or product tested | Technology sub-type/Detector | Method | Method Description (*for internal methods only*) |
|---|---|---|---|
| Airborne Dust | AA | EPA SW-846 3051 | N/A |
| | | EPA SW-846 7000B | N/A |
| Paint | AA | EPA SW-846 3051 | N/A |
| | | EPA SW-846 7000B | N/A |
| Settled Dust by Wipe | AA | EPA SW-846 3051 | N/A |
| | | EPA SW-846 7000B | N/A |
| Soil | AA | EPA SW-846 3051 | N/A |
| | | EPA SW-846 7000B | N/A |

A complete listing of currently accredited ELLAP laboratories is available on the AIHA LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA LAP™

# AIHA Laboratory Accreditation Programs, LLC
## SCOPE OF ACCREDITATION

**NVL Laboratories, Inc.** | **Laboratory ID: LAP-101861**

Issue Date: 07/01/2023
Expire Date: 07/01/2025

4708 Aurora Ave N, Seattle, WA 98103-6516

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

### Environmental Microbiology Laboratory Accreditation Program (EMLAP)

### Initial Accreditation Date: 02/01/1997

| EMLAP Scope Category | Field of Testing (FOT) | Component, parameter, characteristic, material, or product tested | Method | Method Description *(for internal methods only)* |
|---|---|---|---|---|
| Fungal | Air - Direct Examination | Air | SOP 12.133 | In House: Analysis of Spore Trap |
| Fungal | Bulk - Direct Examination | Bulk | SOP 12.133 | In House: Analysis of Spore Trap |

A complete listing of currently accredited EMLAP laboratories is available on the AIHA LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA LAP

# AIHA Laboratory Accreditation Programs, LLC

## SCOPE OF ACCREDITATION

**NVL Laboratories, Inc.**

**Laboratory ID: LAP-101861**

Issue Date: 07/01/2023
Expire Date: 07/01/2025

4708 Aurora Ave N, Seattle, WA 98103-6516

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### Industrial Hygiene Laboratory Accreditation Program (IHLAP)

### Initial Accreditation Date: 04/01/1997

| IHLAP Scope Category | Field of Testing (FOT) | Technology sub-type/Detector | Published Reference Method/Title of In-house Method | Component, parameter, characteristic, material, or product tested |
|---|---|---|---|---|
| Asbestos/Fiber Microscopy Core | Phase Contrast Microscopy (PCM) | - | NIOSH 7400 | Asbestos/Fibers |
| Miscellaneous Core | Gravimetric | - | NIOSH 0500 | Total Dust |
| Miscellaneous Core | Gravimetric | - | NIOSH 0600 | Respirable Dust |
| Spectrometry Core | Atomic Absorption | FAA | NIOSH 7082 | Lead |
| Spectrometry Core | Inductively-Coupled Plasma | ICP/AES | NIOSH 7300 | RCRA Metals |
| Spectrometry Core | X-ray Diffraction (XRD) | - | NIOSH 7500 | Silica |

A complete listing of currently accredited IHLAP laboratories is available on the AIHA LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA LAP™

# AIHA Laboratory Accreditation Programs, LLC

## SCOPE OF ACCREDITATION

**NVL Laboratories, Inc.**

**Laboratory ID: LAP-101861**

4708 Aurora Ave N, Seattle, WA 98103-6516

Issue Date: 07/01/2023
Expire Date: 07/01/2025

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

### Unique Scopes Laboratory Accreditation Programs (Unique Scopes)

### Initial Accreditation Date: 04/01/2013

| Unique Scopes Scope Category | Field of Testing (FOT) | Component, parameter, characteristic, material, or product tested | Method | Method Description (for internal methods only) |
|---|---|---|---|---|
| Consumer Product Testing | Lead in Paint and Other Similar Surface Coatings | Paint | CPSC-CH-E1003-09 | - |
| | Lead in metal | Solid | CPSC-CH-E1001-08 | - |
| | Lead in non-metal | Solid | CPSC-CH-E1002-08 | - |

A complete listing of currently accredited Unique Scopes laboratories is available on the AIHA LAP, LLC website at: http://www.aihaaccreditedlabs.org

**United States Department of Commerce**
**National Institute of Standards and Technology**

# Certificate of Accreditation to ISO/IEC 17025:2017

**NVLAP LAB CODE: 101920-0**

## Eurofins Built Environment Testing - LabCor Seattle

Seattle, WA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:*

## Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

DEPARTMENT OF COMMERCE • UNITED STATES OF AMERICA •

2023-10-01 through 2024-09-30

*Effective Dates*

*For the National Voluntary Laboratory Accreditation Program*

# National Voluntary Laboratory Accreditation Program

## SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

**Eurofins Built Environment Testing - LabCor Seattle**
7619 6th Avenue, NW
Seattle, WA 98117
Mr. Derk Wipprecht
Phone: 206-781-0155 Fax: 206-789-8424
Email: derk.wipprecht@et.eurofinsus.com
http://www.labcor.net

## ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101920-0

### Bulk Asbestos Analysis

| Code | Description |
|---|---|
| 18/A01 | EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples |
| 18/A03 | EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials |

### Airborne Asbestos Analysis

| Code | Description |
|---|---|
| 18/A02 | U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A. |

*For the National Voluntary Laboratory Accreditation Program*