John Rogers Elementary School Replacement Project

Final SEPA Checklist

Seattle Public Schools is committed to making its online information accessible and usable to all people, regardless of ability or technology. Meeting web accessibility guidelines and standards is an ongoing process that we are consistently working to improve.

While Seattle Public Schools endeavors to only post documents optimized for accessibility, due to the nature and complexity of some documents, an accessible version of the document may not be available. In these limited circumstances, the district will provide equally effective alternate access.

For questions and more information about this document, please contact the following:

Amanda Fulford
Project Manager
asfulford1@seattleschools.org

While the John Rogers Elementary School Replacement Project Final State Environmental Policy Act (SEPA) Checklist is accessible and ADA compliant, the attached figures and appendices which support the checklist contain complex material that are not accessible. The following is a description of what is contained in the figures and appendices:

- Figure 1 – John Rogers Elementary School Site Vicinity Map
  Figure 1 is a vicinity map that shows the John Rogers Elementary School campus and the surrounding neighborhood in the site vicinity. The school campus site is outlined in red on the map.

- Figure 2 – John Rogers Elementary School Aerial Map
  Figure 2 is an aerial map of the John Rogers Elementary School campus and the surrounding neighborhood in the site vicinity. The school campus site is outlined in red on the map.

- Figure 3 – Proposed Site Plan
  Figure 3 is a site plan of the proposed project. The entire school campus is shown on the plan. The proposed new building and other proposed project site features are labeled on the site.

- Appendix A – Geotechnical Basis of Design Report
  Appendix A consists of the Geotechnical Basis of Design Report that was prepared by GeoEngineers, Inc. The report presents the results of the subsurface information review, subsurface explorations, summarizes groundwater conditions and potential geologic hazard critical areas, and provides geotechnical considerations and engineering recommendations. Figures are included in the report. Field exploration procedures and logs, laboratory testing procedures and results, and seismic design parameters are included as appendices to this report.

- Appendix B – Construction Best Management Practices
  Appendix B consists of construction best management practices that could be implemented during the construction of the project.

- Appendix C – SEPA Greenhouse Gas Emissions Worksheet
  Appendix C consists of the Greenhouse Gas Emissions Worksheet for the project. This worksheet provides a calculation of the greenhouse gas emissions that would be anticipated to be generated with the development of the proposed project.

- Appendix D – Wetland and Stream Assessment Report
  Appendix D consists of the Wetland and Stream Assessment Report that was prepared for the project by GeoEngineers, Inc. The report describes the wetland and stream assessment that was prepared for the site, including a wetland delineation, Fish and Wildlife Habitat Conservation Areas assessment, and stream ordinary high water mark

delineation. It also summarizes development considerations associated with these areas. Supporting figures are included in the report. Site photographs, background data and maps, and a wetland determination datasheet are included as appendices to the report.

- Appendix E – Tree Inventory/Arborist Report and Addendum
  Appendix E consists of the Tree Inventory/Arborist Report and Addendum that was prepared for the project by Tree Solutions, Inc. The report and addendum provide an inventory of the existing trees on the site and trees on neighboring properties are also documented if they extend over the property line or may be affected by construction access. Recommendations and tree protection measures are provided. A Table of Trees is included as part of the report which describes the characteristics and measurements for each tree. A map documenting the location of each tree is also provided.

- Appendix F– Wildlife Habitat Assessment
  Appendix F consists of the Wildlife Habitat Assessment that was prepared by Raedeke Associates, Inc. The report documents the analysis and field investigation that was conducted on the project site to evaluate current wildlife and habitat conditions on and in the vicinity of the site, particularly as it pertains to a previously observed turtle. Figures and photographs are included as part of the report.

- Appendix G – Landmark Nomination Determination, DAHP Governor's Executive Order 21-02 Determination, and Cultural Resources Assessment Report
  Appendix G consists of the Landmark Nomination Determination, the DAHP Governor's Executive Order 21-02 Determination, and the Cultural Resources Assessment Report for the project that was prepared by Perteet. The Landmark Nomination Determination summarizes the findings and determination of the City of Seattle's Landmarks Preservation Board. The DAHP Governor's Executive Order 21-02 Determination summarizes DAHP's review and determination for the project. The Cultural Resources Assessment Report details the background research and onsite investigations that were completed as part of the assessment and provides recommendations for the project. Due to the confidential nature of archaeological materials discussed in the report, a full copy of the report is not included in this electronic version. However, a non-confidential version of the report is available upon request from Seattle Public Schools.

- Appendix H – Transportation Technical Report and Parking Analysis Addendum
  Appendix H consists of the Transportation Technical Report and Parking Analysis Addendum for the project that was prepared by Heffron Transportation, Inc. The Transportation Technical Report provides a description and analysis of background transportation conditions for the area surrounding the site, including traffic volumes, traffic operations (level of service), parking, transit, and non-motorized facilities. The

report analyzes and addresses potential impacts with the proposed project on those same transportation conditions and provides recommendations and mitigation measures. The document includes level of service definitions and parking utilization study data as appendices to the report. The Parking Analysis Addendum updates the analysis from the Transportation Technical Report to reflect minor modifications to the proposed site plan that were made subsequent to the issuance of the Draft SEPA Checklist.

- Appendix I – Summary of Public Comments and Responses
  Appendix I consists of the summary of public comments that were received on the Draft SEPA Checklist and responses to those comments.

This concludes the description of the Final SEPA Checklist figures and appendices for the John Rogers Elementary School Replacement Project.

DATE: November 23, 2022

TO: Recipients of the State Environmental Policy Act Mitigated Determination of Nonsignificance for John Rogers Elementary School Replacement Project

FROM: Fred Podesta, SEPA official

Seattle Public Schools (SPS) has determined that the final State Environmental Policy Act (SEPA) environmental checklist dated November 2022 meets our environmental review needs for the current proposal for the replacement of John Rogers Elementary School. The proposal is largely funded by the Building Excellence (BEX) V Capital Levy. SPS plans to begin construction in June 2023 and be substantially complete by early fall 2025. Students will be relocated to the John Marshall school site for the duration of construction.

After conducting an independent review, SPS has determined that the project does not have significant adverse impacts on the environment as documented in the checklist and the enclosed Mitigated Determination of Nonsignificance (MDNS).

The final SEPA checklist discusses the potential environmental impacts that could result from the construction of the project. A draft of the checklist was released for public comment from June 13 to July 13, 2022. Comments received informed revisions to the final SEPA checklist on which the MDNS is based. The responses to written comments received are summarized in the SEPA Public Comments and Seattle Public Schools Responses, included with the SEPA checklist.

Thank you for your participation in the SPS SEPA process. Your involvement has helped to make the John Rogers Elementary School Replacement proposal a much better project.

Fred Podesta, Assistant Superintendent of Operations
P.O. Box 34165, MS 22-183, Seattle WA 98124 * 206-252-0102

WAC 197-11-350 Mitigated Determination of Nonsignificance (MDNS)

STATE ENVIRONMENTAL POLICY ACT
MITIGATED DETERMINATION OF NONSIGNIFICANCE (MDNS)
JOHN ROGERS ELEMENTARY SCHOOL REPLACEMENT PROJECT

Date of issuance: Nov. 30, 2022
Lead agency: Seattle Public Schools
Location of proposal: John Rogers Elementary School, 4030 NE 109th St., Seattle, WA 98125
(SW quarter of Section 27, Township 26, Range 04)

Description of proposal – The proposed John Rogers Elementary School Replacement Project is intended to expand the capacity of the school and upgrade the quality of the student learning environment. The existing building and two portable buildings will be demolished and one portable building relocated to a new site. A new, three-story, approximately 88,000-square-foot school building will be constructed. The proposed building would include 24 classrooms, a gymnasium, a kitchen, dining commons, a library and media center, a music room, an art room, learning commons spaces, offices, and other support spaces. Overall, the project would provide capacity for approximately 500 students in grades kindergarten through 5th grade, as well as two classrooms that can be used for either two 30-student, licensable child care classrooms for before- and after-school care for students enrolled at the school, or they can be used for two 20-student preschool classrooms. If the two classrooms are used for pre-school, the total student capacity would be approximately 540 students in grades pre-K through 5th grade.

A hard surface play area is proposed south of the proposed building and would include new playground equipment and climbing structures. Outdoor classrooms and garden space would be provided adjacent to the proposed building. The existing grass playfield will be replaced in its current location with a new grass field area that would provide space for soccer and kickball; a walking path also would be provided around the perimeter of the field. In total, approximately 108,200 square-feet of recreation space would be provided on the site with the proposed project.

The proposal provides separate areas for school bus load/unload and passenger vehicle load/unload. In total, the project proposes 42 parking spaces for school-day use. For occasional evening or weekend events, the school-bus load/unload area (12 spaces) and the hard-surface play area (estimated to accommodate about 20 vehicles) could be used in addition to the school-day parking areas. The event-parking within the hard surface play area would be used infrequently for all-school after-hours events. In total, site would have 74 parking spaces for event conditions. Existing off-site angle parking adjacent to the south portion of the site (along the north side of the NE 105th Street right-of-way) also would be retained and improved with site frontage improvements along NE 105th Street.

During the construction process, students and staff would be temporarily housed at the John Marshall site (520 NE Ravenna Blvd.).

The lead agency for this proposal has determined that the proposal, as mitigated, will not have a probable significant adverse impact on the environment. Pursuant to WAC 197-11-350(3), the proposal has been clarified, changed and conditioned to include necessary mitigation measures to avoid, minimize or compensate for probably significant impacts. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). The findings, conclusions and necessary mitigation measures are provided below.

FINDINGS AND CONCLUSIONS

The following Findings and Conclusions are made following review of the Transportation section (Section 14) of the SEPA checklist, the Transportation Technical Report and the Parking Analysis Addendum prepared for the project.

1. The existing school site is bounded by NE 110th Street on the north; residential parcels and a small segment of 40th Avenue NE on the west; NE 105th Street on the south; and residential and church property on the east. The site currently has two primary access driveways – one opposite NE 109th Street and an exit-only driveway on NE 110th Street. The property has formal onsite parking for 35 spaces. Informal parking occurs east of the school building in an asphalt area that accommodates 23 to 26 spaces. A gravel parking area is located offsite along the north side of NE 105th Street with capacity for about 25 vehicles.
2. The existing school is serviced by two full-size school buses and two smaller Special Education buses; no change to the number of buses is anticipated. King County Metro Transit provides three routes of bus service in the area.
3. The existing site access on NE 110th Street will be widened for two-way access. The existing access on NE 109th Street would be reconfigured to accommodate a new on-site school-bus loop and service/delivery access. New curb ramps would be provided at the intersection at 40th Avenue NE. Frontage improvements will be provided along 40th Avenue NE as required by Seattle Department of Transportation (SDOT). A new site access driveway on NE 105th Street would be provided and the existing school-bus load zone on the south side of NE 109th Street would be removed.
4. The proposal will reconfigure parking areas resulting in a decrease of on-site parking supply to 42 spaces for school day use. Evening or weekend event parking also can be accommodated in the school-bus load/unload area and the hard-surface play area for a total of 74 spaces, which is an increase of 23 spaces from existing evening/special event conditions. The off-site angle parking on NE 105th Street is expected to be largely retained. The existing school-bus load/unload only area along the south side of NE 109th Street west of 40th Avenue NE is to be removed, and the area can be used for parking. A City of Seattle Departure will be required for less than the code-required off-street parking.
5. A detailed study of parking conditions was provided in the Transportation Technical Report and the Parking Analysis Addendum. The expanded school could generate an additional parking demand during the school day of 51 to 69 vehicles, which is an increase of 10 to 20 vehicles more than the existing condition. On-street parking in the vicinity averages 17% occupied on school days with about 320 unused spaces. The increase in school-day parking demand could be accommodated on-street by the unused supply, and typical utilization is estimated to remain below 30%. Daytime parking demand would not result in significant adverse impacts to the area.
6. Special events will continue periodically through the school year with attendance ranging from 50 to 300 people. For larger events, carpooling with 3 to 3.5 people per car is typical. The larger events could generate parking demand of about 270 vehicles; 74 could be accommodated onsite and the remainder in available on-street spaces, with total utilization of on-street spaces remaining at or below 70%. Evening and special event parking demand would not result in significant adverse impacts to the area.
7. The increased enrollment capacity will increase vehicle trips by approximately 630 trips during the entire day. The peak volumes occur in the morning and afternoon and are associated with school start and stop times. All of the study-area intersections are forecast to remain operating at loss of service reasonably free flow (LOS B) or better overall with the proposed project and would not be considered a significant adverse impact. Side-street movements are expected to experience increases in delay and operate at LOS E (unstable flow, operating at capacity) or better for a short period of

time each day; these type of conditions are generally tolerated by SDOT in lieu of traffic control measures. As is typical in school areas during peak conditions – some congestion would likely occur for about 20 minutes before and after school, however, it would not result in significant adverse impacts to study area traffic operating conditions.

MITIGATION MEASURES
With these measures, the project would not be anticipated to result in a significant adverse impact:

1. **Construction Transportation Management Plan (CTMP)**: The district will require the selected contractor to develop a CTMP that addresses traffic and pedestrian control during construction of the new facility. It would define truck routes, lane closures, walkway closures, and parking or load/unload area disruptions, as necessary. To the extent possible, the CTMP would direct trucks along the shortest route to arterials and away from residential streets to avoid unnecessary conflicts with resident and pedestrian activity. The CTMP also may include measures to keep adjacent streets clean on a daily basis at the truck exit points (such as street sweeping or on-site truck wheel cleaning) to reduce tracking dirt offsite.
2. **Transportation Management Plan (TMP)**: Prior to the school reopening, the district and school principal will establish a TMP to educate families about the access load/unload procedures for the new site layout. The TMP also will encourage school bus ridership, carpooling, bicycling, and supervised walking (such as walking school buses). The plan will require the school to distribute information to families about drop-off and pick-up procedures, as well as travel routes for approaching and leaving the school. It also will instruct staff and parents not to block or partially block any residential driveways with parked or stopped vehicles.
3. **Update right-of-way and curb-side signage**: The district will work with SDOT to confirm the removal of signage for the school-bus load zone on the south side of NE 109th Street.

This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request at the following location: John Stanford Center, 2445 3rd Ave. S, Seattle, WA 98124-1165 (Attn: Amanda Fulford), Phone: 206-252-0697) and online at https://www.seattleschools.org/departments/sepa/

This MDNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal prior to Dec. 15, 2022 (at least 15 days from the issuance date listed above) following a concurrent comment and appeal period. Comments and appeals (appealed by written notice setting forth specific factual objections) are to be received no later than Dec. 15, 2022 (15 days), sent to:

Superintendent
Seattle Public Schools
P.O. Box 34165, MS 32-151
Seattle, WA 98124-1165

Name of agency making threshold determination: Seattle Public Schools
Responsible Official: Fred Podesta, Assistant Superintendent of Operations, Seattle Public Schools
Phone: 206-252-0102
Address: MS 22-183, P.O. Box 34165, Seattle, WA 98124-1165

Date: Nov. 23, 2022 **Signature:** Fred Podesta

FINAL ENVIRONMENTAL CHECKLIST

for the proposed

John Rogers Elementary School Replacement Project

prepared by

SEATTLE PUBLIC SCHOOLS

November 2022

EA Engineering, Science, and Technology, Inc., PBC
GeoEngineers, Inc.
Tree Solutions, Inc.
Raedeke Associates, Inc.
Perteet
Heffron Transportation, Inc.

PREFACE

The purpose of this Final Environmental Checklist is to identify and evaluate probable environmental impacts that could result from the ***John Rogers Elementary School Replacement Project*** and to identify measures to mitigate those impacts. The proposed ***John Rogers Elementary School Replacement Project*** is intended to expand the capacity of the school and upgrade the quality of the student learning environment for students. Development of the project would require the demolition of the existing building and two portable buildings, as well as the relocation of one portable building to a new site, to accommodate construction of a new, multi-story, approximately 88,000-sq. ft. building. Overall, the project would provide capacity for approximately 500 students in K through 5th Grade. Two classrooms would also be provided that can be used for either two childcare classrooms for before- and after-school care for students enrolled at the school, or they can be used for two pre-school classrooms. If the two classrooms are used for pre-school, the total student capacity would be approximately 540 students in grades Pre-K through 5th Grade.

The State Environmental Policy Act (SEPA)[1] requires that all governmental agencies consider the environmental impacts of a proposal before the proposal is decided upon. This Final Environmental Checklist has been prepared in compliance with the State Environmental Policy Act; the SEPA Rules, effective April 4, 1984, as amended (Chapter 197-11, Washington Administrative Code); and the Seattle City Code (25.05), which implements SEPA.

This document is intended to serve as SEPA review for site preparation work, building construction, and operation of the proposed development comprising the ***John Rogers Elementary School Replacement Project.*** Analysis associated with the proposed project contained in this Environmental Checklist is based on plans for the project, which are on-file with Seattle Public Schools. While not construction-level detail, the plans accurately represent the eventual size, location and configuration of the proposed project and are considered adequate for analysis and disclosure of environmental impacts.

This Environmental Checklist is organized into three major sections. *Section A* of the Checklist (starting on page 1) provides background information concerning the *Proposed Action* (e.g., purpose, proponent/contact person, project description, project location, etc.). *Section B* (beginning on page 6) contains the analysis of environmental impacts that could result from implementation of the proposed project, based on review of major environmental parameters. This section also identifies possible mitigation measures. *Section C* (page 44) contains the signature of the proponent, confirming the completeness of this Environmental Checklist.

Appendices to this Environmental Checklist include: the *Geotechnical Basis of Design Report* (GeoEngineers, Inc., 2021), *Summary of Construction Best Management Practices*, the *Greenhouse Gas Emissions Worksheet* (EA Engineering, 2022), *Wetland and Stream Assessment Report* (GeoEngineers, 2022), the *Tree Inventory/Arborist Report and Addendum* (Tree Solutions, Inc., 2022), the *Wildlife Habitat Assessment* (Raedeke Associates, Inc.); the *Landmark Nomination Determination* (City of Seattle, 2021), the *DAHP Governor's Executive Order 21-02 Determination* (DAHP, 2022), the *Cultural Resources Assessment* (Perteet, 2022), the *Transportation Technical Report and Addendum* (Heffron Transportation, Inc., 2022); and, the Summary of Public Comments and Responses.

---

[1] Chapter 43.21C. RCW

Table of Contents

[2] The Cultural Resources Assessment is on-file with SPS and available upon request.

PURPOSE

The State Environmental Policy Act (SEPA), Chapter 43.21 RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. The purpose of this checklist is to provide information to help identify impacts from the proposal (and to reduce or avoid impacts, if possible) and to help Seattle Public Schools to make a SEPA threshold determination.

A. BACKGROUND

1. Name of Proposed Project:

John Rogers Elementary School Replacement Project

2. Name of Applicant:

Seattle School District No. 1 (Seattle Public Schools)

3. Address and Phone Number of Applicant and Contact Person:

Amanda Fulford
Project Manager
Seattle Public Schools
2445 3rd Avenue S
Seattle, WA 98134
206-252-0697

4. Date Checklist Prepared

November 4, 2022

5. Agency Requesting Checklist

Seattle School District No. 1
2445 – 3rd Avenue South
MS 22-332, P.O. Box 34165
Seattle, WA 98124-1165

6. Proposed Timing or Schedule (including phasing, if applicable):

The ***John Rogers Elementary School Replacement Project*** that is analyzed in this Final Environmental Checklist involves site preparation work, construction, and operation of the project. Site preparation and construction could begin in approximately June 2023 with building occupancy in approximately September 2025.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Previous master planning for the project site identified a potential capacity of approximately 650 students for the school site. In the event that SPS identifies a need to expand capacity beyond what is identified in this checklist then future SEPA would be required for any such project. No future plans for further development of the project site are proposed at this time.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal:

The following environmental information has been prepared for the project and is included as appendices to this Checklist:

- *Geotechnical Basis of Design Report* (GeoEngineers, October 8, 2021);
- *Greenhouse Gas Emission Worksheet* (EA Engineering, April 2022);
- *Wetland and Stream Assessment Report* (GeoEngineers, May 31, 2022)*;*
- *Draft Tree Inventory and Arborist Report* (Tree Solutions, March 11, 2022);
- *Arborist Report Addendum* (Tree Solutions, September 13, 2022);
- *Wildlife Habitat Assessment* (Raedeke Associates, October 13, 2022);
- *Landmark Nomination Determination* (City of Seattle, August 19, 2021)*;*
- *DAHP Governor's Executive Order 21-02 Determination* (DAHP, May 11, 2022*);*
- *Cultural Resources Assessment* (Perteet, May 3, 2022)[3];
- *Transportation Technical Report* (Heffron Transportation, June 2, 2022);
- *Parking Analysis Addendum* (Heffron Transportation, September 27, 2022).

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain:

There are no known other applications that are pending approval for the ***John Rogers Elementary School Replacement Project*** site.

10. List any government approvals or permits that will be needed for your proposal, if known:

City of Seattle

- <u>*Seattle Department of Construction and Inspections (SDCI)*</u>

  Permits/approvals associated with the proposed project, including:
  - Demolition Permit
  - Master Use Permit
  - Building Permit
  - Mechanical Permits

[3] The Cultural Resources Assessment is on-file with SPS and available upon request.

- Electrical and Fire Alarm Permits
- Drainage and Side Sewer Permit
- Comprehensive Drainage Control Plan Approval
- Drainage Control Plan with Construction Best Management Practices, Erosion and Sediment Control Approval
- Land Use Code Departure Approval (building height, onsite parking, bicycle parking performance standards – secure locations and arrangements, changing-image sign)

- *Seattle Department of Transportation (SDOT)*
  - Street Use and Construction Use Permit (temporary – construction related)
  - Street Use and Utility Permit
  - Street Improvement Permit

King County

- Plumbing Permit
- Sewer Treatment Capacity Charge Approval
- Health Department Approval

Puget Sound Clean Air Agency

- Air Quality Permit – Demolition

Washington State Department of Ecology

- NPDES Construction Stormwater General Permit

Washington State Department of Archaeology and Historic Preservation

- Governor's Executive Order 21-02 Review

11. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

Existing Site Conditions

The proposed ***John Rogers Elementary School Replacement Project*** site is located at 4030 NE 109th Street within Seattle's Matthews Beach neighborhood. The school campus is generally bounded by NE 110th Street to the north, existing residences to the east, NE 105th Street to the south, and 40th Avenue NE and existing residences to the west (see **Figures 1** and **2**).

The existing one-story school building is located in the north portion of the site and contains approximately 40,350 sq. ft. of building space with approximately 14 classrooms, a gymnasium, a library, a cafeteria/auditorium, administrative and support spaces, and a covered playcourt. Three portable classroom buildings are also located to the south of the school building at the south edge of the hard surface area. Existing hard surface play areas are located to the west and south of the existing building;

existing playground equipment is also located along the western edge of the site in this area.

The south portion of the site is comprised of a large grass playfield area which sits at a lower elevation than the northern portion of the site. This area, known as John Rogers Playfield Park, contains grass open space and a baseball/softball diamond at the south end of the site. A paved walking path surrounds the perimeter of the field area. This area is utilized for school activities, as well as by sports teams from Nathan Hale High School for practices and competitions. Public access to the field is also allowed during non-school hours.

Parking for the school is located in two separate parking lots located to the north of the building. The northernmost lot contains approximately 20 parking stalls while the southernmost lot contains approximately 15 parking stalls. Parking also occurs along the eastern side of the school building on asphalt areas that are not formally striped for parking. The site contains two primary access driveways, one opposite NE 109th Street and an exit-only northbound driveway onto NE 110th Street. The onsite parking lots are accessed from the exit-only one-way northbound driveway that extends north from the access opposite NE 109th Street. A gravel parking area is also located off-site within the north side of the NE 105th Street right-of-way, adjacent to the south end of the site and John Rogers Playfield Park. This area has no formal striping but has space for approximately 25 vehicles.

Historically, enrollment at the school peaked in the mid-1960s with approximately 779 students during the 1963-64 school year and subsequently began to decline. As of March 2022, the enrollment for the school was approximately 262 students. The school also has approximately 45 full-time and part-time employees. The school has an current existing capacity for approximately 342 students (including the existing portable buildings).

Proposed Project

The proposed ***John Rogers Elementary School Replacement Project*** is intended to expand the capacity of the school and upgrade the quality of the student learning environment. Development of the project would require the demolition of the existing building and two portable buildings, as well as the relocation of one portable building to a new site, in order to accommodate construction of a new, three-story, approximately 88,000-sq. ft. building. During the construction process, students and staff would be temporarily housed at the John Marshall site (520 NE Ravenna Boulevard) until the new school building is operational.

The proposed three-story building would include 24 classrooms (including one special education classroom), a gymnasium, kitchen and dining commons, a library and media center, a music room, an art room, learning commons spaces, offices, and other support spaces. Overall, the project would provide capacity for approximately 500 students in grades K through 5th Grade, as well as two classrooms that can be used for either two 30-student licensable childcare classrooms for before- and after-school care for students enrolled at the school, or they can be used for two 20-student pre-school classrooms. If the two classrooms are used for pre-school, the total student capacity would be approximately 540 students in grades Pre-K through 5th Grade.

A hard surface play area would be located to the south of the proposed building and would include new playground equipment and climbing structures. Outdoor classrooms and garden space would be provided adjacent to the proposed building. As project design has progressed since the issuance of the Draft SEPA Checklist, the option of a potential new synthetic turf field has been removed from the project. The proposed project design will now include the replacement of the existing grass playfield in its current location with a new grass field area that would provide space for soccer and kickball; a walking path would also be provided around the perimeter of the field. In total, approximately 108,200 sq. ft. of recreation space would be provided on the site with the proposed project.

The existing northernmost staff parking lot would be retained with its access widened to allow entry and exit from the existing location on NE 110th Street just east of 40th Avenue NE and would include 22 spaces. An onsite school bus load/unload loop, a small visitor parking lot (5 parking stalls) and service/delivery access would be located at the northwest corner of the new building, opposite NE 109th Street. Additional staff/visitor parking (5 stalls) and a new onsite passenger vehicle load/unload loop (with room for 10 vehicles) would be provided along the southeast edge of the site with access from a new driveway to NE 105th Street. In total, parking for approximately 32 vehicles would be provided onsite for regular all-day use; the onsite passenger vehicle load/unload area (10 spaces) could also be used for visitor parking during the school day. In total, project proposes 42 parking spaces for school-day use. For occasional evening or weekend events, the school-bus load/unload area (12 spaces) and the hard-surface play area (estimated to accommodate about 20 vehicles) could be used in addition to the school-day parking described above. The event-parking within the hard surface play area would be used infrequently for all-school after-hours events. In total, site would have 74 parking spaces for event conditions. Existing off-site angle parking adjacent to the south portion of the site (along the north side of the NE 105th Street right-of-way) would also be retained and improved with site frontage improvements along NE 105th Street.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any. If a proposal would occur over a range of area, provide the range or boundaries of the site(s).

The proposed ***John Rogers Elementary School Replacement Project*** site is located at 4030 NE 109th Street (a portion of the SW Quarter of Section 27, Township 26, and Range 4) within Seattle's Matthews Beach neighborhood. The school campus is generally bounded by NE 110th Street to the north, existing residences to the east, NE 105th Street to the south, and 40th Avenue NE and existing residences to the west (see **Figures 1** and **2**).

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one):
Flat, rolling, hilly, steep slopes, mountainous, other:____

The topography of the John Rogers Elementary site is generally characterized by a series of terraces that are situated on a hillside that slopes from north to south. The highest elevation terrace is located in the north portion of the site, adjacent to NE 110th Street. The central terrace is approximately 60 feet below the elevation of NE 110th Street, while the south terrace is approximately 20 feet below the central terrace. The south terrace contains the existing playfield and is generally flat.

b. What is the steepest slope on the site (approximate percent slope)?

According to the City of Seattle's Environmentally Critical Areas (ECA) Maps, an ECA steep slope area is located in the northeast portion of the site and contains the steepest slopes on the site (approximately 60 percent). An ECA steep slope area is also located along the western boundary of the site (*City of Seattle, 2022*). See **Appendix A** and **D** for further details.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

A geotechnical report was completed for the project site (*GeoEngineers, Inc., 2022*) and included 14 site exploration borings as part of onsite investigations. Borings were completed to depths ranging from 11.5 feet to 41.5 feet below ground surface. The soils encountered on the site were comprised of three general soil units: fill, lake deposits, and glacially consolidated soils. Fill within the site area typically consisted of very loose to very dense silty sand with variable gravel content and occasional organic matter. Lake deposits were characterized by very soft to stiff silt and/or clay with variable sand content. Glacially consolidated soils consisted of medium dense to very dense silty sand with variable gravel content and hard silt or clay (see **Appendix A**).

The proposed project site does not contain agricultural land areas of commercial significance.

d. **Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

There are no indications or history of unstable soils on the site or adjacent to the site and no evidence of landslide activity or unstable soils was observed during the preparation of the Geotechnical Report. However, as noted above, areas in the northeast portion of the site are designated as ECA steep slopes by the City of Seattle and since these slopes are greater than 40 percent and greater than 10 feet tall they would also be designated as potential landslide hazard areas and erosion hazard areas (see **Appendix A**).

e. **Describe the purpose, type, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.**

Approximately 6,000 cubic yards of material would be excavated from the site during construction activities and approximately 39,000 cubic yards of fill would be imported to the site. The specific source of fill material is not known at this time but would be obtained from a source approved by the City of Seattle.

f. **Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Temporary erosion is possible in conjunction with any construction activity. Site work would expose soils on the site, but the implementation of a Temporary Erosion Sedimentation Control (TESC) plan that is consistent with City of Seattle standards and the implementation of best management practices (BMPs) during construction would mitigate any potential impacts.

Once the project is operational, no erosion is anticipated.

g. **About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

Approximately 37 percent of the school campus is currently covered with impervious surfaces, including buildings, paved play areas, walkways, parking areas and other impervious surfaces.

With the completion of the proposed project, up to approximately 51 percent of the campus would be covered with impervious surfaces. Impervious surfaces with the proposed project would primarily consist of the proposed new building, paved walkways, driveways and parking areas, hard surface play areas and other recreation areas.

h. **Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

The proposed project would comply with City of Seattle regulations, including providing a Temporary Erosion and Sedimentation Control (TESC) Plan and Best Management Practices (BMPs). **Appendix B** also provides a summary of Construction BMPs that are typically utilized by Seattle Public Schools during the construction process. The following measures would be implemented during construction to control erosion:

- Design and construction of the proposed project shall comply with the recommendations of the Geotechnical Engineer (see **Appendix A**);
- Provide storm drain inlet protection;
- Route surface water away from work areas;
- Keep staging areas and travel areas clean and free of track-out;
- Cover work areas and stockpiled soils when not in use;
- Complete earthwork during dry weather and site conditions, if possible; and,
- Provide temporary sediment settling facilities.

2. Air

a. **What type of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

Construction of the ***John Rogers Elementary School Replacement Project*** could result in temporary increases in localized air emissions associated with particulates and construction-related vehicles. It is anticipated that the primary source of temporary, localized increases in air quality emissions would result from particulates associated with demolition, on-site excavation and site preparation. While the potential for increased air quality emissions could occur throughout the construction process, the timeframe of greatest potential impact would be at the outset of the project in conjunction with the site preparation and excavation/grading activities. However, with the implementation of a TESC plan and construction BMPs, air quality emission impacts are not anticipated to be significant.

Temporary, localized emissions associated with carbon monoxide and hydrocarbons would result from diesel and gasoline-powered construction equipment operating on-site, construction traffic accessing the project site, and construction worker traffic. However, emissions from these vehicles and equipment would be small and temporary and are not anticipated to result in a significant impact.

Upon completion of the project, the primary source of emissions would be from vehicles travelling to and from the site, including buses and commuter vehicles. Seattle Public Schools maintains an anti-idling policy for buses which has been demonstrated to minimize potential emissions during student drop-off and pickup periods. As a result, significant adverse air quality impacts would not be anticipated.

Another consideration with regard to air quality and climate relates to Greenhouse Gas Emissions (GHG). In order to evaluate climate change impacts of the proposed project relative to the requirements of the City of Seattle, a Greenhouse Gas Emissions Worksheet has been prepared (see **Appendix C** of this Environmental Checklist). This Worksheet estimates the emissions from the following sources: embodied emissions; energy-related emissions; and, transportation-related emissions. In total, the estimated lifespan emissions for the proposed new building addition would be approximately 92,002 $MTCO_2e$[4]. Based on an assumed building life of 62.5 years[5], the proposed building addition project would be estimated to generate approximately 1,472 $MTCO_2e$ annually. For reference, the Washington State Department of Ecology threshold for potential significant GHG emissions is 25,000 $MTCO_2e$ annually. Therefore, the proposed project would not be anticipated to generate a significant amount of GHG emissions.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

The primary off-site source of emissions in the site vicinity is vehicle traffic on surrounding roadways, including NE 110th Street, NE 109th Street, and NE 105th Street. There are no offsite sources of air emissions or odors that may affect the proposed project.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

The following measure would be provided to reduce/control air quality impacts during construction:

- Construction activities would be required to comply with Puget Sound Clean Air Agency (PSCAA) regulations, including Regulation I, Section 9.11 (prohibiting the emission of air contaminants that would be injurious to human health) and Regulation I, Section 9.15 (prohibiting the emission of fugitive

4 $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent and is a standard measure of amount of CO_2 emissions reduced or sequestered.

5 According to the Greenhouse Gas Emissions Worksheet, 62.5 years is the assumed building life for educational buildings.

dust, unless reasonable precautions are employed). Additional mitigation measures to minimize air quality impacts during construction are identified in **Appendix B**.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Thornton Creek has been channelized in the site vicinity and runs adjacent to a portion of the western boundary and through a portion of the southwest corner of the ***John Rogers Elementary School Replacement Project*** site. A Wetland and Stream Assessment Report was prepared by GeoEngineers for the project to assess these areas (*GeoEngineers, 2022*). Thornton Creek flows from under 39th Avenue NE approximately 300 feet east through residential backyards towards the site, then turns to flow adjacent to the southwest boundary of the site before crossing onto the site for approximately 60 feet and entering a culvert under NE 105th Street. The portion of the creek within the site area is located outside of the fenced boundary of the developed portion of the site. Beyond the site area, Thornton Creek generally flows to the southeast towards Lake Washington.

This portion of Thornton Creek is characterized by steep armored banks and varies from unvegetated to densely vegetated within this area. According to SMC 25.09.012.D3, Thornton Creek is considered a Type F stream with an associated riparian management area that extends 100 feet from the top of the bank or ordinary high water mark (OHWM). See **Appendix D** for further details.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The proposed project would not require any work over or within Thornton Creek. A portion of the riparian management area and Limited Riparian Development Area (LRDA) is located within the south area of the project site. Per SMC 25.09.020D.5a, the LRDA is the outer 25 feet of the 100-foot riparian management area where some limited development is allowed; however, development including but not limited to impervious surfaces, must not exceed 35 percent of the LRDA. The proposed project would include a small portion of the new grass playfield with underdrainage, a walking path and fencing, as well as a new school driveway, walkway, and stormwater facility within the LRDA. All proposed development within the LRDA would be below the 35 percent maximum for impervious surfaces as identified in SMC 25.09.020D.5a. Improvements in the south portion of the site would be designed to comply with applicable critical areas regulations regarding Thornton Creek and the associated riparian management area.

Right-of-way improvements as required by SDOT would also be provided in the south portion of the site, including the removal of invasive plants and replanting with native vegetation in the southwest corner of the site, as well as relocating and widening the existing driveway in the southeast corner of the site and planting new grass planter strips on both sides of the driveway (see **Appendix D** for details).

3) **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

No fill or dredge material would be placed in or removed from any surface water body as a result of the proposed project.

4) **Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

The proposed project would not require any surface water withdrawals or diversions.

5) **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

The channel of Thornton Creek near the southwest corner of the site is located within the Federal Emergency Management Agency (FEMA) mapped regulatory floodway. The creek channel and some upland areas that are located upstream and downstream of the project site are within the FEMA mapped 100-year floodplain. The project site itself is not located within the 100-year floodplain but portions of the site are located within 0.2 percent annual chance flood hazard areas or areas of one percent annual chance flood with average depth less than one-foot or with drainage areas of less than one-square-mile (see **Appendix D** for details).

6) **Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

There would be no discharge of waste materials to surface waters.

b. **Ground:**

1) **Will ground water be withdrawn, or will water be discharged to ground water? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.**

   No groundwater would be withdrawn or water discharged to ground water as part of the proposed project. Geotechnical investigations were conducted in September 2021 as part of the Geotechnical Report for the project and included groundwater monitoring wells and groundwater observations during soil boring explorations. Areas in the north central portion of the site were observed to have groundwater levels that fluctuated between 5 and 6 feet below ground surface and were likely associated with perched groundwater flow from the hillside north of this area. Areas of the south central and south portion of the site were observed to have groundwater levels of 8 feet and 18 feet below ground surface depending on the location which indicates that this area has static groundwater (present at the site year-round but may vary in elevation seasonally). Construction dewatering may be required during development of the project. For areas of perched groundwater this could be managed with sumps, pumps, and/or diversion ditches. For areas with static groundwater, dewatering would likely be required to extend elevations below the static groundwater level (see **Appendix A**).

2) **Describe waste material that will be discharged into the ground from septic tanks or other sources; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

   Waste material would not be discharged into the ground from septic tanks or other sources as a result of the proposed project.

c. **Water Runoff (including storm water):**

1) **Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

   Approximately 37 percent of the existing John Rogers Elementary campus is comprised of impervious surfaces, including existing buildings and paved surfaces (parking areas, play areas, walkways, etc.). The existing stormwater management system for the site is comprised of catch basins and underground conveyance pipes.

Within the existing playfield in the south portion of the site, catch basins and conveyance pipe around the perimeter of the field and under drains in the existing ballfield are conveyed to a biofiltration swale located in the southeast corner of the site. Discharges from the biofiltration swale and stormwater from the north portion of the site are conveyed to the existing 72” Seattle Public Utilities (SPU) pipe storm drain that runs west to east through the field area and eventually discharges to Lake Washington.

With completion of the ***John Rogers Elementary School Replacement Project***, up to approximately 51 percent of the campus would be comprised of impervious surfaces. The site stormwater design for the project would be consistent with the City of Seattle’s 2021 storm water manual and include water quality facilities for pollution generating impervious surfaces and pollution generating pervious areas. Onsite stormwater management (OSM) measures would also be evaluated and implemented where feasible as required by the City’s current stormwater manual. Based on existing soils on the site, it is anticipated that infiltration will not be feasible for the majority of the site and as such, non-infiltrating OSM facilities and other alternative approaches would likely be implemented as part of the drainage stormwater design for the project. It is anticipated that the proposed stormwater system will also reuse the existing connections to the onsite 72-inch SPU pipe storm drain and new connections would be made, if necessary. With the implementation of the proposed stormwater improvements and measures, no significant stormwater runoff impacts would be anticipated.

2) Could waste materials enter ground or surface waters? If so, generally describe.

The proposed stormwater management system for the site would continue to ensure that waste materials would not enter ground or surface waters as a result of the proposed project.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? *If so, describe.*

The proposed project would not alter or otherwise affect drainage patterns in the site vicinity.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

The following measures would be implemented to control surface, ground and runoff water impacts:

- A Temporary Erosion and Sedimentation Control (TESC) Plan and Construction Best Management Practices (BMPs) would be implemented during construction to reduce erosion and minimize impacts to water resources.

- Stormwater management for the proposed project would comply with applicable City requirements, including the City's Stormwater Code (*SMC 22.800*).

4. Plants

a. Check or circle types of vegetation found on the site:

X deciduous tree:
X evergreen tree:
X shrubs
X grass
__ pasture
__ crop or grain
__ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
__ water plants: water lily, eelgrass, milfoil, other
_ other types of vegetation

A draft tree inventory and assessment (**Appendix E**) was completed for the project (*Tree Solutions, Inc., 2022*). Approximately 174 regulated trees (greater than six inches in diameter at standard height) are located on the school campus. The site has a range of species, including Red alder, Black cottonwood, Western hemlock, Lawson cypress, Norway spruce, Douglas-fir, Bitter cherry, Deodar cedar, Apple, Cherry plum, Red maple, Common hawthorn, American sweetgum, Beaked hazelnut, White willow, Weeping willow, Black locust, Alaskan yellow cedar, Japanese cedar, Italian plum, English oak, and White poplar. The trees range in size up to 48 inches in diameter. Six of the trees on the school campus meet the City of Seattle's criteria for an exceptional tree as individual trees (*City of Seattle Director's Rule 16-2008*) and 71 trees met the criteria because they were part of an exceptional grove[6].

In addition, 7 trees located adjacent to the site were also documented due to their proximity to the site.

b. What kind and amount of vegetation will be removed or altered?

As part of the proposed project, tree removal would occur in three general locations on the site: the north side of the existing building, the south bioswale area, and the eastern fire lane area. Within the area to the north of the existing building, tree removal would be required to accommodate the new school building, bus loop and access stair and path to connect the north parking lot to the proposed building. However,

[6] The City defines an exceptional grove as 8 or more trees each with a diameter of 12 inches or greater and with continuously overlapping canopies.

no exceptional trees would be removed within the north side of the existing building area.

There would also be no exceptional trees removed from the south bioswale area. But tree removal in this area would include volunteer cottonwood trees in the bioswale stormwater facility and red maple trees adjacent to the bioswale. The bioswale stormwater facility was installed when previous improvements were made to the playfield drainage and a new stormwater facility would be installed to replace that facility.

Within the eastern fire lane area, 10 Black cottonwood trees would be removed and these trees meet the City's definition of an exceptional tree based on being part of an exceptional grove. These Black cottonwood trees are located at the bottom of the hill adjacent to the existing fire lane. Their roots are uplifting the fire lane and their canopies overhang the existing school building. Cottonwood trees are a pioneer species that put their energy into fast growth and have weak wood which makes them not compatible with a school site. The natural succession process involves cottonwoods dropping limbs or falling over and becoming nurse logs for conifer species that come next as the dominant species.

Subsequent to the issuance of the Draft SEPA Checklist, the project arborist completed additional analysis on the project and existing trees, including exceptional trees. The addendum to the arborist report (see **Appendix E**) recommended that an additional 7 cottonwood trees (including 5 exceptional trees) be removed due to potential high risk. In total, 17 cottonwood trees would be removed from the eastern fire lane area, including 15 exceptional trees. As part of the arborist report addendum analysis, the project arborist also revisited the site to assess the impact of tree removal on the remaining exceptional groves and determined that the potential negative impact from removal of the cottonwood trees would be minimal and it would not jeopardize the health of the exceptional groves. It should also be noted that pursuant to Seattle Director's Rule 16-2008, black cottonwood trees cannot be determined to be exceptional based on size along and only exception if they are part of an exceptional grove and not considered a high risk.

The replanting plan for the site would speed up the succession process by removing cottonwoods that pose the highest risk to the school and planting, at minimum, an equal number of native conifers, including Douglas fir and Western red cedar to revegetate the hill with species that will live longer and provide better stabilization for the hill.

Landscape areas surrounding the existing building would be removed during the construction process for the proposed building. The existing playfield in the south portion of the site would also be modified during construction and replaced with a new grass field as part of the project.

c. **List threatened or endangered species known to be on or near the site.**

No known threatened or endangered species are located on or proximate to the project site.

d. **Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:**

New landscaping would be provided on the site as part of the ***John Rogers Elementary School Replacement Project***. These landscape areas would be planted with a mix of native and/or native adaptive shrubs, ferns and groundcovers. Proposed parking areas would also be landscaped with trees and groundcovers, consistent with SMC 23.51B.002. Limited landscape areas that would be impacted by construction within exceptional tree stands and other tree stands would be cleared of non-native and invasive species and treated with arborist wood chip mulch for root and soil protection. Outdoor classroom and garden space areas would be provided as part of the project and would include approximately 29,000 sq. ft. of space in areas surrounding the proposed building.

The existing grass field would also be modified during construction and replaced with a new grass field for recreation uses. The new grass surface would continue to provide a natural recreation surface but would also require irrigation and fertilization as part of maintenance.

Existing trees would be retained to the extent feasible, particularly those exceptional trees. All tree removal on the site, including removal of exceptional trees would comply with the City of Seattle Tree Ordinance and replacement requirements. In particular, along the eastern fire lane area, the replanting plan would include, at minimum, an equal number of native conifers for those exceptional trees that would be removed, including Douglas fir and Western red cedar to revegetate the hill with species that will live longer and provide better stabilization for the hill.

All retained trees on the school campus would be protected during construction by following tree protection measures that are outlined in **Appendix E**. The draft tree inventory and assessment (**Appendix E**) will also be finalized upon the completion of the construction plans for the project.

e. **List all noxious weeds and invasive species known to be on or near the site.**

Noxious weeds or invasive species that could be present in the vicinity of the site include Japanese knotweed, English Ivy and Himalayan blackberry.

5. Animals

a. **Circle (underlined) any birds and animals that have been observed on or near the site or are known to be on or near the site:**

birds: **songbirds,** hawk, heron, eagle**, other: seagulls, pigeons, crows**
mammals: deer, bear, elk, beaver**, other: squirrels, raccoons, rats, mice, opossum**
fish: bass, **salmon**, **trout**, herring, shellfish**, other:**

Birds and small mammals tolerant of urban conditions may use and may be present on and near the ***John Rogers Elementary School Replacement Project*** site. Mammals likely to be present in the site vicinity include: raccoon, eastern gray squirrel, mouse, rat, and opossum.

Birds common to the area include: European starling, house sparrow, rock dove, American crow, seagull, western gull, Canada goose, American robin, and house finch.

Thornton Creek, which is located adjacent to the southwest corner of the site, is considered a Type F stream with documented presence of winter Steelhead and coastal Cutthroat Trout. It is also documented as spawning habitat for Sockeye Salmon and rearing habitat for Coho Salmon (see **Appendix D** for details).

Subsequent to the issuance of the Draft Checklist, a wildlife habitat assessment was conducted by Raedeke Associates (**Appendix F**) to investigate wildlife habitat and turtles that had been previously observed onsite by community members. No turtles or obvious nesting sites were observed during field investigations on the project site. However, based on photographs that were submitted to SPS, the turtle that was observed on the site by community members was determined to be a red-eared slider; this determination was also confirmed by Washington Department of Fish and Wildlife (WDFW) biologists. The red-eared slider is a non-native turtle species. It is native to the eastern United States and has been historically sold in pet stores throughout the country. Most red-eared sliders seen in Washington are escaped or released pets, or possibly descendants of pets.

As noted in **Appendix F**, the WDFW Priority Habitat and Species database does not indicate the presence of any native turtle species on or within 1,000 feet of the project site and no turtles or obvious nesting sites were observed during field investigations. The proposed project is not anticipated to have impacts on known native turtle populations. The existing playfield is frequently used for recreation activities and off-leash dogs which likely deters many species from utilizing the playfield. Development of the proposed project does include native landscaping in areas that are currently occupied by open, poorly vegetated areas which could result in a modest increase in overall wildlife diversity utilizing the site as a result of an increased plant community diversity and removal of non-native vegetation. Measures are also identified below to avoid or minimize potential impacts to any turtles that may utilize the project site or habitats in the vicinity of the project site (see **Appendix F** for details).

b. List any threatened or endangered species known to be on or near the site.

The following are listed threatened species that could be affected by development on the site or surrounding vicinity based on data from the U.S. Fish and Wildlife Service: marbled murrelet, streaked horned lark, yellow-billed cuckoo, and bull trout; there are no endangered species known to be in the site vicinity[7]. However, it should be noted that none of these species have been observed at the site and due to the urban location of the site, it is unlikely that these animals are present on or near the site.

c. Is the site part of a migration route? If so, explain.

The proposed project site is not located within a specific migration route. However, in general, the entire Puget Sound area is within the Pacific Flyway, which is a major north-south flyway for migratory birds in America—extending from Alaska to Patagonia. Every year, migratory birds travel some or all of this distance both in spring and in fall, following food sources, heading to breeding grounds, or travelling to overwintering sites.

d. Proposed measures to preserve or enhance wildlife, if any:

New landscaping would be provided as part of the project in areas surrounding the proposed building, within proposed parking areas and within outdoor learning spaces. New trees would be planted on site to replace those trees that would be removed during construction.

As part of the Wildlife Habitat Assessment (**Appendix F**), measures were identified to minimize potential impacts to turtles and other wildlife species, including:

- To the extent feasible, schedule clearing and grading to take place outside of nesting season (late May through early September).
- Include moderately open, sunny areas with native grasses as part of the proposed landscaping adjacent to the playfield, particularly in proximity to Thornton Creek.

---

[7] U.S. Fish and Wildlife Service. IPaC. https://ecos.fws.gov/ipac/location/index. Accessed April 2022.

- Focus on planting Pacific Northwest native plant varieties and reserve non-native cultivars for areas nearest the school buildings.
- Any removal of invasive plants should take place in the early spring before turtles are actively nesting and should be conducted without the use of power tools or heavy equipment whenever possible.
- Inspect the western site boundary and fence for potential access points for turtles and other wildlife. Block or repair any holes or other potential access points to the site before construction activities begin. Erect temporary fencing if currently existing fence is scheduled to be removed prior to construction.

The project is not anticipated to have a substantial impact on wildlife located in the vicinity of the site.

e. List any invasive animal species known to be on or near the site.

There are no known invasive animal species on or adjacent to the project site; however, invasive species known to be located in King County include European starling, house sparrow and eastern gray squirrel.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity is currently utilized by the existing school buildings and would continue to be the primary source of energy that would serve the building. Natural gas service is available within the site vicinity (within the NE 109th Street right-of-way) but is not utilized by the existing building and would not be used by the proposed project. The proposed ***John Rogers Elementary School Replacement Project*** would utilize electricity for heating, lighting, and electronics. Solar photovoltaic panels would be provided as part of the proposed building to provide electricity for the building and reduce energy usage. Geothermal wells and a ground source heat pump system would also provide heating and cooling for the project.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The proposed project would not affect the use of solar energy by adjacent properties.

d. **What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

The proposed project would be required to meet or exceed the requirements of the City of Seattle Energy Code, as well as the Washington Sustainable Schools Protocol (WSSP). The design for the project is targeting a net zero energy use and would include optimized building envelope to maximize daylight and reduce lighting energy use, daylight controls to reduce lighting use, energy efficient HVAC system with heat recovery, geothermal wells and a ground source heat pump system, and metered energy use to allow staff and students to understand their energy use. Solar photovoltaic panels would also be provided as part of the proposed building to provide electricity and reduce energy usage.

7. Environmental Health

a. **Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.**

The Washington State Department of Ecology website was reviewed to identify any potential contaminated soils on or in the vicinity of the site, as well as potential issues related to the former Tacoma Asarco Smelter Plume. There are no records of any contaminated soils on the project site and the site is located in an area where levels of arsenic and lead associated with the smelter plume are anticipated to be below state cleanup levels.

A former gas station site to the west of the John Rogers Elementary campus was listed as a cleanup site by Ecology; however, in 1997, the site received a determination of No Further Action Required (*Washington State Department of Ecology, 2022*).

As with any construction project, accidental spills of hazardous materials from equipment or vehicles could occur; however, a spill prevention plan would minimize the potential of an accidental release of hazardous materials into the environment.

1) **Describe any known or possible contamination at the site from present or past uses.**

A Hazardous Building Materials Assessment Report was completed for the existing building by Terracon Consultants, Inc. (*Terracon, 2021*). The existing building was assessed for asbestos-containing materials (ACM), lead-containing coatings, lead and arsenic in mortar, mercury-containing light tubes, switchers and thermostats, suspected high-intensity discharge lamps, and suspected PCBcontaining fluorescent light ballasts. 174 samples of suspected ACM were collected, and 10 materials were found to contain greater than one percent asbestos and 14 materials were assumed to contain asbestos.

20 paint chip samples were collected for lead content and 14 samples were determined to contain detectable levels of lead.

Two mortar samples were collected for lead and arsenic content. Arsenic and lead were detected in one sample and only arsenic was detected in the other sample.

Mercury-containing light tubes were identified within the building; however, all observed light ballasts were electronic and not suspected of containing PCBs. High-intensity discharge lamps were also observed within the building.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

As described above, the existing building contains hazardous building materials such as ACM, lead-based paint, lead and arsenic-containing mortar, mercury-containing light tubes, and high-intensity discharge lamps. These materials would be removed as part of demolition activities and would comply with applicable regulations for removal and disposal of hazardous materials.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

During construction, gasoline and other petroleum-based products would be used for the operation of construction vehicles and equipment.

During the operation of the school, chemicals that would be used on the site would generally be limited to cleaning supplies and would be stored in an appropriate and safe location.

4) Describe special emergency services that might be required.

No special emergency services are anticipated to be required as a result of the project. As is typical of urban development, it is possible that normal fire, medical, and other emergency services may, on occasion, be needed from the City of Seattle.

5) **Proposed measures to reduce or control environmental health hazards, if any:**

A spill prevention plan would be developed and implemented during construction to minimize the potential for an accidental release of hazardous materials into the environment.

In accordance with the Hazardous Building Materials Assessment Report *(Terracon, 2021),* all hazardous buildings materials would be dealt with in accordance with applicable regulations and standards. Asbestos-related work would be performed in accordance with Washington State worker protection and environmental protection regulations. Construction activities that could impact areas of detectable lead concentrations would be performed according to Washington Labor and Industries regulations for Lead in Construction (WAC 296-155-176). Additionally, all impacts to lead-based paint would be in accordance with 40 CFR Part 745. An exposure assessment in accordance with Washington Labor and Industries would also be required during operations that may disturb lead and arsenic-containing mortar. A toxicity characteristic leachate procedure sample would also be required per WAC 173-303 to determine if hazardous materials are in the waste stream when the building is demolished and disposed of. Fluorescent light tubes and high intensity discharge lamps would also be handled and disposed of in accordance with Ecology requirements and WAC 173-303.

b. Noise

1) **What types of noise exist in the area that may affect your project (for example: traffic, equipment operation, other)?**

Noise associated with vehicle traffic from adjacent roadways (NE 110th Street, NE 109th Street, and NE 105th Street) are the primary sources of noise in the vicinity of the project site. Existing noise in the site vicinity is not anticipated to adversely affect the proposed ***John Rogers Elementary School Replacement Project***.

2) **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from site.**

Short-Term Noise

Temporary construction-related noise would occur as a result of on-site construction activities associated with the project. Construction activities including, excavation/grading, demolition of the existing building, construction of the new building, and construction/drilling for the associated geothermal wells would be the primary sources of construction noise during the development process. Construction of the geothermal wells would be anticipated to occur over an approximately three-month duration and wells would be generally located south of the proposed building and in the south portion of the site. Wells would be constructed by utilizing a mud rotary drill with geo loop and the primary source of noise would be from the operation of the diesel engine. Similar to other construction-related activities on the site, noise from construction of the geothermal wells would be temporary and is not anticipated to result in a significant impact.

Existing residential land uses surrounding the school would be the most sensitive noise receptors and could experience occasional noise-related impacts throughout the construction process. Pursuant to Seattle's Noise Code (SMC, Chapter 25.08), maximum sound levels in residential communities shall not exceed 55 dBA. However, per SMC 25.08 and based on the SF 7200 zoning for the site, construction activities are allowed to exceed the maximum noise levels between 7 AM and 10 PM on weekdays and 9 AM to 10 PM on weekends. Construction equipment may exceed the sound level limits during construction periods by 25 dB(A) and portable powered equipment may exceed the limits by 20 dB(A).

The proposed project would comply with provisions of Seattle's Noise Code (*SMC, Chapter 25.08*) as it relates to construction-related noise to reduce noise impacts during construction. Contractors are aware of the City of Seattle Noise Ordinance requirements and are contractually required by Seattle Public Schools to abide by them.

<u>Long-Term Noise</u>

The proposed ***John Rogers Elementary School Replacement Project*** and associated increase in student capacity would likely result in a potential minor increase in noise from human voices and vehicles travelling to and from the site, particularly during the school day and during student drop-off and pickup. The potential increase in noise is anticipated to be minor when compared to the existing condition and would not extend beyond 10 PM. As a result, no significant noise impacts would be anticipated.

3) Proposed measures to reduce or control noise impacts, if any:

The following measures would be provided to reduce noise impacts:

- As noted, the project would comply with provisions of the City's Noise Ordinance (*SMC 25.08*); specifically: construction hours would be limited to standard construction hours (non-holiday) from 7 AM to 10 PM and Saturdays and Sundays from 9 AM to 10 PM.

- To reduce noise impacts during construction, contractors would comply with all local and state noise regulations. Contractors may also implement the following measures to further reduce or control noise impacts during construction:
  - Construction would likely occur between 7 AM and 5 PM on weekdays, although, per SMC 25.08, construction is allowed to occur between 7 AM and 10 PM on weekdays and 9 AM to 10 PM on weekends and holidays.
  - Minimize idling time of equipment and vehicle operation.
  - Operate equipment only during hours approved by the City of Seattle.
  - Use well-maintained and properly functioning equipment and vehicles.
  - Locate stationary equipment away from receiving properties.

The project will also include the installation of geothermal wells which would be located to the south of the proposed building and in the south portion of the site. The duration of this work is estimated to be approximately three months, depending on weather. The noise associated with the drilling of the wells would be within local and state regulations. The contractor would provide updates to nearby residents on the progress and duration of activities during the construction of the project. After construction, the site would continue to serve as a school and no significant changes in noise levels are anticipated over existing conditions. No additional mitigation would be required.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The site is currently utilized for the existing John Rogers Elementary. The proposed project would continue to utilize the site for school uses and would not be anticipated to affect current land uses on adjacent properties.

The John Rogers Elementary campus is comprised of the existing, one-story building (a portion of the building in the northeast corner rises above the remaining building form). The existing building is generally located on the north side of the campus. Two existing surface parking lots are located to the north of the existing building and hard surface play areas are located to the west and south of the building; existing portable buildings are located within the south portion of the hard surface play area. The south portion of the campus contains an existing grass playfield area (John Rogers Playfield Park) which includes a baseball/softball diamond at the south edge of the field area, as well as a perimeter pathway surrounding the field.

Adjacent land uses to the north, south, east and west of the school campus are generally comprised of single family residences; the Korean Peace Presbyterian Church of Seattle is also located immediately to the southeast of the site.

b. Has the site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

The project site has no recent history of use as a working farmland or forest land.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

The project site is located in an urban area and would not affect or be affected by working farm or forest land; no working farm or forest land is located in the vicinity of this urban site.

c. Describe any structures on the site.

The existing one-story John Rogers Elementary building is located in the north central portion of the site and is generally constructed of brick, metal, glass and wood siding. Existing portable classroom buildings are also located to the south of the school building.

d. Will any structures be demolished? If so, what?

The existing John Rogers Elementary building and two portable buildings would be demolished as a result of the proposed project to allow for development of the proposed new building. One existing portable building would also be relocated to a new site

e. What is the current zoning classification of the site?

The site is currently zoned as Single Family 7200 (SF 7200). The SF 7200 zone is generally intended for single family residential uses. Public schools are also a permitted use in the SF 7200 zone (*City of Seattle, 2022*).

The surrounding areas to the immediate north, south, and west of the campus are also currently zoned as SF 7200.

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation for the site is Single Family Residential (*City of Seattle, 2022*).

g. If applicable, what is the current shoreline master program designation of the site?

The project site is not located within the City's designated shoreline boundary.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

As noted in Section 1b, an ECA steep slope area is located in the northeast portion of the site and contains the steepest slopes on the site (approximately 60 percent). An ECA steep slope area is also located along the western boundary of the site. The south portion of the John Rogers Elementary site is classified as a liquefaction-prone area (*City of Seattle, 2022*). See **Appendix A** for details on these areas.

A portion of Thornton Creek runs adjacent to the southwest boundary of the site before crossing onto the site for approximately 60 feet and entering a culvert under NE 105th Street. A riparian corridor associated with the creek is located in the south area of the school site, as well as a flood-prone area along with southwest boundary of the site. A Wetland and Stream Assessment Report was prepared by GeoEngineers (*GeoEngineers, 2022*) for the project and is included as **Appendix D** to this checklist. Thornton Creek has been channelized in the site vicinity and is characterized by steep armored banks varying from unvegetated to densely vegetated. According to SMC 25.09.012.D3, Thornton Creek is a Type F stream with an associated riparian management area that extends 100 feet from the top of bank or ordinary high-water mark (OHWM).

The proposed project would not require any work over or within Thornton Creek. A portion of the riparian management area and LRDA associated with Thornton Creek is located within the south area of the project site. Per SMC 25.09.020D.5a, the LRDA is the outer 25 feet of the 100-foot riparian management area where some limited development is allowed; however, development including but not limited to impervious surfaces must not exceed 35 percent of the LRDA. According to SMC 25.09.045H.3f, public projects that extend into an environmentally critical area or buffer such as the riparian management area of the site, may be exempt from the City's critical areas regulations if the project benefits the public (e.g., trails that provide access to a creek when they are located to minimize environmental disturbance). The proposed project would include a small portion of the new grass playfield with underdrainage and a walking path, as well as a new school driveway, walkway, stormwater facility, and right-of-way improvements as required by SDOT within the LRDA. However, all proposed development within the LRDA would be below the 35 percent maximum for impervious surfaces as identified in SMC 25.09.020D.5a. Improvements in the south portion of the site would be designed to comply with applicable critical areas regulations regarding Thornton Creek and the associated riparian management area (see **Appendix D** for details).

No other environmentally critical areas are located on or adjacent to the project site.

i. Approximately how many people would reside or work in the completed project?

The proposed ***John Rogers Elementary School Replacement Project*** would not provide any residential opportunities. Upon completion, the proposed project would create a new school to replace the existing building. The proposed project would increase the student capacity for the school to approximately 500 students in grades K through 5^{th} grade. Two classrooms would be provided that can be used for either two childcare classrooms for before- and after-school care for students enrolled at the school, or they can be used for two pre-school classrooms. If the two classrooms are used for pre-school, the total student capacity would be approximately 540 students in grades Pre-K through 5^{th} Grade (current capacity is approximately 342 students, including capacity in the existing portables).

Currently, the existing school includes approximately 45 full-time and part-time employees. It is anticipated that the proposed project provide space for approximately 50 to 55 employees at the school.

j. Approximately how many people would the completed project displace?

The proposed project would not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No displacement impacts would occur and no mitigation measures are necessary.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposed project would replace the existing school on the same site and as with most Seattle Public School facilities, it is located within a residential neighborhood. The proposed project is compatible with existing land uses and plans.

The Seattle Municipal Code includes development standards for public schools in residential zones (SMC 23.51B.002) and includes procedures through which departures from the required development standards of the code can be granted for public school structures (SMC 23.79). Due to the existing site characteristics and project design goals, the project is requesting land use departures for the following: building height, onsite parking, bicycle parking performance standards – secure locations and arrangements of long-term parking, and signage (changing-image reader board)[8]. Seattle Public Schools is continuing to coordinate with the City of Seattle regarding the departures for the project and would comply with the requirements of the City's departures process.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

The project site is not located near agricultural or forest lands and no mitigation measures are necessary.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units would be provided as part of the ***John Rogers Elementary School Replacement Project***.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing presently exists on the site and none would be eliminated.

c. Proposed measures to reduce or control housing impacts, if any:

No housing impacts would occur and no mitigation would be necessary.

[8] A potential message board sign would be electronically lit but would have limited night time operation and would not include flashing or scrolling messages.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The existing one-story building is approximately 20 feet tall at its highest point of the building (associated with the gymnasium area of the building) and is generally constructed of masonry and steel/metal. The proposed three-story building would be approximately 55 feet tall at its highest point. The proposed building would be taller than the existing building in part to reduce the proposed building footprint on the site. The exterior building materials for the proposed ***John Rogers Elementary School Replacement Project*** would primarily include brick with accents of metal panel.

b. What views in the immediate vicinity would be altered or obstructed?

Views of the site would generally continue to be reflective of the existing school uses. Views of the proposed building would primarily be available from areas that are proximate the site, including existing residences (see **Figure 3** for the proposed site plan). Due to the design of the project and existing topography, the proposed building would generally be more visible from areas that are adjacent to the north portion of the site than from areas adjacent to the south portion. However, existing, mature trees within the north and east portions of the site also limit and obstruct some of the views across the site. For example, the existing building is entirely obstructed from view from areas to the north and northeast of the site due to the topography and dense vegetation and mature trees in this area. It is anticipated that existing trees and vegetation in these areas would also obstruct views of the proposed building.

Views from areas to the east of the site currently contain limited views of the existing building and across the site looking to the west; however, these views of the site are also partially obstructed and limited due to the topography and by existing vegetation and mature trees. With the proposed project, views from the area to the east of the site would change to reflect portions of the proposed taller building, but to the extent that existing, mature trees are retained, they would continue to provide a partial buffer/screen of the building. Proposed new landscaping would be provided consistent with City of Seattle requirements to enhance the aesthetic view of the site. New landscaping would also be provided adjacent to the renovated playfield and proposed parking areas on the site.

The City's public view protection policies are intended to "protect public views of significant natural and human-made features: Mount Rainier, the Olympic and Cascade Mountains, the downtown skyline, and major bodies of water including Puget Sound, Lake Washington, Lake Union and the Ship Canal, from public places consisting of specified viewpoints, parks, scenic routes, and view corridors identified in Attachment 1 to the SEPA code[9]. However, there are no SEPA protected view sites on or in the vicinity of the ***John Rogers Elementary School Replacement Project*** site.

View protection from City-designated Scenic Routes is encouraged[10]. According to documentation from the City of Seattle, there are no scenic routes in the immediate vicinity of the ***John Rogers Elementary School Replacement Project*** site.

Views of designated historic structures are also a consideration[11]. However, there are no designated historic structures on or immediately adjacent to the ***John Rogers Elementary School Replacement Project*** site.

There are also no designated views of the Space Needle on or adjacent to the project site[12].

c. Proposed measures to reduce or control aesthetic impacts, if any:

No significant impacts are anticipated with regard to aesthetic impacts and no measures are proposed beyond those that would be required by City of Seattle standards.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

<u>Short-Term Light and Glare</u>

At times during the construction process, area lighting of the job site (to meet safety requirements) may be necessary, which would be noticeable proximate to the project site. In general, however, light and glare from construction of the proposed project are not anticipated to adversely affect adjacent land uses.

<u>Long-Term Light and Glare</u>

Under the proposed ***John Rogers Elementary School Replacement Project***, lighting sources on the site would be similar to the existing conditions and would consist of interior and exterior building lighting, parking lot lighting, and pedestrian pathway lighting, as well as lights

---

9 Seattle Municipal Code Chap. 25.05.675 P.2.a.i. and the accompanying *Seattle Views: An Inventory of 86 Public View Sites Protected under SEPA (May 2002)* document.

10 Ord. #97025 (Scenic Routes Identified by the Seattle Engineering Department's Traffic Division) and Ord. #114057 (Seattle Mayor's Recommended Open Space Policies).

11 Seattle Municipal Code Chapter 25.05.675 P.2.b.i.

12 Seattle Municipal Code Chap. 25.05.675 P. and Seattle DCLU, 2001

from vehicles travelling to and from the site. Due to the increase in building space on the site with the proposed project, it is anticipated that there would be an associated increase in lighting on the site. However, the proposed design for the building is intended to reduce the amount of lighting energy needed within the building by incorporating design strategies such as providing daylight to classrooms and occupied spaces, providing daylight controls, and providing lighting controls. Exterior lighting for the project would also be provided for personnel and building safety, including building-mounted exterior lighting and pole-mounted lighting for walkways and parking areas. All exterior lighting would be designed in accordance with applicable City requirements and would be directed towards the site to minimize light spillage to adjacent properties.

Glare from building materials (e.g., window glazing or other building materials) could also occur during certain times of day; however, proposed exterior building materials would be consistent with applicable design standards/regulations. Significant light and glare impacts would not be anticipated.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Light and glare associated with the proposed project would not be expected to cause a safety hazard or interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?

No off-site sources of light or glare are anticipated to affect the proposed project.

d. Proposed measures to reduce or control light and glare impacts, if any:

The proposed design for the building is intended to reduce the amount of lighting energy needed within the building. Interior and exterior building lighting would be programmed as part of the building facilities system to limit the amount of light utilized when the building is not in use and all exterior lighting would be shielded and directed toward the site to minimize light spillage. Evening activities/events currently occur periodically during the school year and increase light during the evening on those days; however, the number of evening events is not anticipated to substantially change with the proposed addition and the amount of light would not be anticipated to result in a significant impact. Existing retained trees and proposed new landscaping on the site would also provide a partial buffer and screen to reduce light spillage or glare from the proposed project.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The John Rogers Elementary site includes recreation areas that are generally located to the west and south of the existing building. Hard surface play areas and playground equipment space are located immediately west and south of the existing building. A large grass playfield area (John Rogers Playfield Park), including a dirt baseball/softball diamond is located further to the south on the site and is utilized by the school for recreation activities. When not in use by the school, the field is also utilized by Nathan Hale High School for sports practices and for informal community use. In total, approximately 164,450 sq. ft. of recreation and open space is currently located on the campus.

There are also several parks and recreation areas in the vicinity of the project site (approximately 1.0 mile), including:

- <u>Meadowbrook Pond</u> is located approximately 0.1 miles to the west of the site.
- <u>Meadowbrook Community Center and Meadowbrook Playfield Park</u> is located approximately 0.3 miles to the west of the site.
- <u>Nathan Hale High School</u> is located approximately 0.3 miles to the west of the site.
- <u>Jane Addams Middle School</u> is located approximately 0.4 miles to the northwest of the site.
- <u>Matthews Beach Park</u> is located approximately 0.7 miles to the southeast.
- <u>Victory Heights Playground</u> is located approximately 1.0 miles to the west.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed ***John Rogers Elementary School Replacement Project*** would temporarily displace the existing recreation and open space areas on the site to allow for development of the proposed new building and associated recreation and open space areas. As part of the project, approximately 37,900 sq. ft. of new and enhanced hard surface play areas and playground equipment space would be provided adjacent to the proposed building. New outdoor classrooms and garden space would also be provided adjacent to the new building (approximately 29,000 sq. ft.). The existing grass field would also be modified during construction and replaced with a new grass field to provide approximately 41,300 sq. ft. of usable recreation area that could be utilized for soccer and kickball. In total, approximately 108,200 sq. ft. of recreation space would be provided on the site, which would be reduced from the approximately 164,450 sq. ft. that is currently on the site. However, despite the reduction in recreation area when compared to existing conditions, the new recreation space and amenities on the site would provide more usable and enhanced recreation opportunities for students at the school.

c. **Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

As noted above, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions. However, the new recreation space and amenities on the site would provide a more usable and enhanced recreation experience for students at the school. As noted above, outdoor classroom areas would be provided adjacent to the proposed building to create new outdoor recreation space that is not currently available on the site. New landscaped areas would also be provided on the campus that could serve as gathering areas for students, staff and the community.

The existing playfield would also be modified during construction and replaced with a new grass field that would accommodate soccer and kickball. This area would continue to be available for use by the community when not in use by the school.

No additional impacts to recreation would occur and no additional mitigation is necessary.

13. Historic and Cultural Preservation

a. **Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.**

The existing one-story John Rogers Elementary building was constructed in 1956, making it approximately 66 years old. The building was designed by Theo Damm in a Modern architecture style and constructed of masonry and steel. Three portable classroom buildings are also located on the site. The existing building is not currently listed on any national, state or local historic registers. On June 29, 2021, SPS submitted a Landmark Nomination Application for the existing building to the City of Seattle for review by the Landmarks Preservation Board. The Landmarks Preservation Board met on August 18, 2021 to review the nomination and ultimately voted to deny the nomination (see **Appendix G** for details).

According to the City of Seattle Landmarks Map and Database (*City of Seattle, 2022*), the closest listed City of Seattle Landmarks are the Lake City Library building and the Lake City School building (both located approximately 1.1 miles to the northwest of the project site). According to the Washington State Department Archaeology and Historic Preservation's (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD), the closest national or state listed structure is the Marajane and Julian Barksdale House which is listed in the National Register of Historic Places (NRHP) and the Washington Heritage Register (WHR) and is located approximately 1.2 miles to the north of the project site. The proposed project would not directly affect any of these listed structures.

It should be noted that as part of the proposed project, SPS is participating in consultation and review with DAHP as part of the separate Governor's Executive Order 21-02 process which includes early outreach and consultation with DAHP and local Tribes. As part of the process, SPS met with DAHP and provided project details for their review, including the submittal of an EZ-1 form. On April 22, 2022, SPS sent letters requesting comments via email and certified mail to the following Tribes: Tulalip, Suquamish, Snoqualmie, Muckleshoot, and Duwamish. Email correspondence was also resent on May 4, 2022. On May 11, 2022, DAHP determined that the proposed project would not impact any historic properties (see **Appendix G**). As of May 31, 2022, SPS had received responses to its consultation outreach from the Duwamish, Suquamish, Snoqualmie, and Tulalip Tribes.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

A cultural resources assessment (*Perteet, 2022*) was completed for the project site and included as part of **Appendix G** of this checklist[13]. The assessment included an analysis of the natural and cultural setting, a discussion of previous cultural resource investigations in the site vicinity, review of geotechnical investigations on the site, and an on-site investigation. Prior to conducting onsite field work, letters were sent on April 6, 2022 to local Tribes (including the Duwamish, Muckleshoot, Snoqualmie, Suquamish, and Tulalip) to inform the Tribes of the upcoming onsite cultural resource investigation and solicit comments.

The onsite investigations were conducted on the project site, including a pedestrian survey of the site and 13 shovel probe subsurface investigations in the south portion of the site, which was the only area that was determined to be suitable for shovel probe excavations. The results of the shovel probe excavations support the prior geotechnical and geoarchaeological investigations within the site area. No native soils or naturally deposited sediments were observed during the

[13] The Cultural Resources Assessment is on-file with SPS and available upon request.

investigations. Fill deposits generally consisted of 15 to 30 centimeters (cm) of dark brown mixed sand and silt. Below 30 cm was typically gravelly silt and sand, grading to a bluish-grey color at the base of shovel probes. No pre-contact artifacts or diagnostic post-contact artifacts were observed, and no intact cultural contexts were encountered during the onsite investigations *(Perteet, 2022)*.

Based on the review and onsite investigations conducted as part of the cultural resources assessment, it is anticipated that there would be a very low likelihood for ground disturbance associated with the ***John Rogers Elementary School Replacement Project*** to negatively impact buried archaeological resources due to prior development activities which have removed the native soils from the site. No further cultural resource investigations are recommended for the project. Although the likelihood to encounter buried archaeological resources on the site is low, an inadvertent discovery plan (IDP) has been prepared for the project as part of the cultural resources assessment which outlines policies and procedures that would be followed in the event that an inadvertent discovery is encountered during the construction process (*Perteet, 2022*). See **Appendix G** for details.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The DAHP website, WISAARD, and City of Seattle Landmarks and GIS website were consulted to identify any potential historic or cultural sites in the surrounding area, as well as the potential for encountering archaeological resources in the area.

In addition, a cultural resources assessment was completed for the school site (*Perteet, 2022*). The assessment included a review of existing documentation on the natural, cultural and historic setting of the site and surrounding area; a review of previous studies that were conducted in the project area; and, on-site surface and subsurface investigations. As noted in section B.13.a, SPS is also in the process of consultation with DAHP as part of the process for Governor's Executive Order 21-02, including early consultation and coordination with local Tribes (Tulalip, Suquamish, Snoqualmie, Muckleshoot, and Duwamish).

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

The cultural resources assessment (*Perteet, 2022*) included the preparation of an inadvertent discovery plan which identifies policies and procedures that would be followed in the event of an inadvertent discovery, including contacts with local Tribes (Tulalip, Suquamish, Snoqualmie, Muckleshoot, and Duwamish). The cultural resources assessment also recommended that local tribes be notified in advance of ground disturbance activities in order to allow them the opportunity to observe ground disturbance construction activities.

In addition, as noted in Section 13a, SPS will continue conducting further consultation and review with DAHP as part of the Executive Order 21-02 process, including coordination with local Tribes.

14. Transportation

A Transportation Technical Report for the ***John Rogers Elementary School Replacement Project*** was prepared by Heffron Transportation, Inc. (*Heffron Transportation, June 2022);* a subsequent *Parking Analysis Addendum for Site Plan Modifications* was also prepared (*Heffron Transportation, October 2022*). Information from the technical report and addendum memorandum is summarized in this section. See **Appendix H** for the full technical report and addendum.

a. Identify public streets and highways serving the site or affected geographic area and describe the proposed access to the existing street system. Show on site plans, if any.

The John Rogers Elementary site is bounded by NE 110th Street on the north, residential parcels and a small segment of 40th Avenue NE on the west, NE 105th Street on the south, and private property (residential parcels and a church) on the east. The site has two primary access driveways—one opposite NE 109th Street just east of 40th Avenue NE and an exit-only driveway on NE 110th Street slightly off-set to the east of 40th Avenue NE. The on-site parking is accessed from a one-way northbound drive that extends north from the on-site drop-off loop to the exit-only driveway on NE 110th Street. A portion of the curb-side on the south side of NE 109th Street west of 40th Avenue NE is signed for School Bus Only (7-10 a.m. and 1-4 p.m.). The gravel parking area located off-site along the north side of NE 105th Street has no striping but accommodates angled parking for about 25 vehicles in the street right-of-way. There is a gated access at the southeast corner of the site on NE 105th Street that can be used for field maintenance.

The proposed school replacement project would reconfigure the site and change site access. The project would expand the existing northern staff parking lot from 20 to 22 spaces with its access widened to allow entry and exit from the existing location on NE 110th Street just east of 40th Avenue NE. An on-site school-bus load/unload loop, a small visitor parking lot (with five stalls), and service/delivery access would be located at the northwest corner of the new building opposite NE 109th Street. Vehicular access to and from the bus loop, small lot, and service area would occur from NE 109th Street east of 40th Avenue NE. Additional employee/visitor parking (five stalls) and a new on-site passenger-vehicle load/unload loop (with room for 10 vehicles) would be constructed along the southeastern edge of the site with access from a new driveway on NE 105th Street. See **Appendix H** (Parking Analysis Addendum – Figure 1) for an illustration of the proposed site elements, including the new access configuration.

b. Is site or affected geographic area currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

King County Metro Transit (Metro) provides bus service in the area. The closest bus stops are located along 35th Avenue NE at NE 105th and NE 110th Streets about ¼-mile to the west and along Sand Point Way NE at NE 106th and NE 110th Streets about ¼-mile to the east. The stops on 35th Avenue NE are served by Metro Routes 64 and 65; the stops on Sand Point Way NE are served by Route 75. All three routes are described below.

- **Route 64** provides peak period weekday service to and from Lake City, Wedgwood, Ravenna, Roosevelt, and Downtown Seattle. There are six trips into Downtown Seattle in the morning (between 6:00 and 9:45 a.m.) and six trips to Lake City in the afternoon (between 4:15 and 8:00 p.m.).
- **Route 65** provides daily service to and from Jackson Park, Lake City, Wedgwood, Children's Hospital, and the University District with weekday headways of about 15 minutes from 5:00 a.m. to 10:30 p.m., and 20 to 30 minutes after 10:30 p.m.
- **Route 75** provides daily service to and from Northgate, Lake City, Sand Point, Children's Hospital, and the University District with weekday headways of about 15 minutes from 5:00 a.m. to 9:00 p.m., and 30 minutes after 9:00 p.m.

c. How many additional parking spaces would the completed project have? How many would the project or proposal eliminate?

The existing John Rogers Elementary site contains two striped on-site parking lots located on the north side of the school with a total parking supply of 35 spaces. The northernmost lot has 20 stalls, the southern lot is reserved for staff and has 15 spaces including 2 stalls that require a disabled permit placard. Parking also occurs along the eastern side of the school building on asphalt areas that are not striped for parking (based on field observations about 23 to 26 vehicles park in this area).

As outlined in the referenced Parking Analysis Addendum for Site Plan Modifications (see **Appendix H**), the project would decrease the on-site parking supply to 32 spaces for regular all-day use; the onsite family-vehicle load/unload area (10 spaces) could also be used for visitor parking during the school day. In total, project proposes 42 parking spaces for school-day use. For occasional evening or weekend events, the school-bus load/unload area (12 spaces) and the hard-surface play area (estimated to accommodate about 20 vehicles) could be used in addition to the school-day parking described above. The event-parking within the hard surface play area would be used infrequently for all-school after-hours events. In total, site would have 74 parking spaces for event conditions (an increase of 23 spaces compared to the previous site plan and analysis in the Draft SEPA Checklist and referenced *Transportation Technical Report*). The development of the replacement school building would have less off-street parking than would be required by Seattle land use code. As part of the building permit approval process for the project, SDCI has initiated a Development Standard Departure process with the Seattle Department of Neighborhoods to review this and any other code departures requested.

The school's frontage along NE 105th Street has off-site angle parking that is expected to be largely retained. The existing school-bus load/unload only area along the south side of NE 109th Street west of 40th Avenue NE is anticipated to be removed and that area could be used for parking (space for four vehicles).

A detailed study of parking conditions was prepared and is presented in the referenced *Transportation Technical Report* (**Appendix H**); a subsequent *Parking Analysis Addendum for Site Plan Modifications* was also prepared (**Appendix H**). As presented in those documents, the proposed replacement school with the increased staff could generate parking demand of 51 to 69 vehicles—an increase of 10 to 20 vehicles compared to the existing school. Demand for on-street parking in the area is likely to increase due to higher numbers of staff and school visitors/volunteers and fewer spaces to be provided in site. The school demand would be partially accommodated by the on-site parking. As detailed in the referenced *Parking Analysis Addendum for Site Plan Modifications*, the increase in on-street demand is estimated to range from 19 to 37 vehicles. As described in the referenced *Addendum* and detailed in the referenced *Transportation Technical Report*, on-street parking within the site vicinity averages 17% occupied on school days, with about 320 unused spaces. The increase in school-day on-street parking demand could be accommodated by unused supply and typical utilization is estimated to remain below 30%.

The school is expected to continue hosting evening events periodically throughout the school year. In general, evening events are held between about 5:30 or 6:00 p.m. and 8:00 p.m. Evening events typically occur about once per month or once every other month with attendance that can range from 50 to over 300 people. For larger events, there are usually between 3.0 and 3.5 persons attending for each parked vehicle (the higher rate is more common for larger events). This rate accounts for higher levels of carpooling (parents and children in a single vehicle) as well as drop-off activity that does not generate parked vehicles. At these rates, the larger events (those other than Curriculum Night) could generate parking demand between 45 and 120 vehicles. Observations conducted by Heffron Transportation staff on Curriculum Nights at other schools indicate the proposed expanded John Rogers Elementary could generate demand of about 270 vehicles. As described in the referenced *Addendum*, the site would have event parking capacity for up to 74 vehicles and there were about 320 on-street spaces available on non-event nights. As described in the referenced Parking Analysis Addendum for Site Plan Modifications (**Appendix H**), the additional on-street demand during events could be accommodated by the unused supply and utilization is expected to remain at or below about 70%. Due to the relative infrequency of events (one per month or every other month), the increase in demand associated with the replacement project would not represent a significant adverse impact.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The existing site access on NE 110th Street would be widened from 17 feet to 22 feet to accommodate two-way access for the existing 20-stall northern staff parking lot that would be retained; the existing concrete driveway apron and the adjacent pedestrian connection would be replaced. The existing site access on NE 109th street would be re-configured to accommodate the new on-site school-bus loop and service/delivery access. New curb ramps would be provided at the southeast and southwest corner of the intersection at 40th Avenue NE. Frontage improvements would be provided along 40th Avenue NE as required by SDOT through the Street Improvement Permit (SIP) process and may include right-of-way dedication, a walkway or sidewalk, curb, and gutter, and/or vehicular turn around/cul-de-sac. As part of the construction of a new site access driveway on NE 105th Street, sidewalk and curb would be continued to the east connecting with the existing sidewalk and curb along the adjacent property. The existing angle parking on the north side of NE 105th Street is planned to be largely retained; the existing school-bus load zone on the south side of NE 109th Street west of 40th Avenue NE would be removed.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project would not use or occur in the immediate vicinity of water, rail, or air transportation.

f. **How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

The traffic analysis conducted for this SEPA Checklist reflected conditions with the school replacement and increased enrollment capacity up to 540 students (a net increase of 278 students compared to the school's March 2022 enrollment level). Based on daily trip generation rates published for elementary schools by the Institute of Transportation Engineers, the larger John Rogers Elementary could generate a net increase of about 630 trips over the entire day (315 in, 315 out). The peak traffic volumes would continue to occur in the morning before school begins (with 143 in and 113 out added between 7:15 and 8:15 a.m.) and in the afternoon around dismissal (with 61 in and 86 out added between 2:15 and 3:15 p.m.). The added vehicular traffic and increases in pedestrian activity around the school during peak hours due to the larger enrollment capacity, combined with the shift in traffic to the south side of the site at NE 105th Street, is expected to add some delay to study-area intersections. However, all of the study-area intersections are forecast to remain operating at LOS B or better overall in 2025 with the proposed school replacement project. The NE 105th Street / 35th Avenue NE intersection is forecast to operate at LOS A overall with the side-street movements expected to experience increases in delay and operate at LOS E or better. These conditions are expected for a relatively short period of time each day—typically the 10 to 20 minutes just before and just after school. As noted in the referenced report, the City of Seattle tolerates LOS E/F conditions for side-street movements at non-arterial unsignalized locations where traffic control measures (such as conversion to all-way-stop-control or signalization) are not warranted or desirable. SDOT does not generally support traffic control changes such as signalization for non-arterial side streets since they can attract cut-through traffic on neighborhood streets.

As is typical in school areas during peak conditions—some congestion around the school would likely occur for about 20 minutes before and after school. However, the project would not result in significant adverse impacts to study area traffic operating conditions.

The existing school is served by two full-size school buses and two smaller Special Education (SPED) buses; no change to the number of buses is anticipated with the project. Other truck trips expected to continue serving the site include deliveries of food and supplies, trash and recycling pick-up, and occasional maintenance. Overall, school buses and small trucks likely represent about 2% to 3% of the total daily traffic.

For more information about school traffic generation, refer to **Appendix H**.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

There are no agricultural or forest product uses in the immediate site vicinity and the project would not interfere with, affect or be affected by the movement of agricultural or forest products.

h. Proposed measures to reduce or control transportation impacts, if any.

Although the proposed ***John Rogers Elementary School Replacement Project*** would not adversely affect the transportation system in the site vicinity, the following measures have been incorporated into the proposal to reduce the traffic and parking impacts with the project.

A. **Construction Transportation Management Plan (CTMP):** The District will require the selected contractor to develop a Construction Transportation Management Plan (CTMP) that addresses traffic and pedestrian control during construction of the new facility. It would define truck routes, lane closures, walkway closures, and parking or load/unload area disruptions, as necessary. To the extent possible, the CTMP would direct trucks along the shortest route to arterials and away from residential streets to avoid unnecessary conflicts with resident and pedestrian activity. The CTMP may also include measures to keep adjacent streets clean on a daily basis at the truck exit points (such as street sweeping or on-site truck wheel cleaning) to reduce tracking dirt offsite.

B. **Transportation Management Plan (TMP):** Prior to the school reopening, the District and school principal will establish a TMP to educate families about the access load/unload procedures for the new site layout. The TMP will also encourage school bus ridership, carpooling, bicycling, and supervised walking (such as walking school buses). The plan will require the school to distribute information to families about drop-off and pick-up procedures, as well as travel routes for approaching and leaving the school. It will also instruct staff and parents not to block or partially block any residential driveways with parked or stopped vehicles.

C. **Update right-of-way and curb-side signage:** The District will work with SDOT to confirm the removal of signage for the school-bus load zone on the south side of NE 109th Street.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

While the ***John Rogers Elementary School Replacement Project*** would add student capacity to the school site, it is not anticipated to generate a significant increase in the need for public services. To the extent that emergency service providers have planned for gradual increases in service demands, no significant impacts are anticipated.

b. Proposed measures to reduce or control direct impacts on public services, if any.

The increase in capacity of the school and number of students and staff on the site may result in incrementally greater demand for emergency services; however, it is anticipated that adequate service capacity is available within area to preclude the need for additional public facilities/services.

16. Utilities

a. Circle utilities currently available at the site: <u>electricity</u>, <u>natural gas</u>, <u>water</u>, <u>refuse service</u>, <u>telephone</u>, <u>sanitary sewer</u>, septic system, other.

All utilities are currently available at the site. It should be noted that existing natural gas service is available with the NE 109th Street right-of-way but is not utilized at the site and would not be utilized with the proposed project.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in immediate vicinity that might be needed.

Electricity to the site is provided by Seattle City Light via a pole located in the NE 109th Street right-of-way to the east of the site. Electrical service for the proposed project would be provided via a new electrical transformer to serve the site.

Water service is currently provided to the site by Seattle Public Utilities through a 4-inch combination meter and a 1.5-inch domestic meter. Based on the size of the proposed project, existing domestic water and fire services may need to be modified or relocated. Per the water availability certificate that was provided for the site, if necessary, new water service connections are available from a 6-inch water main located in NE 110th Street and an 8-inch water main in 40th Avenue NE.

Sewer service to the site is also provided by Seattle Public Utilities from an existing 8-inch sanitary sewer main line system that runs across the north portion of the site with multiple sanitary side sewer connections to this main line. The proposed project may require rerouting of existing side sewer connections to the new building or a new connection could be made for the proposed building to the existing 8-inch sanitary sewer mainline.

Telephone, cable and internet services would also continue to be provided to the new building and SPS would work with its providers to coordinate the service needs for the proposed project

C. SIGNATURES

The above answers are true and complete to the best of my knowledge. I understand the lead agency is relying on them to make its decision.

Signature:

Amanda Fulford

Name of Signee:

Amanda Fulford

Position and Agency/Organization:

Project Manager, Seattle Public Schools

Date:

November 4, 2022

REFERENCES

City of Seattle. *City of Seattle Comprehensive Plan*. Accessed April 2022.

City of Seattle. *City of Seattle Department of Neighborhoods Landmarks Website and Map:* https://www.seattle.gov/neighborhoods/programs-and-services/historic-preservation/landmarks. Accessed April 2022.

City of Seattle. *City of Seattle GIS website:* http://web1.seattle.gov/dpd/maps/dpdgis.aspx. Accessed April 2022.

City of Seattle. *City of Seattle Municipal Code*. Accessed April 2022.

City of Seattle. *Ordinance No. 97025*. August 26, 1958.

City of Seattle. *Ordinance No. 114057*. July 11, 1988.

City of Seattle. *Seattle Views: An Inventory of 86 Public View Sites Protected under SEPA.* May 2002.

GeoEngineers. *Geotechnical Basis of Design Report for the John Rogers Elementary School Replacement*. October 8, 2021.

GeoEngineers. *Wetland and Stream Assessment Report for the John Rogers Elementary School Replacement Project*. May 31, 2022.

Heffron Transportation, Inc. *Transportation Technical Report for the John Rogers Elementary School Replacement Project*. June 2, 2022.

Heffron Transportation, Inc. *Parking Analysis Addendum for Site Plan Modifications.* September 27, 2022.

Perteet. *Cultural Resources Assessment for John Rogers Elementary.* May 3, 2022.

Raedeke Associates, Inc. *John Rogers Elementary School Wildlife Habitat Assessment.* October 13, 2022.

Terracon Consultants, Inc. *Hazardous Building Materials Assessment Report: John Rogers Elementary School*. September 3, 2021.

Tree Solutions. *Tree Inventory and Arborist Report: John Rogers Elementary*. March 11, 2022.

Tree Solutions. *Addendum to Arborist Report: John Rogers Elementary*. September 13, 2022.

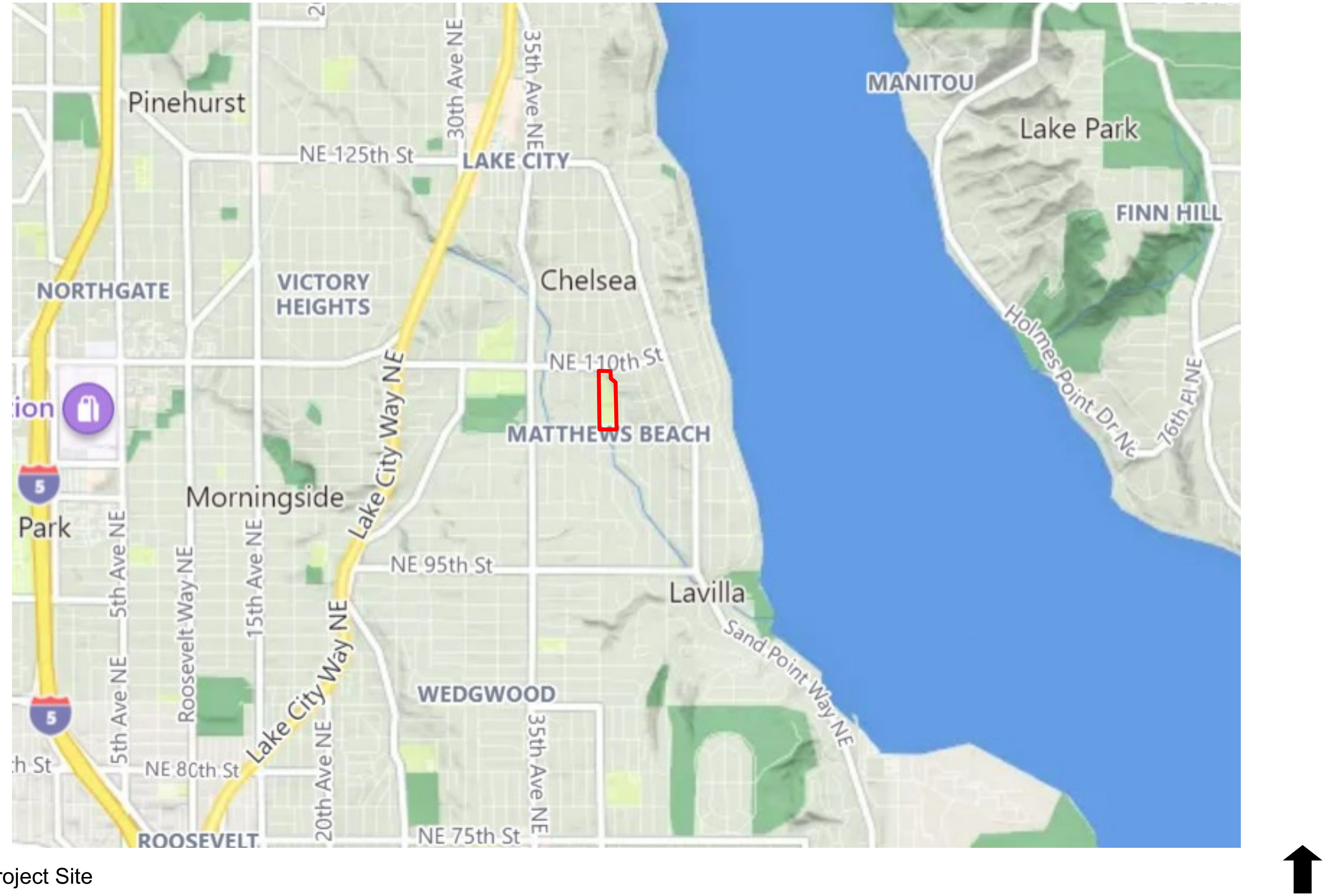
U.S. Fish and Wildlife Service. *IPaC.* https://ecos.fws.gov/ipac/location/index. Accessed April 2022.

Washington State Department of Archaeology and Historic Preservation. *Washington Information System for Architectural and Archaeological Records Data*. Accessed April 2022.

Washington State Department of Ecology. *Washington State Department of Ecology Website: https://ecology.wa.gov/*. Accessed April 2022.

Figures

John Rogers Elementary School Replacement Project
Environmental Checklist



Note: This figure is not to scale.

Source: Google Maps and EA Engineering, 2022

EA Engineering, Science, and Technology, Inc., PBC

Figure 1

Vicinity Map

John Rogers Elementary School Replacement Project
Environmental Checklist

Source: Google Earth and EA Engineering, 2022

EA Engineering, Science, and Technology, Inc., PBC

Figure 2

Aerial Map

John Rogers Elementary School Replacement Project
Environmental Checklist

Note: This figure is not to scale.

Source: DLR Group and Osborn Consulting, 2022.

Figure 3

Site Plan

EA Engineering, Science, and Technology, Inc., PBC

Appendix A

GEOTECHNICAL BASIS OF DESIGN REPORT

Geotechnical Basis of Design Report

John Rogers Elementary School Replacement
4030 NE 109th Street
Seattle, Washington

for
Seattle Public Schools

October 8, 2021

GeoEngineers
Earth Science + Technology

Geotechnical Basis of Design Report

John Rogers Elementary School Replacement
4030 NE 109th Street
Seattle, Washington

for
Seattle Public Schools

October 8, 2021

GeoEngineers

1101 South Fawcett Avenue, Suite 200
Tacoma, Washington 98402
253.383.4940

Geotechnical Basis of Design Report

John Rogers Elementary School Replacement
4030 NE 109th Street
Seattle, Washington

File No. 2820-014-00

October 8, 2021

Prepared for:

Seattle Public Schools
2445 3rd Avenue South
Seattle, Washington 98134

Attention: Amanda Fulford

Prepared by:

GeoEngineers, Inc.
1101 South Fawcett Avenue, Suite 200
Tacoma, Washington 98402
253.383.4940

Clinton J. Lindgren
Staff Geotechnical Engineer

Brett E. Larabee, PE
Senior Geotechnical Engineer

Morgan McArthur, PE
Associate Geological Engineer

CJL:BEL:MM2:tjh

GeoEngineers

Table of Contents

APPENDICES

1.0 INTRODUCTION AND PROJECT UNDERSTANDING

GeoEngineers is pleased to submit this Geotechnical Basis of Design for the John Rogers Elementary School Replacement project. The project site is located at 4030 NE 109th Street in Seattle, Washington. A Vicinity Map is provided as Figure 1. The project site currently consists of the existing John Rogers Elementary school facility and accompanying outbuildings, playfields, parking areas and driveways. Our understanding of the project is based on our conversations with you and information provided in the project Request for Qualifications dated June 3, 2021.

The project is in the early phases of design; locations, layout and preliminary design documents for the proposed improvements have not been developed at the time of this report. We understand project goals include demolition of the existing school building and construction of a new 82,000-square-foot multistory structure. It is our understanding that the new school building is expected to be located near the footprint of the exiting building; however, the exact location of the structure is not currently known. It is possible that the structure may be constructed near or on/into existing slopes at the site. Improvements to site frontages, access roads, parking areas and bus areas will be included in the site development. We understand that stormwater infiltration facilities, if included in the project, will be designed in accordance with the City of Seattle *Stormwater Manual* (July 2021).

2.0 PURPOSE AND SCOPE OF SERVICES

The purpose of this report is to summarize the soil and groundwater conditions at the site and present geotechnical considerations for the design team to use during development of preliminary project plans. As the project design progresses, additional geotechnical analyses and reporting will be completed to assist in project design.

In addition to the work completed for this report, GeoEngineers is scoped to provide the following services to support design and construction. Our specific scope of services is summarized in our signed agreement with Seattle Public Schools executed on August 25, 2021.

- Prepare draft and final versions of a Geotechnical Report that reflects the proposed development plans.
- Complete pilot infiltration tests (up to three) at the site to support stormwater infiltration facility design.
- Complete pavement core and hand tool explorations within the NE 110th Street and NE 105th Street right-of-ways. These explorations will be completed to measure pavement thicknesses and evaluate existing subgrade conditions to support off-site roadway improvements.
- Provide ongoing support and consultation as design progresses.
- Provide construction observation services and geotechnical support during construction.

3.0 SITE CONDITIONS

3.1. Surface Conditions

The project site consists of a rectangular-shaped parcel totaling about 9 acres. The parcel is bounded by NE 110th Street to the north, developed residential properties to the east, NE 105th Street to the south, and developed residential properties and 40th Avenue NE to the west. Existing site features and topography are shown on the Site Plan (Figure 2). Elevations shown on Figure 2 and referred to in this report are based on data obtained from publicly available LiDAR surveys. We plan to incorporate the project survey into our figures and subsequent reports when it becomes available.

The property is currently graded into a series of terraces, which are situated on a hillside that slopes downward from NE 110th Street in the north to NE 105th Street in the south. An asphalt-surfaced parking lot is on the northern, highest elevation terrace, which is also the smallest of the series of terraces. The existing school, parking, and asphalt paved play areas are located on a larger central terrace. The elevation of the central terrace is approximately 60 feet below the elevation of NE 110th Street. The southern terrace is about 20 feet lower than the elevation of the central terrace. The southern terrace is currently developed as the John Rogers Playfield Park, which includes a large grass playfield and a developed baseball/softball diamond. For the purposes of this report, we refer to the southern terrace as the playfield area.

A steep, generally west-facing slope is located within the northeast portion of the property, separating the site from residential properties located near the top of the slope. The slope is on the order of 50 feet tall at its highest point, which is located to the northeast of the school building. The slope height decreases along the eastern site boundary to around 10 feet tall near the southeast corner of the school building. A separate, approximately 10- to 15-foot-tall, west facing slope is located along the western edge of the site in the central terrace area. This slope separates the central terrace from 40th Avenue NE. The grade change between the central terrace and the playfield area is accommodated by an approximately 2H:1V (horizontal to vertical) south-facing slope. Stairs and a pedestrian access ramp are constructed onto the slope. A small (less than 2-foot-tall) block retaining wall is located at the toe of this slope.

What appears to be a stormwater collection facility is located within the southeast corner of the playfield area. The facility consists of a depression that is vegetated with trees and underbrush. We did not observe standing water within the depression during our site visits, which occurred in August and September of 2021. The Meadowbrook regional stormwater pond is located to the west of the playfield area on the west side of 39th Avenue NE. Thornton Creek, which originally flowed through a portion of the playfield area has been channelized between Meadowbrook Pond and the site. The creek channel is visible from the playfield area and runs along the western site boundary in the southwest corner of the site. Offsite, the creek generally flows to the southeast towards Lake Washington.

3.2. Site History

Our understanding of site development history is based review of historic photographs, documents associated with construction of the existing school (topographic survey and site grading plan) and information provided in a presentation given to the Seattle Landmarks Preservation Board on August 18, 2021, by David Peterson Historic Resource Consulting.

We understand that the existing school building was constructed in 1955. Prior to developing the site to its current configuration, the property was undeveloped, with the exception of a single-family home in the southwest corner of the parcel. The remainder of the property appeared to be used for small-scale agricultural activities. The original site topography appears to have sloped generally from northeast to southwest. As part of developing the site, a cut was created into the hillside northeast of the existing school to expand the central terrace area. The height of the cut was as tall as 50 feet and the cut was inclined at approximately 1.5H:1V. The reviewed historical plans indicate that a toe drain was installed at the base of the cut slope along the north and east sides of the existing school building. Material generated from the cut was used to create the central terrace by filling toward the south and west. This fill placement created the existing slopes that separate the central terrace from 40th Avenue NE on the west and the and playfield area on the south. Based on review of grading plans from the original school construction, we understand that up to 20 feet of fill was placed within the central terrace area to establish the current site configuration. The Site Plan (Figure 2) shows the approximate location of the cut/fill balance line, based on this historic information.

We understand that the playfield area is routinely saturated and drains poorly, especially during the wet weather months. It is also our understanding that the playfield area has been regraded and replanted several times in its history to address drainage issues.

3.3. Literature Review

3.3.1. Prior Geotechnical Studies

We reviewed the Limited Geotechnical Engineering Feasibility Analysis report prepared by Associated Earth Sciences Incorporated for the project site. This report is dated February 2019 and was prepared as part of preliminary project planning.

3.3.2. Published Geology

We reviewed the *Geologic Map of Seattle – a Progress Report* (Troost et al. 2005). According to the map, geologic units present at the site include undifferentiated deposits of pre-Fraser glaciation age (Qpf), lake deposits (Ql), and Vashon recessional outwash deposits (Qvr). According to the reviewed geologic map, the native soils within the central terrace area and on the hillside north and northwest of the existing school are comprised of pre-Fraser deposits. The lake deposits are mapped along the southern site boundary. Recessional outwash deposits are mapped primarily on the southern edge of the central terrace and within the playfield area. As discussed below, we did not observe what we interpret to be recessional outwash deposits in our explorations at the site.

Pre-Fraser deposits are described in the literature as very dense or hard interbedded sand, gravel and silt. Pre-Fraser deposits were deposited and subsequently overridden by glacial ice and are considered "glacially consolidated soils."

Lake deposits are described in the literature as very loose to medium dense silty sand or very soft to medium stiff silt and clay with local sand layers, peat and other organic sediments. We anticipate that the Lake Deposits were deposited during times of flooding or when significant water backups occurred in in the Thornton Creek Drainage. We expect that areas of standing water may have covered the current playfield area and extended slightly up the original hillside, resulting in Lake Deposits being present across the current playfield area. As described above, Thornton Creek has since been channelized and currently flows adjacent to the site in the southwest corner of the playfield area.

3.3.3. City of Seattle Environmental Critical Areas

We reviewed Chapter 25.09 *Regulations for Environmentally Critical Areas* in *The Seattle Municipal Code* (SMC) and an online environmentally critical areas map prepared by Seattle Department of Construction and Inspections (SDCI). According to SMC, environmental critically areas requiring geotechnical considerations at this site include the following:

3.3.3.1. Liquefaction-prone Areas

"Liquefaction-prone" areas are defined in the SMC as areas typically underlain by relatively loose cohesionless soils and having a shallow depth to groundwater. Based on our review of the SDCI map and our understanding of subsurface conditions, in our opinion areas of the site that are underlain by Lake Deposits should be considered liquefaction-prone areas. Based on our preliminary liquefaction analyses (described in Section 4.2.2 of this report) we expect that mitigation of liquefaction induced settlements will be necessary for structures located within liquefaction-prone areas.

3.3.3.2. Landslide-prone and Steep Slope Erosion Hazard Areas

Landslide-prone areas are defined in the SMC as documented landslide areas or areas underlain by mass wastage debris. Potential landslide areas are also designated as landslide-prone areas. The SMC defines a potential landslide hazard area as slopes with inclinations of 40 percent or more and a vertical elevation change of at least 10 feet.

Based on our observations of site topography and review of the SDCI map, the slopes northeast of the existing school have inclinations exceeding 40 percent, are greater than 10 feet tall and are thus designated as potential landslide and erosion hazard areas.

During our site reconnaissance we did not observe indications of historical slope instability or prior landslide activity on the slopes at the site. Based on the results of our preliminary slope stability analyses (See Section 4.4 of this report), while slopes at the site meet the SMC criteria for potential landslide hazard area, the risk of significant landslides occurring on these slopes is low. Site development activities can impact stability of slopes and could increase the risk of landslide occurring. According to the SMC, the development area must be limited such that adverse impacts to potential landslide areas are avoided. We plan to evaluate the impacts that proposed development will have on slope stability as the project progresses.

The SMC defines erosion hazard areas as slopes with inclinations of 40 percent or more and a vertical elevation change of at least 10 feet. In our opinion the slope to the northeast of the existing building should also be considered an erosion hazard area. We recommend that existing trees and vegetation on this slope be maintained or replaced in kind if disturbed as part of site development activities. Proper stormwater management techniques will also need to be provided to prevent surface water from flowing over exposed slopes. The SMC recommends a 15-foot buffer be maintained between the development area and the top and toe of the erosion hazard area. For preliminary design, we recommend that this buffer be maintained; however, reductions to the buffer can be considered once development plans are better understood.

3.3.3.3. Seismic Hazard Areas

Seismic hazard areas are defined in the SMC as those areas mapped as liquefaction-prone, sites that are within the in the vicinity of the Seattle Fault Zone, and areas that are within the inundation zone of tsunamis and seiches. As discussed above, the areas of the site underlain by Lake Deposits should be considered liquefaction-prone areas and are thus also defined as seismic hazard areas. The project site is located about 8 miles north of the mapped extent of the Seattle Fault Zone and is outside of mapped tsunami and seiche inundation zones; therefore we conclude these seismic hazards are not present at the site.

3.3.4. Natural Resources Conservation Service Soil Description

We reviewed the Natural Resources Conservation Service (NRCS) soil survey map. According to the survey the site is primarily underlain by Alderwood complex soils which are characterized as Hydrologic Soil Group A. Based on the soil conditions observed in our explorations and our experience, we did not observe soils representative of Hydrologic Soil Group A. We recommend assuming that the soils at the site are Hydrologic Soil Group C soils, which have a low rate of water transmission.

3.4. Subsurface Conditions

3.4.1. Subsurface Explorations and Laboratory Testing

We explored subsurface conditions at the site by advancing 14 borings (B-1 through B-14) at the approximate locations shown on Figure 2. The borings were advanced to depths ranging from about 11.5 feet below ground surface (bgs) to 41.5 feet bgs. Three of the borings (B-2, B-7 and B-14) were completed as monitoring wells after drilling. Details regarding the subsurface exploration program, including summary logs of the explorations, are provided in Appendix A. A key to our exploration logs is presented as Figure A-1 and the exploration logs are presented as Figure A-2 through Figure A-15.

Selected samples from our explorations were transported to the GeoEngineers' laboratory and tested to evaluate engineering properties and to confirm or modify field classifications. Our laboratory testing program consisted of particle-size gradation analyses (sieves), percent fines content determinations, Atterberg Limit determinations and moisture content determinations. Details and the results of our laboratory testing program are provided in Appendix B.

3.4.2. Soil Conditions

3.4.2.1. General

Borings B-1 through B-9 were advanced within the northern and central terrace areas surrounding the existing school building in areas surfaced with asphalt. Borings B-10 through B-14 were advanced in the sod-surfaced playfield area south of the school. Below the asphalt or sod, we observed what we interpret to be three general soil units at the site: fill, lake deposits and glacially consolidated soils.

Fill observed in our explorations typically consisted of very loose to very dense silty sand with variable gravel content and occasional organic matter. Organic matter observed in the fill was generally comprised of wood or charcoal fragments. Observed fill types were generally consistent with native glacially consolidated soils at the site which, as described previously, were cut from the hillside northeast of the building and used to create the central terrace.

Lake Deposits observed in our explorations typically consisted of very soft to stiff silt and/or clay with variable sand content. Lesser amounts of loose to dense silty sand were occasionally observed within the Lake Deposits. Organic matter consisting of roots and charcoal fragments was also occasionally observed in the Lake Deposits.

Glacially consolidated soils observed in our explorations consisted of medium dense to very dense silty sand with variable gravel content and hard silt or clay. Relative density of the glacially consolidated soils typically increased with depth. While not observed in our borings, we expect that cobbles and boulders could be present within the glacially consolidated soils at the site.

A description of subsurface conditions underlying the different areas of the site are provided below. Additionally, our interpretation of subsurface conditions is shown on Cross Sections A-A', B-B', C-C' and D-D' (Figures 3, 4, 5 and 6, respectively). Approximate exploration and cross section locations are included on Figure 2.

3.4.2.2. Hillside Area North and West of School

Boring B-1 was located in the upper terrace (parking lot area) north of the school. Below the asphalt (about 1 inch thick) and a thin layer of reworked soils, we observed glacially consolidated soils. The glacially consolidated soils extended to the full depth explored, about 31 feet bgs. Based on the conditions observed in B-1 and our interpretation of site geology and history, we expect that glacially consolidated soils are present starting at or within a few feet of ground surface in the hillside area to the north and northeast of the existing school.

3.4.2.3. Central Terrace Area

Borings B-2 through B-9 were located within the central terrace area. Measured asphalt thickness in these borings ranged from about 2.5 to 4 inches. We observed about 2 inches of gravel, which we interpret to be a base course layer, below the asphalt in B-8 and B-9. A distinct base course layer was not observed below the asphalt in B-2 through B-7.

Borings B-4, B-5, B-7, B-8 and B-9 were located to the south of the approximate cut/fill balance line associated with original development of the site. The approximate location of the cut/fill line, which was estimated by reviewing the historic site grading plan and interpreting conditions observed in our borings, is shown on the Site Plan. We observed between about 4 and 16 feet of fill in borings B-4, B-5, B-7, B-8 and B-9. Encountered fill was typically medium dense to dense, which suggests that the fill was compacted during placement. Fill thickness generally appeared to increase toward the southwest from the cut/fill line.

Borings B-2, B-3 and B-6 were located north of the cut/fill line, and we did not observe a significant layer of fill or reworked soil below the pavement in these borings. Starting below the pavement section in B-2, B-3 and B-6 and below the fill in borings B-4, B-5 and B-8, we observed what we interpret to be glacially consolidated soils. These borings were terminated within the glacially consolidated soils at depths ranging from about 25.25 to 41.5 feet bgs.

Below the fill in Borings B-7 and B-9 we observed what we interpret to be Lake Deposits, which were in turn underlain by glacially consolidated soils. Lake Deposits are primarily present within the playfield area (see below); however, the Lake Deposits appear to extend below the southwest corner of the central terrace. We have approximated the northern extent of the Lake Deposits within the central terrace area on the Site Plan and the cross sections. The Lake Deposits observed in B-7 and B-9 were on the order of 10 to 17 feet thick. The thickness of the lake deposits appeared to increase towards the south/southwest. B-7 and B-9 were terminated within the underlying glacially consolidated soils (at depths of 40.5 feet and 41.5 feet bgs, respectively) which were similar to those described previously.

3.4.2.4. Playfield Area

Borings B-10 through B-14 were located within the playfield area. Sod observed in these borings was on the order of 4 inches thick. Below the sod, we observed what we interpret to be fill material extending to depths between approximately 4.5 and 7 feet bgs. Lake Deposits were observed below the fill, and were at least 7 to 14.5 feet thick. Borings B-10 and B-12 through B-14 were terminated within the lake deposits at depths ranging from approximately 11.5 to 21.5 feet bgs. We observed what we interpret to be glacially consolidated soils below the Lake Deposits in B-11. B-11 was completed in glacially consolidated soils at a depth of about 21.5 feet bgs.

3.4.3. Groundwater Observations

Our understanding of groundwater conditions at the site is based on groundwater measurements taken in monitoring wells and groundwater observations made during drilling. Borings B-2, B-7 and B-14 were completed as monitoring wells after drilling and pressure transducers were installed in the wells to measure groundwater levels at regular intervals. We returned to the site on September 22, 2021 (32 days after drilling) to review the pressure transducer data. Groundwater data obtained from the transducers is shown on Figures 7 through 9.

Measured groundwater levels in B-2 (north end of central terrace) have fluctuated between about 5 and 6 feet bgs since the well was installed. We expect that groundwater observed in B-2 is likely associated with perched groundwater flow from the hillside north of the well location.

In B-7 and B-14, groundwater was observed within the Lake Deposits unit. Measured groundwater levels have remained near 18 feet bgs in B-7 and around 8 feet bgs in B-14 since the wells were installed. In our opinion, groundwater measured in B-7 and B-14 is likely static groundwater within the Lake Deposits (in this report, the term “static groundwater” means it is present at the site year-round, although it may vary in elevation seasonally). We also observed static groundwater within the Lake Deposits during drilling of borings B-9 through B-13. The depth of the observed static groundwater level in these borings is shown on the summary exploration logs and on the subsurface cross sections.

We observed what we interpret to be perched groundwater in our explorations at the locations and depths indicated on the summary exploration logs and on the subsurface cross sections. Perched groundwater seepage was observed at intermittent depths between about 5 and 30 feet bgs. In some of the borings, we observed perched groundwater at multiple depths during drilling. We anticipate that isolated areas of perched groundwater could be encountered at various depths throughout the site and is most likely to occur at contacts where permeability such as the contact between fill and glacially consolidated soils or within relatively sandy seams in the site soils.

Groundwater levels at the site, including static and perched groundwater, should be expected to fluctuate throughout the year. Groundwater levels can fluctuate depending on soil conditions, rainfall amounts, irrigation activities and other factors. Site grading, including utility cuts into glacially consolidated deposits that are backfilled with more permeable imported sands and gravels, can also affect the quantity and location of perched groundwater. We anticipate the presence of groundwater, and its location, will generally be highest during the wet season, typically October through May in western Washington.

4.0 PRIMARY GEOTECHNICAL CONSIDERATIONS

4.1. General

Based on the conditions observed in our explorations and our experience, we expect that the site can be developed generally as envisioned with regard to geotechnical considerations. Development in certain areas of the site could require special design or construction considerations. A summary of our primary findings is presented below and is followed by more detailed preliminary design recommendations.

- Conventional shallow foundations are feasible for areas of the site underlain by glacially consolidated soils or existing fill directly overlying glacially consolidated soils.
- The Lake Deposits at the site are susceptible to settlement under static loads and liquefaction induced settlement during a seismic event. If foundations are planned in areas of the site underlain by Lake Deposits, special design considerations or alternative foundation support methods will likely be necessary (e.g. piles, ground improvement).
- The existing slopes at the site appear to be generally stable in current conditions; however, stability analyses indicate that the fill slopes to the west and south of the existing school building do not currently meet minimum factor of safety requirements set forth in the SMC. Development may need to be setback from these slopes, or the slopes may need to be regraded or reinforced to meet factor of safety requirements.
- In our opinion, due to shallow groundwater conditions and the presence of low permeability soils, stormwater infiltration is likely not feasible within the playfield area. Stormwater infiltration may be possible within the central terrace area, however the infiltration rate of the soils in that part of the site is likely very low.
- Soils at the site are moisture sensitive and will be difficult to work with during periods of wet weather. Existing site soils are generally suitable for re-use as fill and structural fill, however if earthwork activities take place during periods of wet weather, imported structural fill could be necessary.

4.2. Seismic Design Considerations

4.2.1. Seismic Design Parameters

We evaluated seismic site response using map-based methods described in the 2018 International Building Code (IBC). The 2018 IBC references the 2016 version of *Minimum Design Loads for Buildings and Other Structures* (American Society of Civil Engineers [ASCE] 7-16). Based on the results of our study, liquefiable soils (i.e., vulnerable to potential failure or collapse under seismic loading) are present within the upper 100 feet of the site. This means the site is categorized as Site Class F and that a site-specific seismic evaluation could be required to determine the seismic response. However, if the fundamental period of vibration of the planned structure is less than 0.5 seconds, the exception presented in Section 20.3 of ASCE 7-16 applies for determining the Site Class, and the values presented for Site Class D in the table below may be used. If the fundamental period of vibration of the planned structure is greater than 0.5 seconds, a site-specific seismic hazard evaluation could be required.

Per ASCE 7-16 Section 11.4.8, a ground motion hazard analysis or site-specific response analysis is required to determine design ground motions for structures on Site Class D sites with S_1 greater than or equal to 0.2 g (where g represents gravitational acceleration). For this project (assuming the building period is less than 0.5 seconds) the site is classified as Site Class D with an S_1 value of 0.442g; therefore, this provision applies. Alternatively, the parameters listed in the table below may be used to determine the design ground motions, provided the structural engineer uses Exception 2 of Section 11.4.8 of ASCE 7-16 to determine the seismic response coefficient (C_s). Using this exception, C_s is determined by Equation (Eq.) (12.8-2) for values of $T \leq 1.15T_S$, and taken as equal to 1.5 times the value computed in accordance with either Eq. (12.8-3) for $T_L \geq T > 1.5T_s$ or Eq. (12.8-4) for $T > T_L$, where T represents the fundamental period of the structure and T_S=0.65 seconds.

If requested or required, we can complete a site-specific seismic response analysis, which (depending on the building configuration and site-specific subsurface conditions) could reduce the seismic demands from those presented in Table 1 and the requirements of ASCE 7-16 Section 11.4.8 Exception 2.

TABLE 1. SEISMIC DESIGN CRITERIA

Site Class	D
Mapped MCE_R Spectral Response Acceleration at Short Period, S_s (g)	1.271g
Mapped MCE_R Spectral Response Acceleration at 1-second period, S_1 (g)	0.442
Site Modified Peak Ground Acceleration, PGA_M	0.592
Short Period Site Coefficient, F_a	1.0
Long Period Site Coefficient, F_v	1.86[2]
Design Spectral Acceleration at 0.2-second period, S_{DS} (g)	0.848
Design Spectral Acceleration at 1.0-second period, S_{D1} (g)	0.55[2]
T_S (S_{D1} / S_{DS}) (seconds)	0.65

Notes:

[1] Parameters developed based on latitude 47.7074411 and longitude -122.2847591 using the Applied Technology Council (ATC) Hazards online tool (https://hazards.atcouncil.org/).

[2] These values are only valid if the structural engineer utilizes Exception 2 of ASCE 7-16 Section 11.4.8.

4.2.2. Liquefaction

Liquefaction refers to a condition where vibration or shaking of the ground, usually from earthquake forces, results in development of excess pore pressures in loose, saturated soils and subsequent loss of strength in the deposit of soil so affected. In general, soils that are susceptible to liquefaction include loose to medium dense sands to silty sands that are below the water table. The *Liquefaction Susceptibility Map of King County, Washington* (Palmer et al. 2004) indicates the northern site soils (areas underlain by glacially consolidated soils) have a “very low” liquefaction potential. The southern site soils (areas underlain by lake deposits) are listed as having a “moderate to high” liquefaction potential.

We evaluated the liquefaction potential of site soils, specifically in the northernmost borings that encountered lake deposit soils (B-7, B-8, and B-9), for the IBC design level earthquake (PGA=0.59, M=7.14) using simplified methods (Youd and Idriss 2001), which are based on comparing the cyclic resistance ratio (CRR) of a soil layer (the cyclic shear stress required to cause liquefaction) to the cyclic stress ratio (CSR) induced by an earthquake. The factor of safety (FS) against liquefaction is determined by dividing the CRR by the CSR.

Simplified liquefaction analysis of the soil data collected in B-7 through B-9 show relatively thin layers of potentially liquefiable soils are present between depths of about 15 and 20 feet bgs. Our analysis indicates that liquefaction-related settlements on the order of 1 and 4 inches are possible following the design earthquake. We expect that differential liquefaction settlements between over a distance of 500 feet could be on the order of 0.5 to 2 inches.

Based on the soil and groundwater conditions observed in our explorations and our experience, in our opinion the risk for liquefaction occurring at the site is low in the areas underlain by glacially consolidated soils. The lake deposit soils at the site are susceptible to liquefaction induced settlement during a seismic event. If foundations are planned in areas of the site underlain by Lake Deposits, special design considerations or alternative foundation support and/or liquefaction mitigation methods will likely be necessary (e.g. piles, ground improvement).

4.2.3. Lateral Spreading Potential

Lateral spreading related to seismic activity typically involves lateral displacement of large, surficial blocks of non-liquefied soil when a layer of underlying soil loses strength during seismic shaking. Lateral spreading usually develops in areas where sloping ground or large grade changes (including retaining walls) are present.

The slope between the central terrace and playfield area could be susceptible to lateral spreading during a seismic event. Preliminary analyses indicate that the risk of lateral spreading occurring on this slope is relatively low. However, the risk of lateral spreading occurring, and the need to mitigate this risk, will depend in part on the proposed development plans. The lateral spreading analyses we have completed to date are very preliminary and we have not included the results of our lateral spreading analyses in this report. We plan to continue evaluating the risk of lateral spreading as design progresses.

4.2.4. Surface Rupture Potential

According to the Washington State Department of Natural Resources Interactive Natural Hazards Map (accessed September 14, 2021), a portion of the Southern Whidbey Island fault zone is generally oriented towards the project site and mapped about ¾-mile to the northwest of the site. However, the bedrock in the project area is covered by several hundred feet of glacial soils. Based on the distance to the nearest mapped fault or seismogenic feature and the geologic conditions, it is our opinion the risk for surface rupture at this site is low.

4.3. Foundation Support

4.3.1. General

We expect that the preferred foundation type for the proposed improvements is traditional shallow foundations. As discussed in more detail below, shallow foundations can likely be adequately supported on the glacially consolidated soils or existing fill directly overlying glacially consolidated soils, without the need for special design considerations. In areas where Lake Deposits are present (southwest corner of central terrace and within the playfield area) special design considerations for shallow foundations, or alternative foundation types may be necessary to address the potential for static and liquefaction settlement.

The need for alternative foundation types or special design considerations for footings will depend on the footing location, size, load and performance expectations. Overexcavation of the Lake Deposits does not appear to be a feasible or economical alternative for addressing the foundation support issues as the deposits are relatively thick and within the central terrace area are located more than 20 feet below existing site grade. Preloading could be considered; however, preloading would not address the potential for liquefaction induced settlement which we expect will need to be mitigated as part of design.

For the purposes of this report, we have limited our discussion of alternative foundation support types to deep foundations and ground improvement. We can discuss other foundation support options, if they appear favorable, as the design progresses. If multiple foundation support alternatives or variable bearing pressures are used for design, the risk for differential settlement or stiffness discontinuities between footings will increase. The potential for these conditions will need to be considered by the structural engineer, and we expect that additional analyses will be required as design progresses. Additionally, depending on the proximity of the footings to existing slopes, it could be necessary to support footings on alternative foundation types or construct retaining walls to meet slope stability requirements. Additional information regarding retaining walls and slope stability is provided in subsequent sections of this report.

Exterior footings should be established at least 18 inches below the lowest adjacent grade. Interior footings can be founded a minimum of 12 inches below the top of the floor slab. Isolated column and continuous wall footings should have minimum widths of 24 and 18 inches, respectively. The bearing resistances provided in the sections below apply to the total of dead and long-term live loads and may be increased by one-third when considering total loads, including earthquake or wind loads. These are net bearing resistances. The weight of the footing and overlying backfill can be ignored in calculating footing sizes.

The sections below provide general design recommendations for footings located in different areas of the site. Coordination with the design team will be important for determining the final foundation support alternative(s).

4.3.2. Foundations Outside of Lake Deposit Areas

Within the area where Lake Deposits were not observed, shallow foundations can be adequately supported directly on existing fill or glacially consolidated soils. We recommend that exposed bearing surfaces in these areas be proof compacted in place to a firm and unyielding condition. If more than about 5 feet of fill is expected to be present below footings, we recommend that the foundation bearing surfaces be prepared by removing the upper 2 feet of fill below the footing and then replacing the fill in the excavation in uniform compacted lifts. The need for overexcavation will be determined by the thickness and condition of the fill present, the size and loads on the footing and the footing performance criteria.

For preliminary planning purposes we recommend that footings in this area that are supported on existing fill (prepared as recommended above) or glacially consolidated soils be designed assuming an allowable soil bearing resistance of 4,000 pounds per square foot. Additional bearing pressure could be achievable in these soil types, but this should be considered on a case-by-case basis as design progresses. The estimated total static settlement of shallow foundations supported as described above will likely be on the order of 1 inch or less. Differential settlements could be on the order of ¼ to ½ inch between comparably loaded isolated column footings or along 50 feet of continuous footing. Settlement is expected to occur rapidly as loads are applied. Settlement estimates should be confirmed once footings sizes, locations and loads are known.

4.3.3. Foundations In Areas Underlain By Lake Deposits

4.3.3.1. Shallow Foundations

Based on our current understand of site conditions at this time we do not recommend assuming that structures can be supported on conventional shallow foundations (without the inclusion of ground improvement or deep foundations) in areas underlain by Lake Deposits. Depending on the relative thickness of the Lake Deposits at footing locations, it may be feasible to consider conventional shallow foundations once footing design parameters are better understood. It may be possible to support non-structural improvements on shallow foundations underlain by Lake Deposits provided the improvements can tolerate some static settlement and do not need to be resilient to liquefaction induced settlement. We plan to work with the design team to evaluate the feasibility of using shallow foundations in Lake Deposit areas as the project progresses.

4.3.3.2. Deep Foundations

Feasible deep foundation types at this site include driven piles, drilled shafts, auger-cast piles and small diameter driven or drilled piles (e.g. pin piles or micropiles). If deep foundations are considered, we recommend assuming that the foundations will need to be embedded at least 5 feet into the glacially consolidated soils that underly the lake deposits. Additional embedment could be necessary depending on the design demands. Axial downward and uplift resistance provided by deep foundations embedded into glacially consolidated soils will likely be quite large and we expect the provided resistances will be adequate to support the envisioned structure. Settlement of pile foundations bearing in glacially consolidated soils is typically small and we expect will meet design tolerances. The final spacing, size, and type of deep foundation used will depend on a variety of factors including design demands and construction considerations and we plan to provide more detailed recommendations if deep foundations are envisioned.

From a constructability standpoint, we expect that driven deep foundations will more favorable than drilled deep foundations. Construction of drilled deep foundations would need to consider shallow groundwater (especially within the playfield area) and generation of saturated soils during drilling. Drilled deep foundations would likely need to be installed using temporary casings, drilling fluid, or a cement injected installation method (auger cast piles). In our opinion open ended steel pipe piles, will likely be the best suited driven deep foundation type for this site. Closed ended steel piles or concrete piles could be considered; however, these displacement type piles could be difficult to drive through the fill and into the glacially consolidated soils. Within the central terrace area, we expect that impact driving may be necessary to advance piles through the fill. Impact driving can be quite loud and may not be desirable in a residential neighborhood. Within the playfield area, we expect that open ended steel pipe piles could be installed using a vibratory hammer which is typically less noisy and disruptive than an impact hammer.

4.3.3.3. Ground Improvement

Ground improvement can be designed to mitigate long term static settlement in compressible soils and reduce the risk of liquefaction occurring within the ground improvement treatment zone. Traditional shallow foundations with bearing resistances and settlement performance similar to what is described above for glacially consolidated soils can typically be constructed on top of ground improvement.

Ground improvement methods typically used in this region can be grouped into two general categories, densification type methods and soil mixing type methods. Densification methods (e.g. stone columns, aggregate piers) typically consist of either injecting/compacting coarse aggregates into the target treatment zone in order to increase the density and stiffness of the soil mass. Mixing methods (e.g. deep soil mixing or jet grouting) typically consists of mixing the target soils with cement or grout to achieve the desired improvement. Ground improvement methods that rely on densification are typically better suited for predominantly profiles consisting of loose sand with a low fines content. Cement mixing methods are more commonly used in clay and silt profiles as these methods do not rely on densification to improve the soils.

In our opinion, aggregate piers or jet grouting type ground improvement are the most favorable ground improvement alternatives for this site. Because of the fined grained soil types at the site, aggregate piers would likely need to be designed as a load transfer mechanism to transfer foundation loads to the underlying glacially consolidated soils (similar load transfer mechanism as piles). Aggregate piers may not be economical within the central terrace area as the depth to the Lake Deposits is relatively deep and the overlying fill, generally speaking, would not significantly benefit from the ground improvement. Within the playfield area aggregate piers are likely more feasible, however, the piers may not provide adequate liquefaction mitigation as the piers may not adequately densify the surrounding fine grained soils. Jet grouting may be more favorable at this site as jet grout columns can be installed into interbedded target treatment layers without significant disturbance to the overburden soils. Additionally, jet grouting is effective at mitigating liquefaction in fined grained soil deposits.

For preliminary design purposes, we recommend assuming that the ground improvement area will need to cover the entire building footprint and extend at least 5 feet beyond the footprint of the structure. We recommend assuming that the ground improvement would need to extend through the Lake Deposits and into the underlying glacially consolidated soils. Ground improvement should also be included below any critical infrastructure located outside of the main structure. Design criteria for ground improvement varies based on the ground improvement type, but for preliminary purposes we recommend assuming that the ground improvement zone would require a minimum area replacement ratio of 12 to 15 percent. The bearing capacity and settlement estimates provided previously for foundations bearing on glacially consolidated soils can be assumed for preliminary design of foundations underlain by ground improvement.

4.3.4. Slab-on-Grade

We expect that slab subgrades will be composed of either existing fill material for structural fill placed to establish slab subgrade elevation. The exposed subgrade should be evaluated after site grading is complete and/or prior to placement of structural fill. Disturbed areas should be compacted, if possible, or removed and replaced with compacted structural fill. In all cases, the exposed soil should be firm and unyielding. Special slab subgrade preparation method may be necessary within the playfield area depending on the foundation support method selected. We will provide additional recommendations for slab on grade support within the playfield area if necessary.

We recommend slab-on-grade floors be underlain by a minimum 8-inch-thick capillary break section. If slabs-on-grade will be located within the playfield area, we recommend a thicker capillary break section be considered. Vapor barriers should also be considered below the building slab on grade. For preliminary design we recommend slabs-on-grade be designed using a modulus of subgrade reaction of 200 pounds per cubic inch (pci). We estimate that settlement for slabs-on-grade constructed as recommended will be less than ¾ inch for a floor load of 500 pounds per square foot (psf).

4.3.5. Foundation and Below Slab Drains

Within the central terrace area we recommend that perimeter foundation drains be include around the building. Provided perimeter drains are included, in our opinion, a below slab drainage system is not necessary within the central terrace area.

If the school building will be located within the playfield area, both perimeter footing and below-slab drainage systems are recommended. We will provide additional drainage system design recommendations as the project progresses.

4.4. Slope Stability

Slope stability analyses were completed using the computer program SLOPE/W (GEO-SLOPE International, Ltd., 2020). SLOPE/W evaluates the stability of numerous trial shear surfaces using a vertical slice limitequilibrium method. This method compares the ratio of forces and moments driving slope movement versus forces and moments resisting slope movement for each trial shear surface and presents the result as the factor of safety (FOS). The program then sorts the trial shear surfaces and identifies the surface with the lowest FOS, or the "critical" shear surface. We assumed a circular arc slip surface and used the Spencer method to calculate the forces.

We evaluated slope stability of the existing slope conditions at Cross Sections A-A', B-B' and D-D'. For the purposes of this report, we considered static and pseudo-static (seismic) conditions in our analyses. As discussed in Section 4.2.3, we have not included the preliminary results of post-seismic (residual strength) conditions, which evaluate the potential for lateral spreading. We plan to include the results of analyses for this condition in our final report once development plans are better understood. Results of the stability analyses were compared to the minimum slope stability FOS requirements defined by the SMC. Table 2 below summarizes the results of our analyses, and the slope stability output figures are provided as Figures 10 through 15.

TABLE 2: SLOPE STABILITY RESULTS SUMMARY

Cross Section	Existing Static FOS	Existing Pseudo-Static FOS	Target Static FOS	Target Pseudo-Static FOS
A-A'	2.01	1.06	1.5	1.1
B-B'	1.42	1.13	1.5	1.1
D-D'	1.59	1.20	1.5	1.1

Slope stability results indicate that the existing slopes at the site meet or are near the minimum FOS requirements for static conditions. Section B-B' does not appear to meet the minimum factor of safety requirement for static conditions. If structures will be located near the B-B' slope (slope on western side of the central terrace) it could be necessary to setback improvements from the slope crest or to reinforce the slope using retaining walls or other methods in order to meet slope stability requirements.

Development plans will need to consider the impacts that modification to slopes or loading on the slopes will have on slope stability. Loading from structures or other site features can impact slope stability and decrease the factor of safety of the slope. We plan to work with the project team to evaluate static slope stability considering the proposed development plans as the project progresses.

Our analyses indicate that the existing slopes at the B-B' and D-D' cross sections meet the minimum FOS requirements for pseudo-static conditions. At the A-A' cross section location (slope between central terrace and playfield) that calculated pseudo-static factor of safety if blow the target value. While the calculated factor of safety is above 1.0, our interpretation of the results is that this slope is marginally stabile under pseudo static conditions and that some slope movement could occur during a seismic event. Improving the pseudo-static factor of safety of this slope could necessitate regrading (flattening) or reinforcing the slope using retaining walls or other methods. It may not be necessary to increase the pseudo-static slope stability of the A-A' slope if proposed improvement plans are adequately setback from the slope and some movement of the slope during the seismic event is acceptable from a site performance standpoint.

4.5. Retaining Walls

4.5.1. General

We expect that retaining walls will be included around the site to accommodate site grading, construct below grade features and, if necessary, to reinforce existing site slopes. For wall heights up to about 5 feet tall, rockery, modular block or traditional cast in place walls are likely feasible at this site. For wall heights greater than 5 feet but less than about 10 feet, we expect that modular block, mechanically stabilized earth (MSE) or cast in place walls will be feasible. For wall heights exceeding about 10 feet, or if walls are constructed to improve slope stability, soldier pile walls (with or without tiebacks) or soil nail walls will likely be required.

We plan to provide specific geotechnical design recommendations for retaining walls as the project progresses and the location of proposed walls become known. The section below provides general geotechnical design recommendations for conventional retaining walls or other below grade elements.

4.5.2. Conventional Retaining Wall Design Parameters

Design of below-grade structures and retaining walls should include at least an 18-inch-wide zone of free-draining material located behind the structure. For walls free to yield at the top at least one thousandth of the wall height (i.e., wall height times 0.001), an equivalent fluid density of at least 35 pcf should be used for preliminary design for the level backfill and drained condition. An equivalent fluid density of at least 55 pcf should be used for restrained walls. These values should be increased by 50 percent for sloping conditions behind walls provided that slopes do not exceed a 2H:1V inclination. For seismic loading conditions, a rectangular earth pressure equal to at least 10*H psf, where H is the height of the wall (in feet), should be added to the active pressures provided above. If the wall is considered to move somewhat during an earthquake, as described, the active pressure resistance should be combined with the seismic earth pressure for seismic evaluation. If traffic is allowed to operate within one-half the wall height from the top of retaining walls, we recommend a traffic surcharge equal to an additional 2 feet of soil be added to the earth pressure distribution. Surcharge loads from other conditions, such as point loads, stockpiled materials, or buildings, if present, should also be considered on a case-by-case basis for retaining wall design. Lateral load conditions can vary and are based, in part, on load types, distance from the wall, and backfill materials. We can assist in these once geometry and load type is determined.

The foundation design considerations provided in section "4.3 Foundation Support" of this report are also applicable for design of retaining walls.

4.6. Stormwater Infiltration Assessment

Stormwater facilities for this project will be designed in accordance with the City of Seattle Stormwater Manual (July 2021). Generally speaking, site conditions are not favorable for infiltration. Within the playfield area, high groundwater levels and the low permeability Lake Deposits will significantly limit the potential to infiltrate stormwater. At this time, we do not recommend that infiltration be considered within the playfield area.

Within the central terrace area, stormwater infiltration may be possible, however, the infiltration rates of the underlying glacially consolidated soils are expected to be very low, likely on the order of 0.1 inches per hour or less. Additionally, a buffer (typically up to about 10 times the slope height) between stormwater facilities and the slopes located on the south and west sides of the central terrace area will need to be maintained. This setback requirement can be reduced provided slope stability analyses indicate that infiltration will not impact slope stability, however, some setback will still need to be maintained.

Our remaining scope of services includes completing field infiltration tests at the site to further investigate the feasibility of stormwater infiltration. We plan to coordinate with the project team as development plans progress to help evaluate stormwater infiltration feasibility around the site.

4.7. Earthwork Considerations

A summary of the primary earthwork construction considerations is provided below. We plan to provide detailed earthwork recommendations as part of our Final Geotechnical Report for the project.

- Existing on-site soils contain a significant percentage of fines (material smaller than the U.S. No. 200 sieve). These materials are moisture sensitive and will be extremely difficult or impossible to compact if they become wet. In our opinion existing on-site soils (with the exception of the Lake Deposits) can be considered for reuse as fill and structural fill, provided they can be placed and compacted as required for their intended use. If earthwork is scheduled for the wet weather months, we recommend including a contingency for using imported soils for use as fill and structural fill.
- Temporary slopes should be cut no steeper than about a 1½H:1V inclination. Permanent slopes should be inclined no steeper than 2H:1V.
- Within the central terrace area, we expect that areas of perched groundwater could be encountered in shallow excavations. Perched groundwater volumes will vary sessional and are expected to be isolated and discontinuous. Perched groundwater can likely be managed using sumps, pumps and/or diversion ditches, as necessary.
- The static groundwater level within the playfield area is expected to be within about 5 to 8 feet of existing site grades throughout the year. Dewatering will likely be required to extend excavations below the static groundwater level in the playfield area.
- All fill and backfill placed within the building footprint or below pavements should be compacted to at least 95 percent of the maximum dry density (MDD) as determined by ASTM Test Method D 1557.
- The low permeability Lake Deposit soils and the shallow groundwater conditions within the playfield area are likely preventing the playfield from draining properly and contributing the observed seasonally saturated surface conditions. To properly address this issue, we expect that an underdrain system will need to be installed below the playfield.

5.0 LIMITATIONS

We have prepared this report for Seattle Public Schools, for the John Rogers Elementary School Replacement project in Seattle, Washington. Seattle Public Schools may distribute copies of this report to owner and owner’s authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering in this area at the time this report was prepared. The conclusions, recommendations, and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report.

Please refer to Appendix C titled “Report Limitations and Guidelines for Use” for additional information pertaining to use of this report.

6.0 REFERENCES

Associated Earth Sciences Incorporated. 2019. Limited Geotechnical Engineering Feasibility Analysis John Rogers Elementary School. February 2019.

City of Seattle. 2021. “Seattle Municipal Code and City Charter.”

City of Seattle. 2021. “City of Seattle Stormwater Manual.” July 2021.

David Peterson Historic Resource Consulting. 2021. “John Rogers Elementary School Seattle Landmarks Preservation Board Nomination Meeting Presentation.” August 18.

International Code Council. 2018. “International Building Code.”

Natural Resources Conservation Service (NRCS). “Web Soil Survey” https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed September 2021.

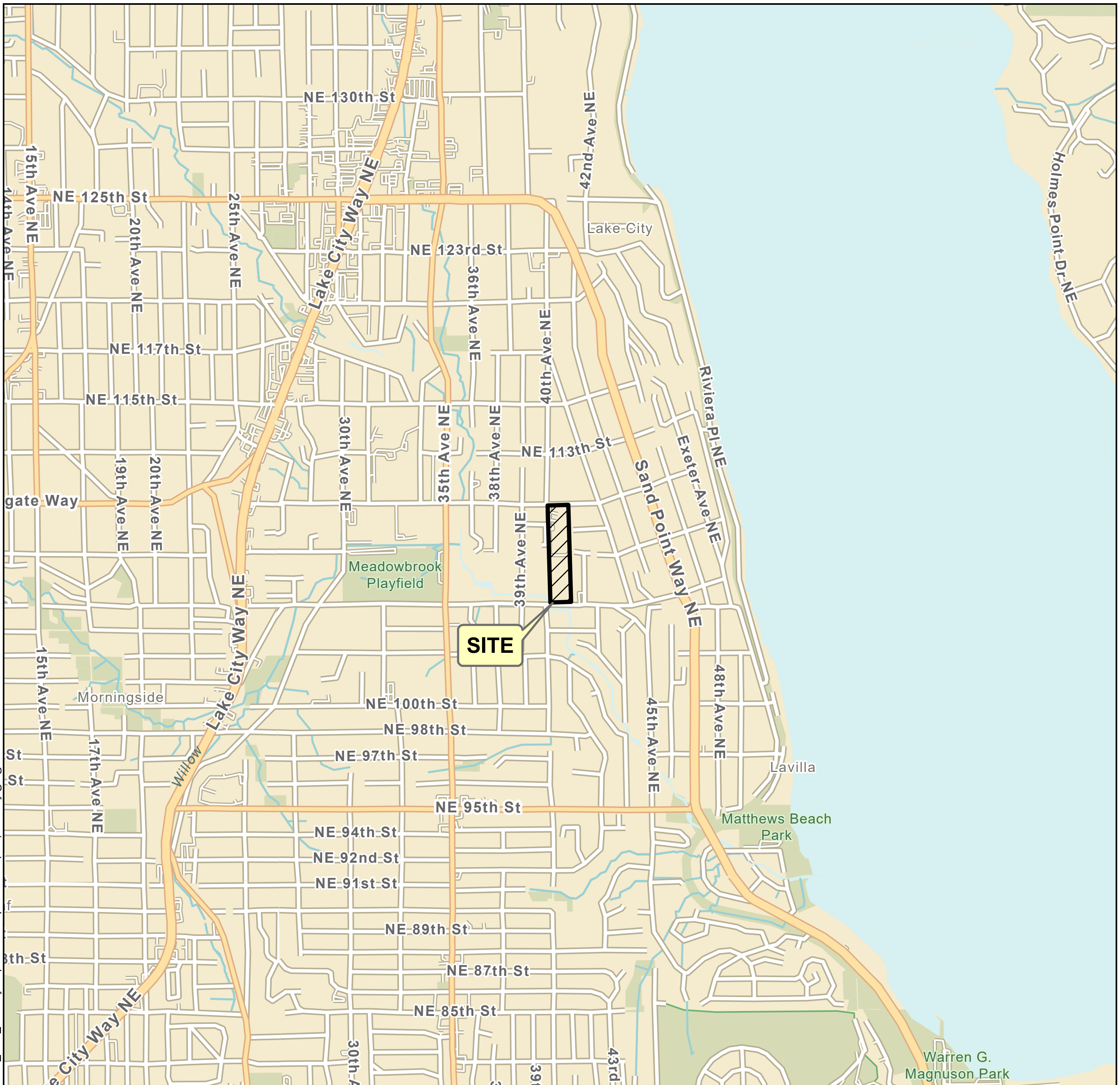
United States Geological Survey. 2005. “The Geologic Map of Seattle – A Progress Report.”

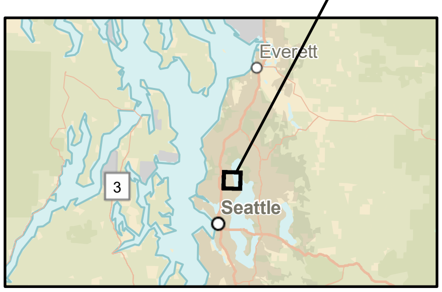
United States Geological Survey. 2018. “U.S. Seismic Design Maps.”

Youd, T.L. and Idriss, I.M. 2001. Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils, ASCE Journal of Geotechnical and Geoenvironmental Engineering, Volume 127, Issue 4.

FIGURES

GeoEngineers





N
W E
S

2,000 0 2,000
Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 10N

Vicinity Map

John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure 1

P:\2\2820014\GIS\2820014_Project\282001400_F01_VicinityMap.aprx\282001400_F01_VicinityMap Date Exported: 10/07/21 by gregister

Legend

Approximate Cut/Fill boundary

Approximate Northern Extent of Lake Deposits

B-1 Boring by GeoEngineers, Inc., 2021

B-2 Monitoring Well by GeoEngineers, Inc., 2021

A A' Cross Section Location

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Aerial from Google Earth Pro dated 08/14/2020.
Surface from WA DNR Lidar Portal, King County, 2016.

Projection: Washington State Plane, North Zone, NAD83, US Foot

N W E S

120 0 120
Feet

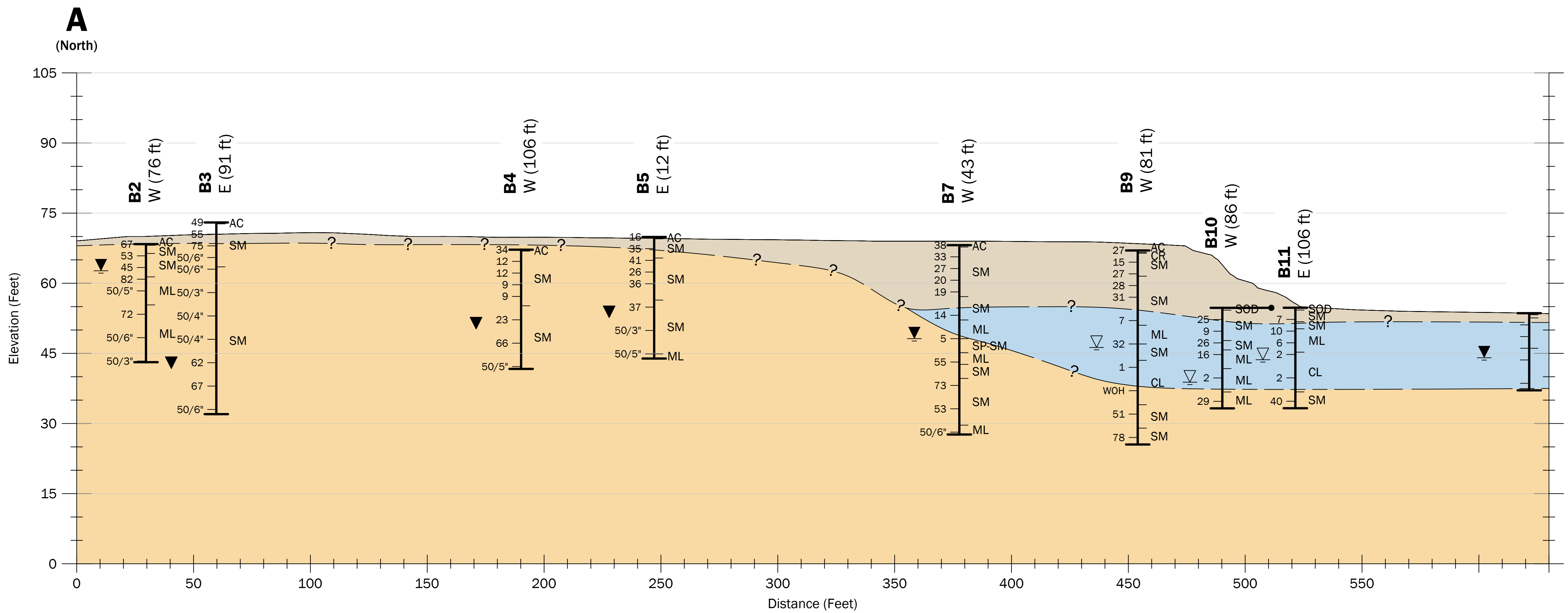
Site Plan

John Rogers Elementary School Replacement
Seattle, Washington

GeoEngineers

Figure 2

P:\2\2820014\CAD\00\Geotech Report\282001400_F02-F06_Site Plan and Cross Sections.dwg TAB:F02 - Site Plan Date Exported: 10/06/21 - 16:53 by gregister



Notes:
1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Datum: NAVD 88, unless otherwise noted.

Legend

B-2 (Offset)

SM

20

Boring
Inferred Soil Contact
Perched Groundwater Observed During Drilling
Soil Classification
Groundwater Observed During Drilling
Groundwater Measured in Piezometer
Blow Count

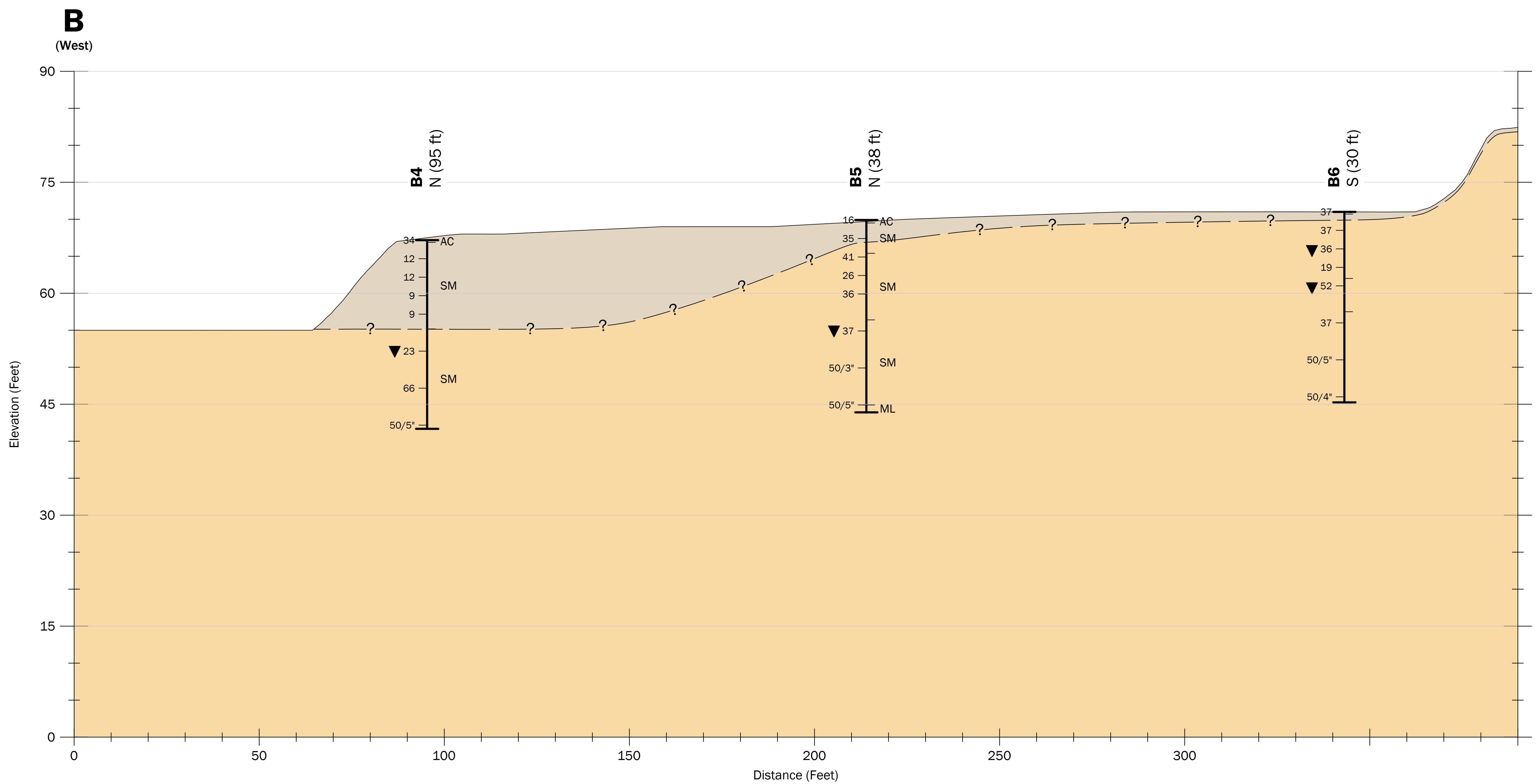
Fill
Lake Deposits
Glacially Consolidated Soils

50 0 50
Horizontal Scale in Feet
25 0 25
Vertical Scale in Feet
Vertical Exaggeration = 2X

John Rogers Elementary School Replacement

GeoEngineers

P:\2\2820014\CAD\00\Geotech Report\282001400_F02-F06_Site Plan and Cross Sections.dwg TAB:F03 - A-A' Date Exported: 10/07/21 - 8:59 by gregister



Notes:
1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Datum: NAVD 88, unless otherwise noted.

Legend

B-4 (Offset) — Boring
Inferred Soil Contact
Perched Groundwater Observed During Drilling
SM — Soil Classification
20 — Blow Count

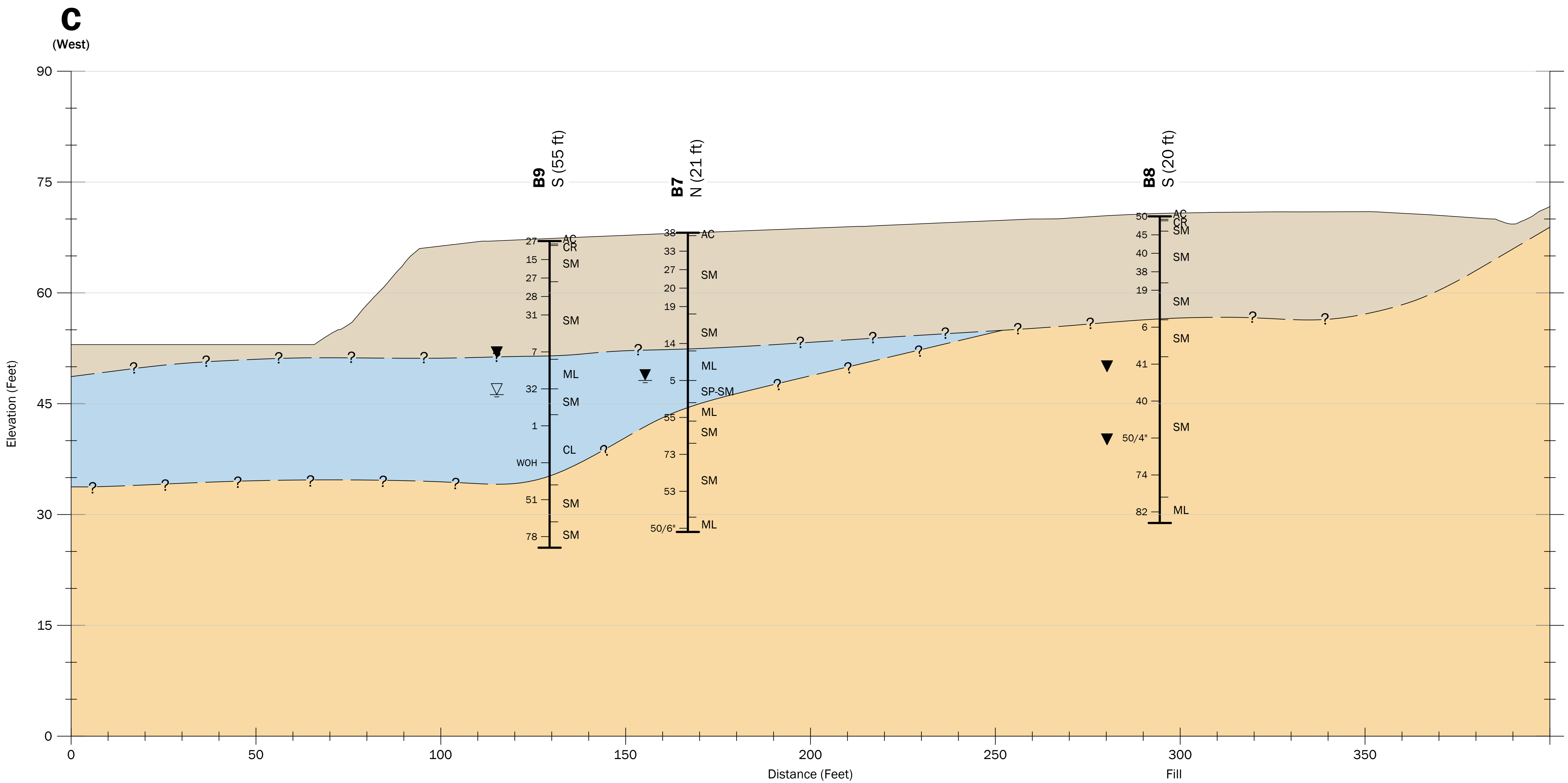
Fill
Lake Deposits
Glacially Consolidated Soils

30 0 30
Horizontal Scale in Feet
15 0 15
Vertical Scale in Feet
Vertical Exaggeration: 2X

John Rogers Elementary School Replacement

GEOENGINEERS

P:\2\2820014\CAD\00\Geotech Report\282001400_F02-F06_Site Plan and Cross Sections.dwg TAB:F04 - B-B' Date Exported: 10/07/21 - 8:59 by gregister



Notes:

1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Datum: NAVD 88, unless otherwise noted.

Legend

B-4 (Offset)

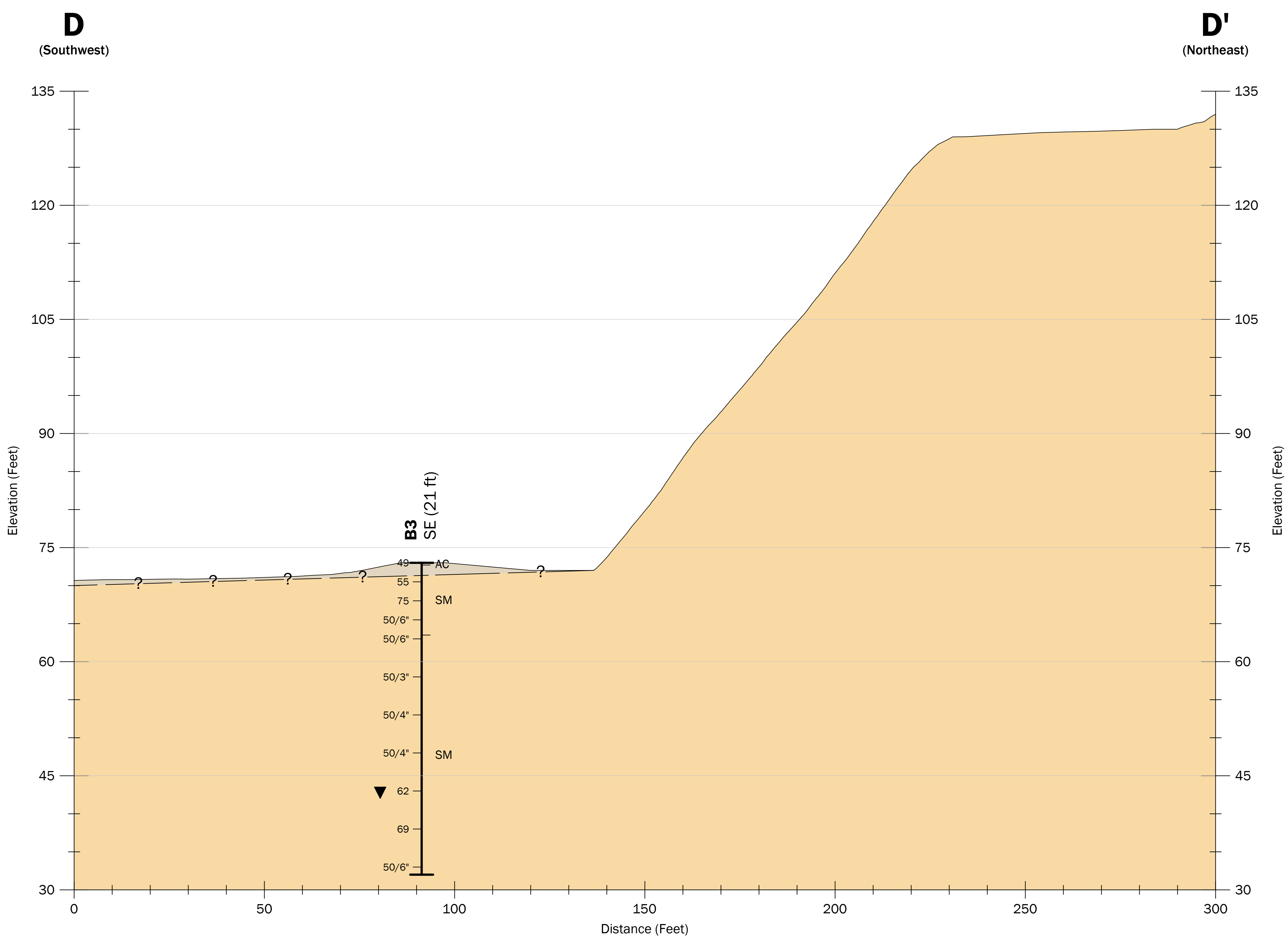
- Boring
- Inferred Soil Contact
- Perched Groundwater Observed During Drilling
- SM Soil Classification
- Groundwater Observed During Drilling
- Groundwater Measured in Piezometer
- 20 Blow Count

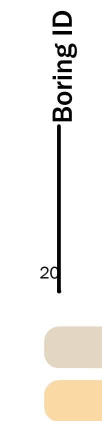
- Fill
- Lake Deposits
- Glacially Consolidated Soils

30 0 30
Horizontal Scale in Feet
15 0 15
Vertical Scale in Feet
Vertical Exaggeration: 2X

John Rogers Elementary School Replacement

GeoEngineers





Notes:

1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

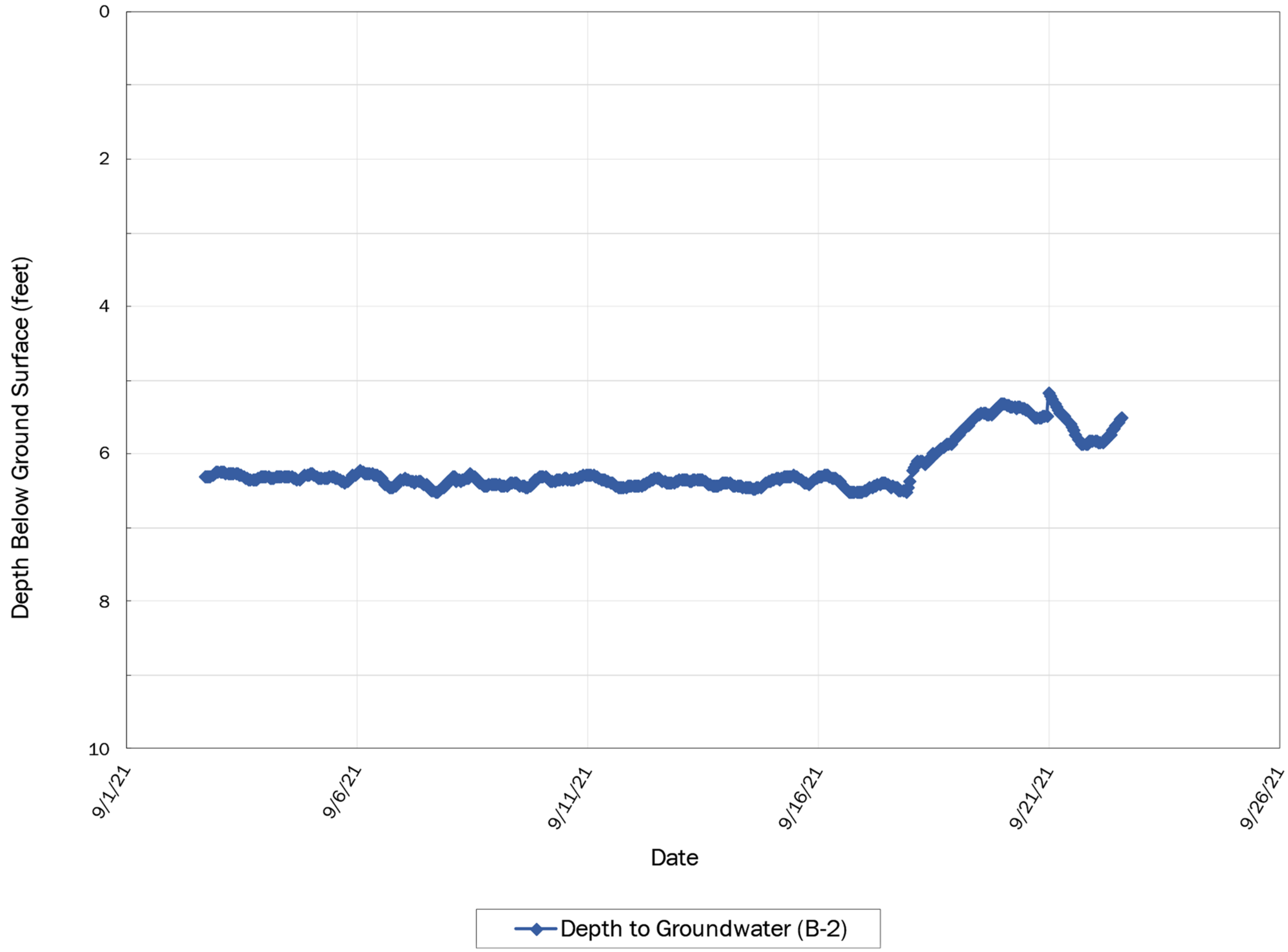
Datum: NAVD 88, unless otherwise noted.

John Rogers Elementary School Replacement

GeoE

P:\2\2820014\CAD\00\Geotech Report\282001400_F02-F06_Site Plan and Cross Sections.dwg TAB:F06 - D-D' Date Exported: 10/07/21 - 9:00 by gregister

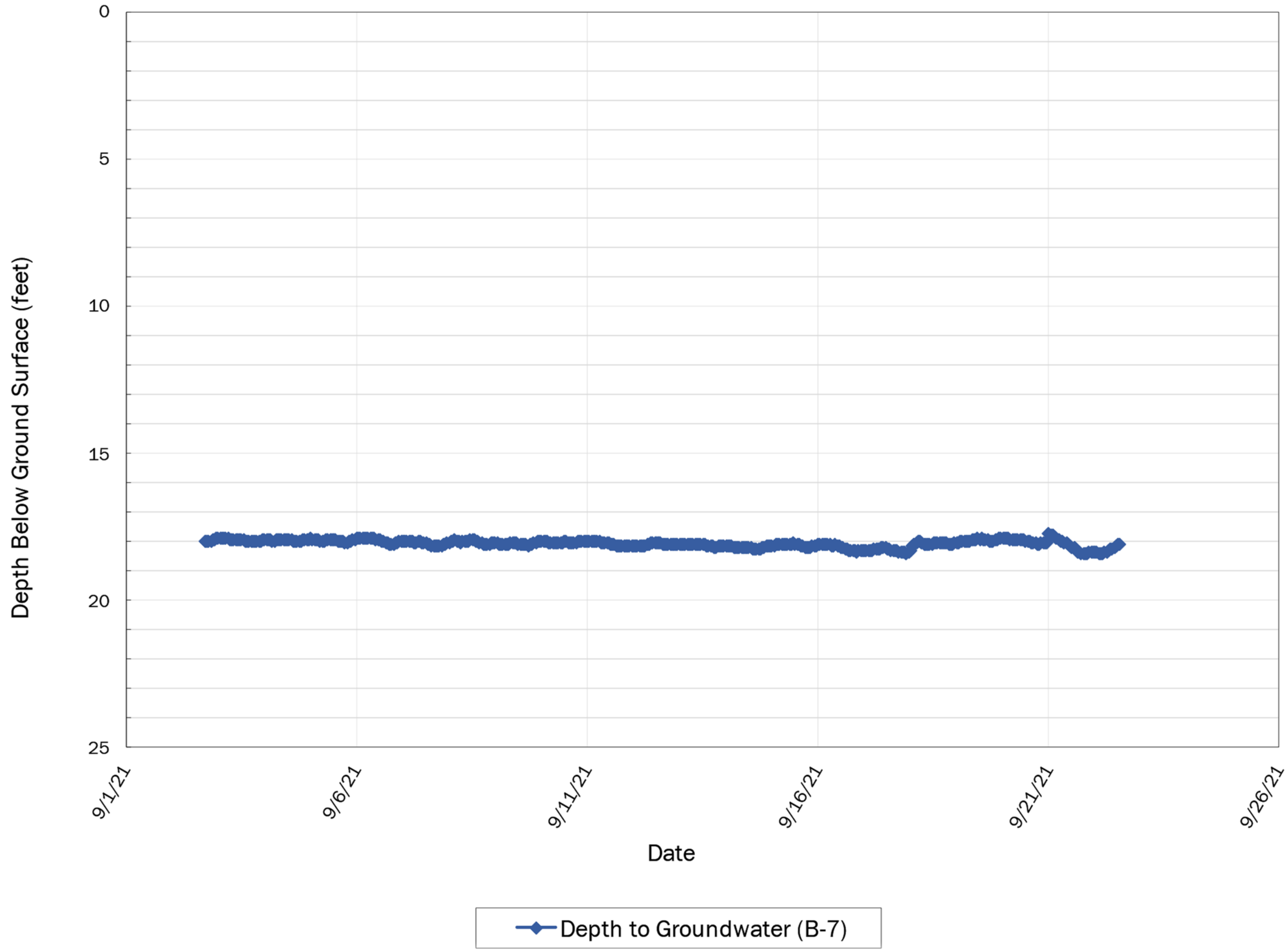
2420-014-00 Date Exported: 09/29/2021



Data Source: Groundwater data collected by GeoEngineers

Measured Depth to Groundwater (B-2)
John Rogers Elementary School Replacement Seattle, Washington

GeoEngineers **Figure 7**



Data Source: Groundwater data collected by GeoEngineers

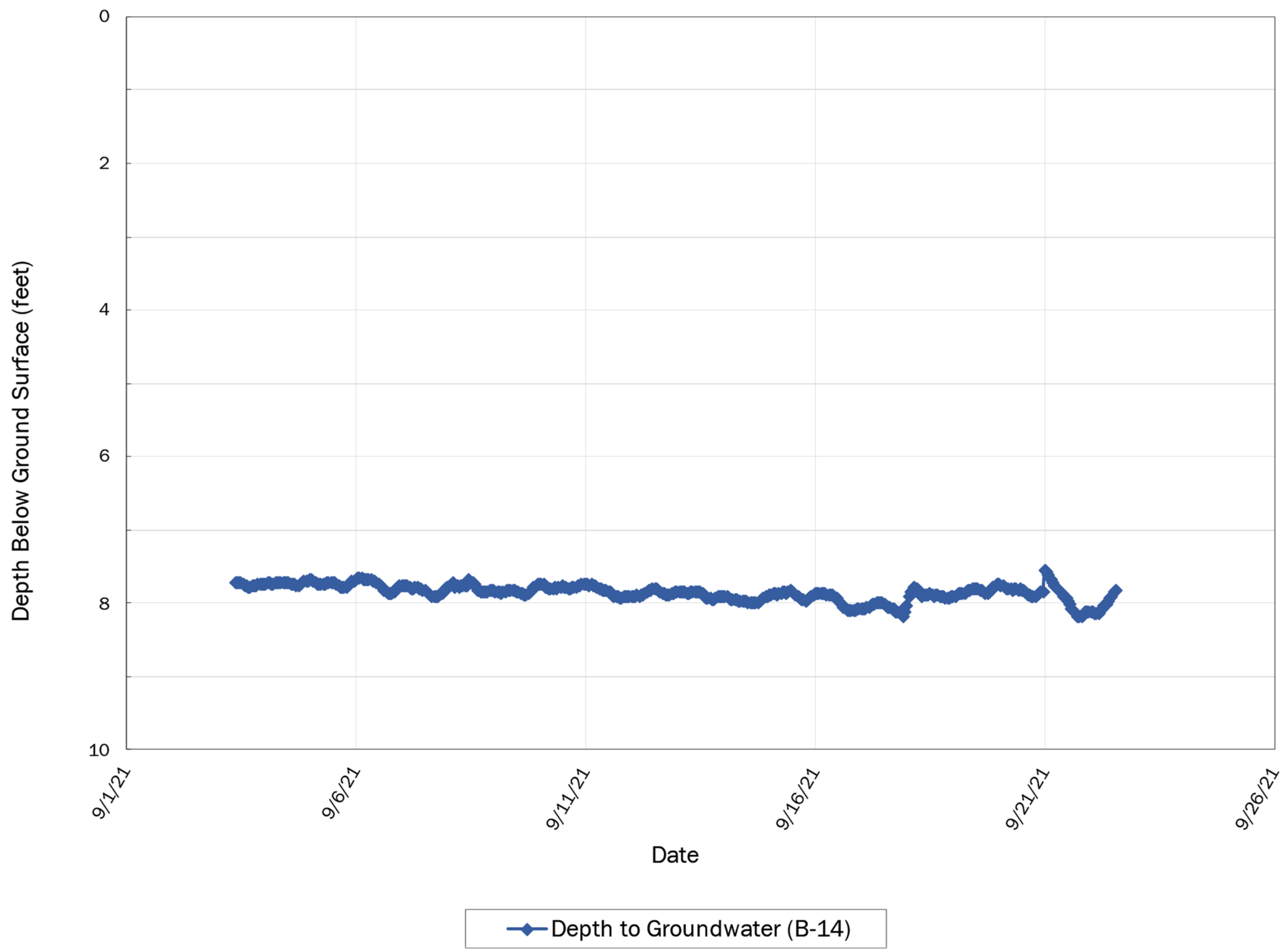
Measured Depth to Groundwater (B-7)

John Rogers Elementary School Replacement
Seattle, Washington

GeoEngineers

Figure 8

2420-014-00 Date Exported: 09/29/2021



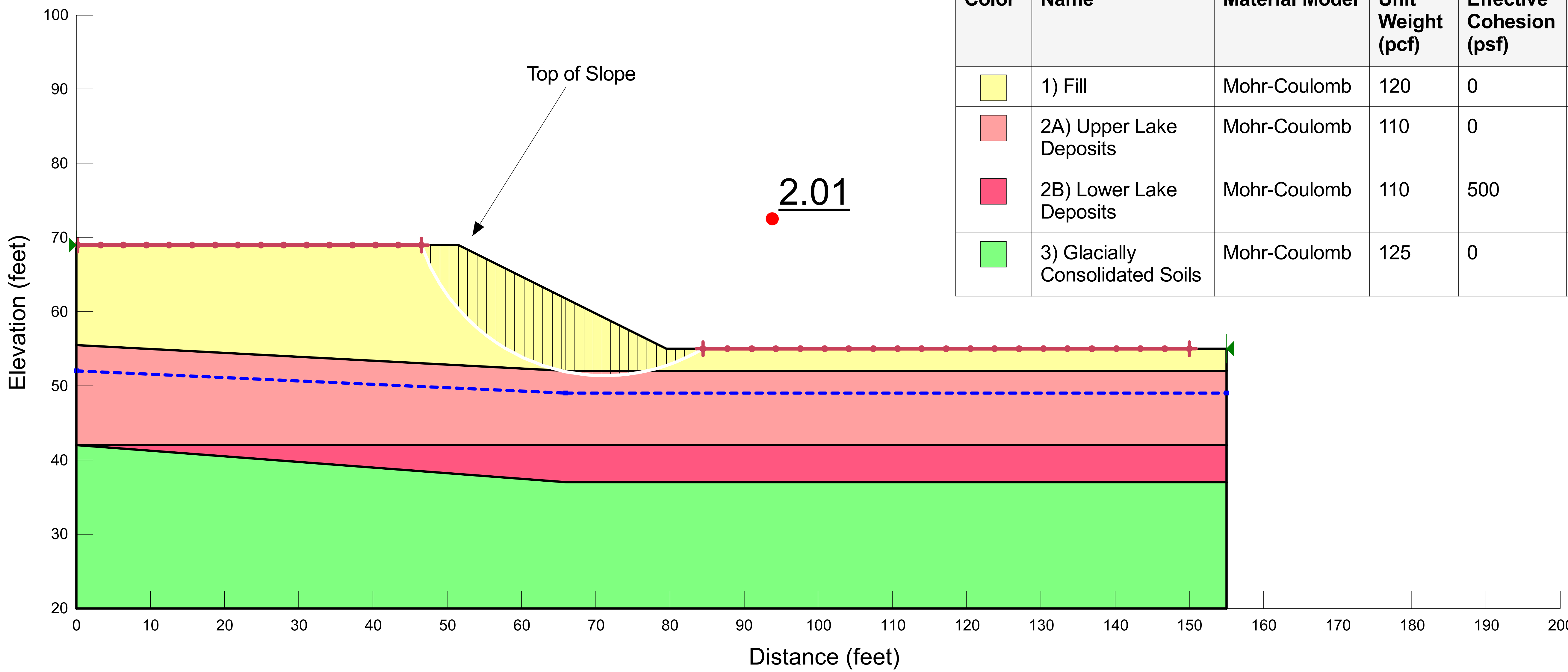
Measured Depth to Groundwater (B-14)

John Rogers Elementary School Replacement
Seattle, Washington

GeoEngineers

Figure 9

Data Source: Groundwater data collected by GeoEngineers



Color	Name	Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1) Fill	Mohr-Coulomb	120	0	34
	2A) Upper Lake Deposits	Mohr-Coulomb	110	0	30
	2B) Lower Lake Deposits	Mohr-Coulomb	110	500	0
	3) Glacially Consolidated Soils	Mohr-Coulomb	125	0	38

Notes:

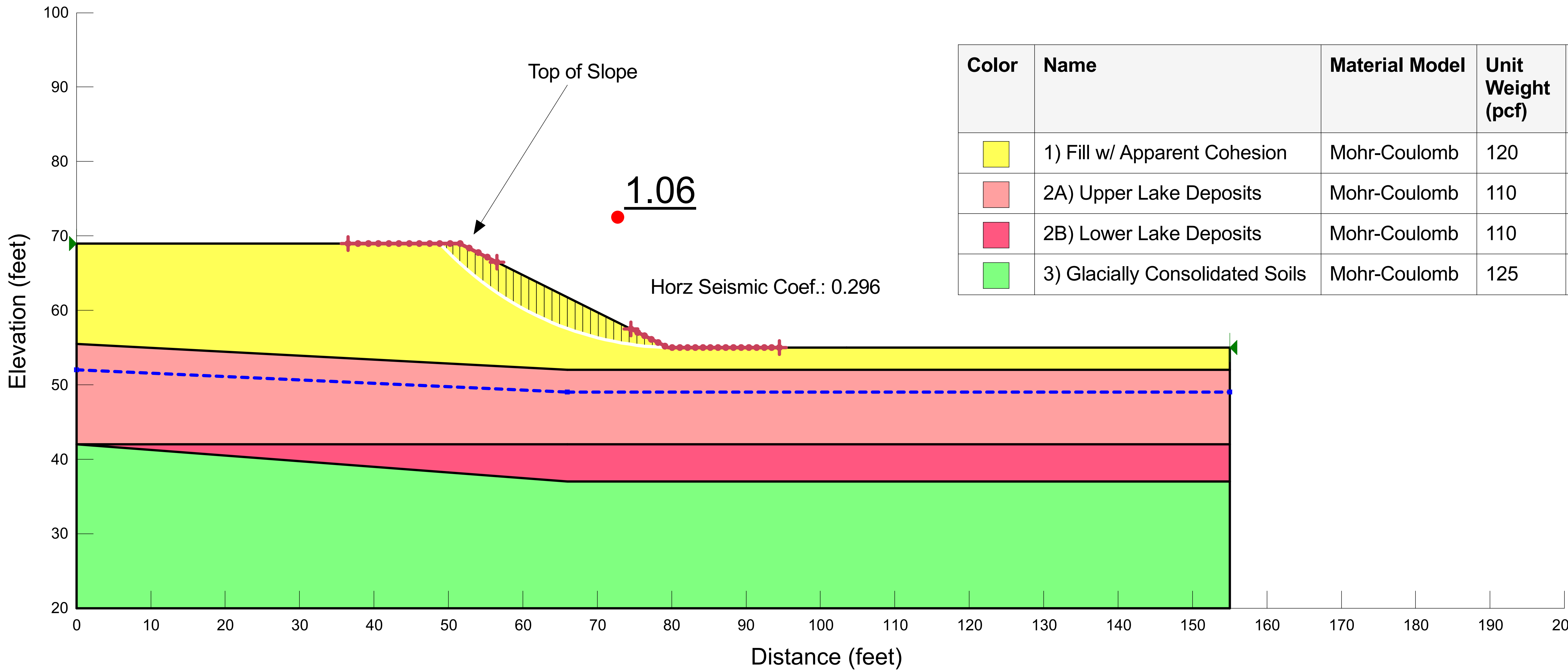
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
3. GeoEngineers, Inc. cannot guarangtee the accuracy and context of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Slope Stability - Cross Section A-A'
1A. Static

John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure 10



Color	Name	Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1) Fill w/ Apparent Cohesion	Mohr-Coulomb	120	50	34
	2A) Upper Lake Deposits	Mohr-Coulomb	110	0	30
	2B) Lower Lake Deposits	Mohr-Coulomb	110	500	0
	3) Glacially Consolidated Soils	Mohr-Coulomb	125	0	38

Notes:

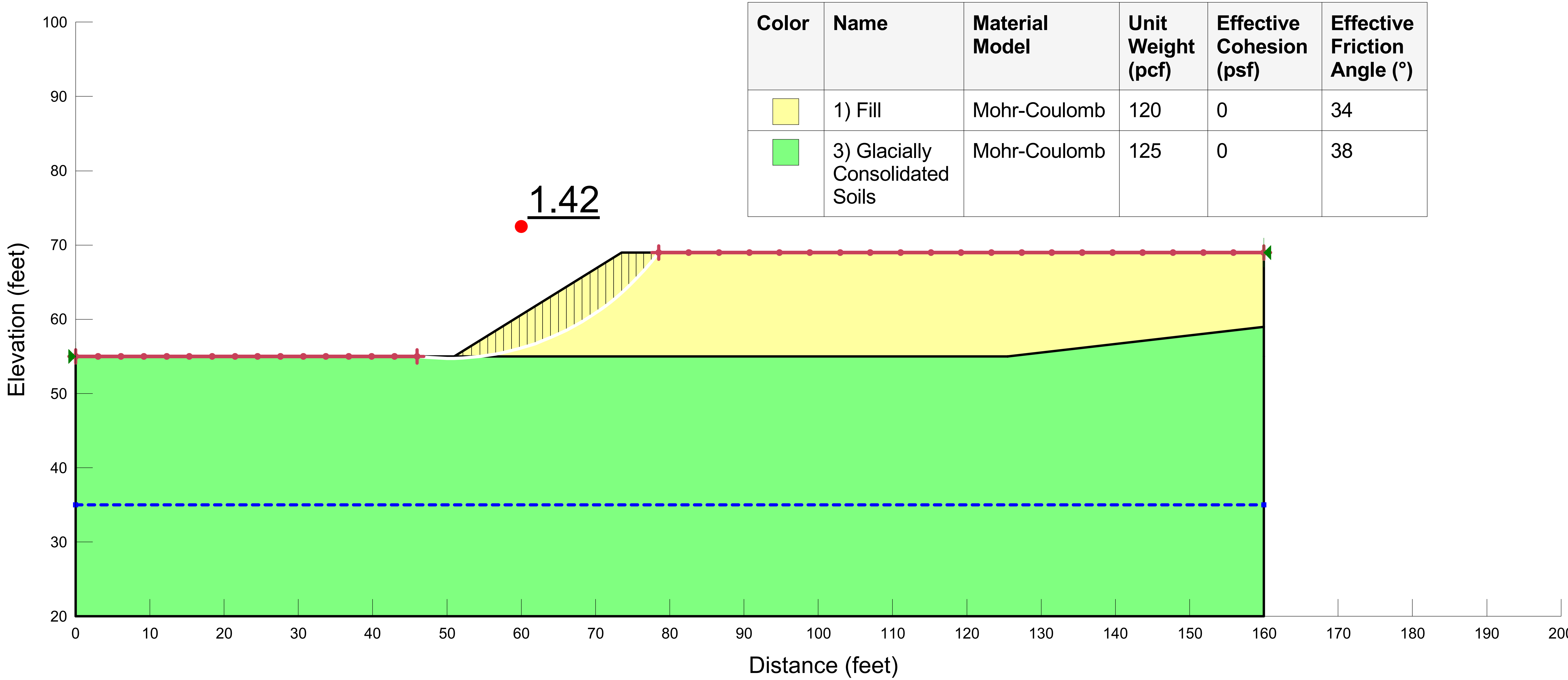
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
3. GeoEngineers, Inc. cannot guarangtee the accuracy and context of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Slope Stability - Cross Section A-A'
1B. Pseudo-Static

John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure 11



Color	Name	Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1) Fill	Mohr-Coulomb	120	0	34
	3) Glacially Consolidated Soils	Mohr-Coulomb	125	0	38

Notes:

1. The locations of all features shown are approximate.

2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.

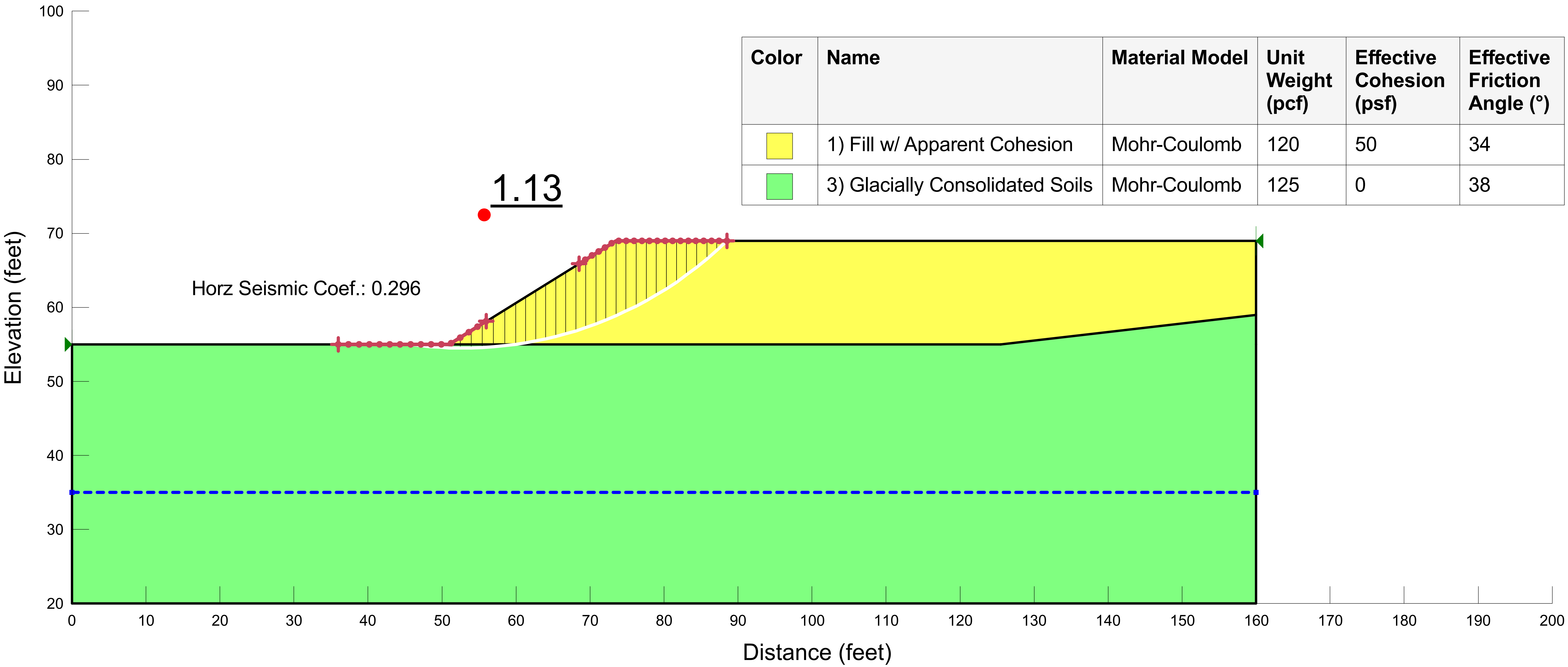
3. GeoEngineers, Inc. cannot guarantee the accuracy and context of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Slope Stability - Cross Section B-B'
1A. Static

John Rogers Elementary School Replacement
Seattle, Washington

GeoEngineers

Figure 12



Color	Name	Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1) Fill w/ Apparent Cohesion	Mohr-Coulomb	120	50	34
	3) Glacially Consolidated Soils	Mohr-Coulomb	125	0	38

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
3. GeoEngineers, Inc. cannot guarangtee the accuracy and context of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Slope Stability - Cross Section B-B'
1B. Pseudo-Static

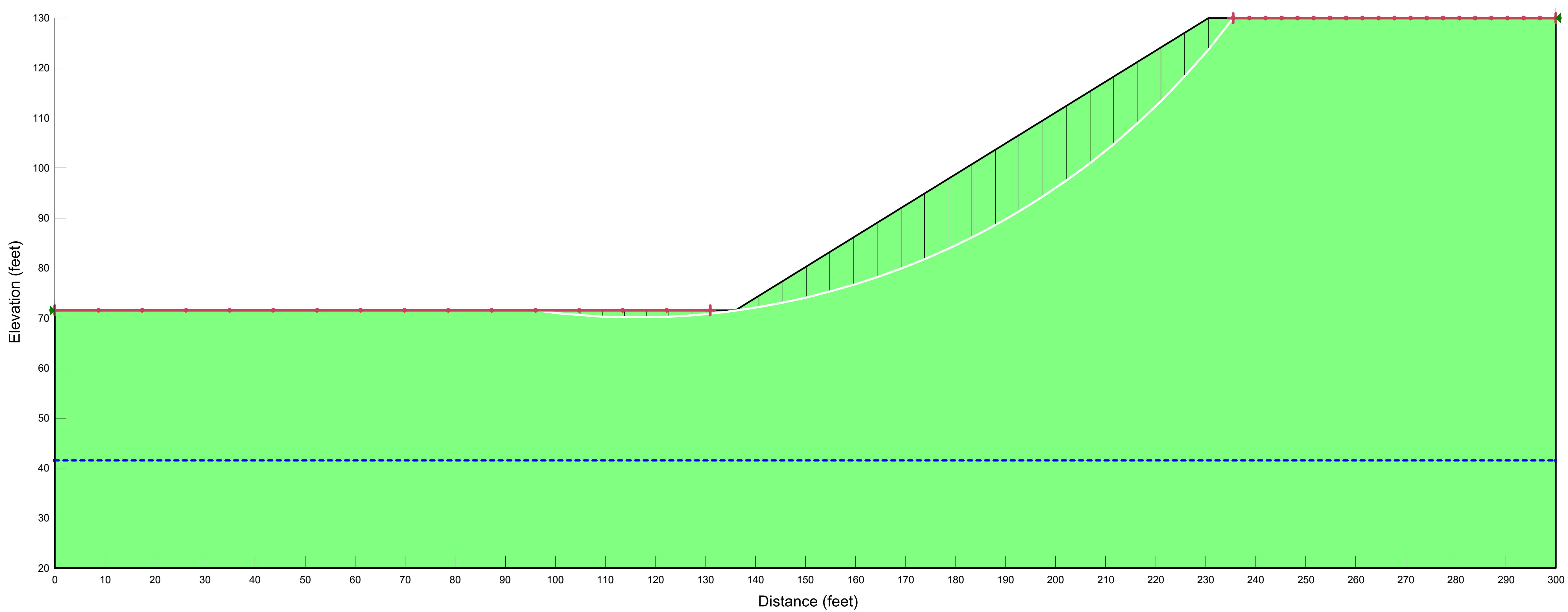
John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure 13

	3) Glacially Consolidated Soils	Mohr-Coulomb	125	0	40

1.59



Notes:

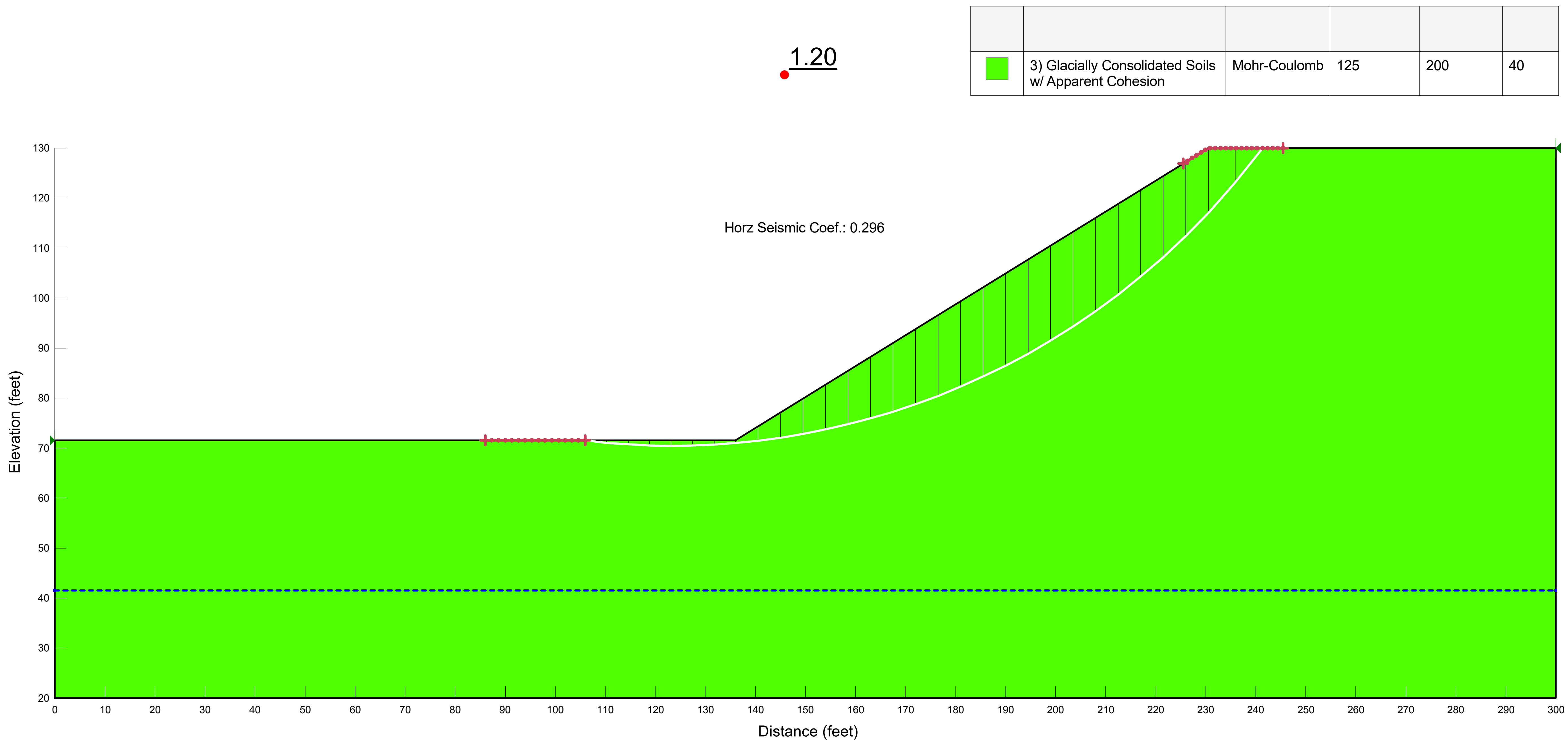
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
3. GeoEngineers, Inc. cannot guarantee the accuracy and context of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Slope Stability - Cross Section D-D'
1A. Static

John Rogers Elementary School Replacement
Seattle, Washington

GeoEngineers

Figure 14



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
3. GeoEngineers, Inc. cannot guarangtee the accuracy and context of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Slope Stability - Cross Section D-D'
1B. Pseudo-Static

John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure 15

APPENDICES

GeoEngineers

APPENDIX A
Subsurface Explorations

APPENDIX A
SUBSURFACE EXPLORATIONS

Soil conditions at the project site were explored by advancing fourteen borings between August 19 and September 2, 2021. The approximate locations of our explorations and shown on the Site Plan, Figure 2. The explorations were located in the field using a GPS device. The locations of the explorations shown on Figure 2 should be considered approximate.

Soil borings were advanced to between 11.5 feet and 41.5 feet below ground surface (bgs) using a track-mounted hollow-stem auger drill rig equipment and operators under subcontract to GeoEngineers. The explorations were continuously monitored by a representative from our firm who examined and classified the soil encountered, obtained representative soil samples, and maintained a detailed log of the explorations. Soil encountered in the borings was classified in general accordance with ASTM International (ASTM) D 2488 and the classification chart listed in Key to Exploration Logs, Figure A-1. Logs of the borings are presented in Figures A-2 through A-15. The logs are based on interpretation of the field and indicate the depth at which we interpret subsurface materials or their characteristics to change, although these changes might actually be gradual.

Soil samples were obtained from the borings at approximate 2.5- to 5-foot-depth intervals using a 2-inch, outside-diameter, standard split-spoon sampler (Standard Penetration Test [SPT]) in general accordance with ASTM D 1586. The sampler was driven into the soil using a 140-pound automatic hammer, free-falling 30 inches. The number of blows required to drive the sampler each of three, 6-inch increments of penetration (total of 18 inches) were recorded in the field. The sum of the blow counts for the final 12 inches of penetration, unless otherwise noted, is reported on the boring logs.

The soil borings were backfilled by our drilling subcontractor following Washington Department of Ecology Guidelines. Soil cuttings generated during drilling were collected in drums and taken offsite by the driller for disposal. Three of the borings (B-2, B-7 and B-14) were finished as monitoring wells after drilling was completed. Flush surface mount monuments were constructed around the wells in accordance with Washington Department of Ecology Guidelines.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

- 2.4-inch I.D. split barrel
- Standard Penetration Test (SPT)
- Shelby tube
- Piston
- Direct-Push
- Bulk or grab
- Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

GeoEngineers

Figure A-1

Drilled	Start 8/19/2021	End 8/19/2021	Total Depth (ft) 31	Logged By CJL / Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 88.5 Vertical Datum NAVD88	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Diedrich D70 Turbo
Easting (X) 1283027 Northing (Y) 261630	System Datum: WA State Plane North NAD83 (feet)	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0	18	46	1 SA	AC	Approximately 1-inch asphalt concrete pavement	10	42	
					SM	Brown silty fine to medium sand with occasional gravel (dense, moist) (fill)			
					SM	Gray silty fine to medium sand with gravel (dense, moist)			
85		12	2	2	SM	Brown silty fine to medium sand with gravel (very loose, moist)			
	5	9	23	3	SM	Brown-gray silty fine to coarse sand with gravel (medium dense, moist) (glacially consolidated soils)			
80		14	72	4	SM	Brown silty fine sand with gravel (very dense, moist)			
	10	12	70	5					
75					SM	Gray silty fine to coarse sand with gravel (very dense, moist)			
	15	12	77	6					
70					ML	Gray sandy silt with occasional gravel (hard, moist)			Drill chatter approximately 17 to 20 feet
	20	15	61	7					
65									
	25	6	50/6"	8					Drill chatter approximately 26 to 30 feet
60									
	30	12	50/5"	9					

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-1

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-2
Sheet 1 of 1

Drilled: Start 8/20/2021, End 8/20/2021	Total Depth (ft): 25.25	Logged By: CJL; Checked By: BEL	Driller: Holocene Drilling, Inc.
Drilling Method: Hollow-stem Auger			
Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Diedrich D70 Turbo		
Surface Elevation (ft): 68.5; Vertical Datum: NAVD88	Top of Casing Elevation (ft):		
Easting (X): 1282979; Northing (Y): 261476	Horizontal Datum: WA State Plane North NAD83 (feet)		

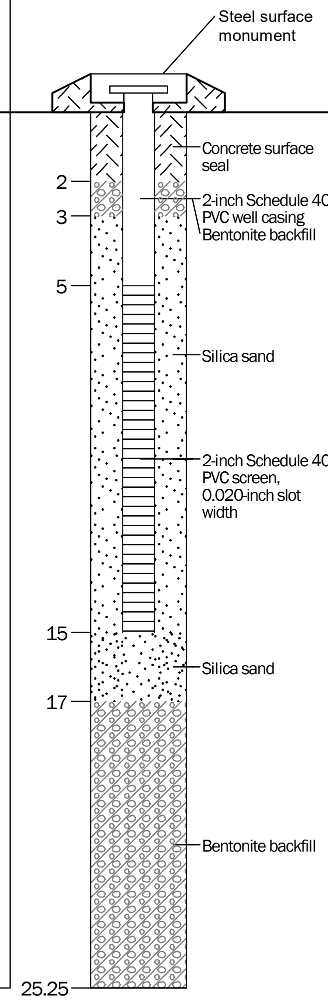
DOE Well I.D.: BNR 37E
A 2-in well was installed on 8/20/2021 to a depth of 17 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
9/22/2021	5.50	63.00

Notes:

Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)
0	18	67	1	AC	Approximately 3 inches asphalt concrete pavement		
				SM	Brown-gray with iron-oxide staining silty fine to medium sand with gravel (very dense, moist) (fill)		
2.5	16	53	2 / SA	SM	Brown silty fine to medium sand with gravel (very dense, moist) (glacially consolidated soils)	8	36
5	12	45	3		Becomes dense		
7.5	13	82	4 / %F	ML	Gray sandy silt with occasional gravel (hard, moist)	10	50
10	11	50/5"	5		Drill chatter 11 to 14 feet		
				ML	Gray silt with occasional sand (hard, wet)		
15	18	72	6 / AL		Perched groundwater observed at 15 feet during drilling AL (LL = 19; PI = 1) Driller chatter 16 to 17 feet	20	
20	6	50/6"	7		Becomes moist		
25	1	50/3"	8				

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Monitoring Well B-2

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-3
Sheet 1 of 1

Drilled	Start 8/20/2021	End 8/20/2021	Total Depth (ft) 41	Logged By CJL Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 73 Vertical Datum NAVD88	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Diedrich D70 Turbo
Easting (X) 1283146 Northing (Y) 261446	System Datum: WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0		14	49		1		AC	Approximately 2½ inches asphalt concrete pavement			
								SM	Brown to gray silty fine to medium sand with gravel (dense, moist) (glacially consolidated soils)			
70			12	55		2 / SA				11	40	
	5		18	75		3						
65			16	50/6"		4						
	10		14	50/6"		5		SM	Gray silty fine sand with occasional gravel (very dense, moist)			
60												
	15		7	50/3"		6						
55												
	20		10	50/4"		7						
50												
	25		7	50/4"		8						
45												
	30		18	62		9 / MC			Becomes wet	18		Perched groundwater observed at approximately 30 feet below ground surface during drilling
40												
	35											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-3

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	35		18	67		10						Perched groundwater observed at approximately 35 feet below ground surface during drilling
35												
	40		12	50/6"		11						Perched groundwater observed at approximately 40 feet below ground surface during drilling

Log of Boring B-3 (continued)

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Drilled	Start 8/20/2021	End 8/20/2021	Total Depth (ft) 25.5	Logged By CJL / Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 67 / Vertical Datum NAVD88	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Diedrich D70 Turbo
Easting (X) 1282949 / Northing (Y) 261316	System Datum: WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
67	0	15	34	1	AC	Approximately 3 inches asphalt concrete pavement			
					SM	Brown-gray with occasional iron-oxide staining silty fine to coarse sand with occasional gravel (dense, moist) (fill)			
		12	12	2 / SA		Grades to with occasional organic matter (charcoal), medium dense	11	39	
	5	15	12	3		Becomes darker brown			
		17	9	4 / %F		Becomes brown and loose	14	32	
	10	6	9	5					
					SM	Blue-gray silty fine to medium sand with occasional gravel (medium dense, moist) (glacially consolidated soils)			
	15	12	23	6a / 6b					Perched groundwater observed at approximately 15½ feet below ground surface during drilling
	20	15	66	7					
	25	0	50/5"	8					No recovery, gravel in shoe

Elevation scale: 65, 60, 55, 50, 45

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-4

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-5
Sheet 1 of 1

Drilled	Start 8/19/2021	End	Total Depth (ft) 26	Logged By CJL / Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 70 / Vertical Datum NAVD88	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Diedrich D70 Turbo
Easting (X) 1283067 / Northing (Y) 261259	System Datum: WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0	6	16	1	AC	Approximately 4 inches asphalt concrete pavement			
					SM	Brown with iron-oxide staining silty fine to medium sand with occasional gravel (medium dense, moist) (fill)			
		4	35	2		Becomes dense			
65	5	13	41	3	SM	Brown-gray with occasional iron-oxide staining silty fine to medium sand with gravel (dense, moist) (glacially consolidated soils)			
		12	26	4 SA		Becomes medium dense	10	39	
60	10	8	36	5		Becomes dense			
					SM	Gray silty fine to medium sand with occasional gravel (dense, wet)			
55	15	14	37	6		Becomes gray, wet			Perched groundwater observed at approximately 15 feel below ground surface during drilling
50	20	0	50/3"	7		Becomes moist and very dense			Drill chatter 21 to 25 feet
45	25	8	50/5"	8 MC	ML	Gray sandy silt (hard moist)	11		

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-5

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Drilled	Start 8/23/2021	End 8/23/2021	Total Depth (ft) 25.75	Logged By CJL / Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 71 Vertical Datum NAVD88	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D70 Turbo
Easting (X) 1283197 Northing (Y) 261190	System Datum: WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
70	0		13	37		1		AC	Approximately 2½ inches asphalt concrete pavement			
								SM	Brown-gray silty fine to medium sand with occasional gravel (dense, moist) (glacially consolidated soils)			
			18	37		2 / SA			Grades to with occasional iron-oxide staining	11	45	
65	5		12	36		3			Becomes wet			Perched groundwater observed at approximately 5 feet below ground surface during drilling
			5	19		4			Becomes medium dense, moist			
								SM	Gray to brown silty fine to coarse sand with gravel (very dense, wet)			
60	10		18	52		5						Perched groundwater observed at approximately 10 feet below ground surface during drilling
								SM	Gray silty fine to coarse sand with occasional gravel (dense, moist)			
55	15		18	37		6						
50	20		1	50/5"		7			Becomes very dense			
												Drill chatter 23 to 25 feet
	25		3	50/4"		8						Gravel in sampler shoe

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-6

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-7
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/20/2021	8/20/2021	40.5	CJL	BEL	Holocene Drilling, Inc.	Hollow-stem Auger

Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D70 Turbo
Surface Elevation (ft) / Vertical Datum	68 / NAVD88	Top of Casing Elevation (ft)	
Easting (X) / Northing (Y)	1283012 / 261128	Horizontal Datum	WA State Plane North NAD83 (feet)

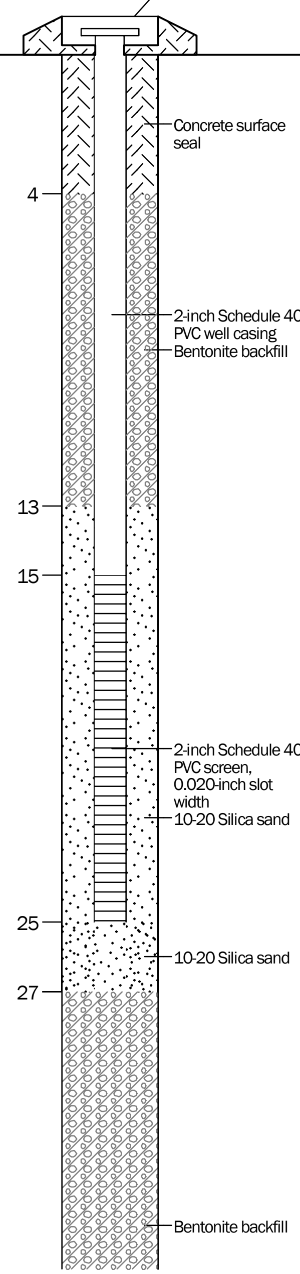
DOE Well I.D.: BNR 7
A 2-in well was installed on 8/20/2021 to a depth of 27 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
9/22/2021	18.10	49.90

Notes:

Elevation (feet)	Depth (feet)	Interval / Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)
	0	18	38		1 SA			AC	Approximately 4 inches asphalt concrete pavement	6	33
								SM	Brown-gray silty fine to medium sand with gravel (dense, moist) (fill)		
65		2	33		2						
	5	10	27		3				Becomes medium dense		
									Drill chatter 6 to 7 feet		
60		6	20		4						
	10	15	19		5						
								SM	Dark brown to gray silty fine sand with occasional gravel and trace organic matter (black wood pieces) (medium dense, moist)		
55											
	15	12	14		6a 6b						
								ML	Dark brown-black silt with fine sand and gravel (medium stiff, moist) (lake deposits)		
50						▼					
	20	3	5		7			SP-SM	Blue-gray fine to medium sand with silt (loose, wet) Groundwater observed at 20 feet at time of drilling		
45								ML	Blue-gray silt with fine sand (stiff, wet)		
	25	18	55		8a MC 8b					40	
								SM	Blue-gray silty fine sand (very dense, wet) (glacially consolidated soils)		
40								SM	Gray silty fine to coarse sand with occasional gravel (very dense, moist)		
	30	13	73		9						
35											
	35										

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Date:9/29/21 Path:P:\2\2820014\GINT\282001400.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_WELL_%F

Log of Monitoring Well B-7

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	WELL LOG
	35		16	53		10				Grades to fine to medium sand with occasional gravel			
30									ML	Gray sandy silt (hard, moist)			
	40		6	50/6"		11 / MC					18		40.5

Log of Monitoring Well B-7 (continued)

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-8
Sheet 2 of 2

Date:9/29/21 Path:P:\2\2820014\GINT\282001400.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_WELL_%F

Drilled	Start 8/23/2021	End 8/23/2021	Total Depth (ft)	41.5	Logged By CJL	Checked By BEL	Driller	Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger

Surface Elevation (ft) Vertical Datum	70.5 NAVD88	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D70 Turbo
Easting (X) Northing (Y)	1283139 261087	System Datum	WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
70	0		15	50		1 SA		AC	Approximately 4 inches asphalt concrete pavement	7	39	
								CR	2 inches crushed rock			
								SM	Brown with occasional iron-oxide staining silty fine to medium sand with gravel (very dense, moist) (fill)			
			3	45		2		SM	Gray to brown silty fine to coarse sand with gravel (dense, moist)			
65	5		6	40		3 %F				5	21	Gravel in shoe
			6	38		4						Gravel in shoe
								SM	Brown silty fine to coarse sand with gravel (medium dense, moist)			
60	10		13	19		5						Increasing moisture and fines content
								SM	Dark brown silty fine to coarse sand with occasional gravel and organic matter (roots, charcoal) (loose, moist) (lake deposits)			
55	15		8	6		6						
								SM	Blue to gray silty fine to medium sand with occasional gravel (dense, wet) (glacially consolidated soils)			
50	20		11	41		7						Perched groundwater observed at approximately 20 feet below ground surface during drilling
												Drill chatter 23 to 24 feet
45	25		1	40		8			Becomes moist			Gravel in shoe
40	30		11	50/4"		9			Becomes dense, wet			Perched groundwater observed at approximately 30 feet below ground surface during drilling
	35											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Date:9/29/21 Path:P:\2\2820014\GINT\282001400.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_STANDARD_%F_NO_GW

Log of Boring B-8

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-9
Sheet 1 of 2

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
35	35		12	74		10			Becomes gray, moist			Drill chatter 35 to 38 feet
								ML	Gray sandy silt (hard, moist)			
30	40		18	82		11						

Log of Boring B-8 (continued)

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Drilled	Start 8/23/2021	End 8/23/2021	Total Depth (ft)	41.5	Logged By CJL	Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 67 Vertical Datum NAVD88	Hammer Data Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment Diedrich D70 Turbo	
Easting (X) 1282974 Northing (Y) 261052	System Datum WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
67	0	X	13	27		1	AC	Approximately 4 inches asphalt concrete pavement			
							CR	2 inches crushed rock			
65							SM	Brown-gray silty fine to medium sand with gravel (medium dense, moist) (fill)			
		X	14	15		2 SA		Grades to with occasional iron-oxide staining and trace organic matter	9	41	
	5	X	12	27		3a 3b	SM	Gray silty fine to medium sand with occasional gravel (medium dense, moist)			
60		X	3	28		4		Becomes brown			Gravel in sampler shoe
	10	X	5	31		5					
55											
	15	X	15	7		6a MC		Becomes wet	12		Perched groundwater observed at approximately 15 feet below ground surface during drilling
						6b MC	ML	Dark brown and black sandy silt with orange mottling (soft, moist) (lake deposits)	23		
50											
	20	X	16	32		7	SM	Blue-gray silty fine sand (dense, wet)			Groundwater observed at approximately 20 feet below ground surface during drilling
45							CL	Gray clay with lenses of fine to medium sand (very soft, wet)			
	25	X	18	1		8 MC			42		
40								Grades to without sand			
	30	X		WOH		9 MC			58		
35							SM	Blue-gray silty fine sand (very dense, wet) (glacially consolidated soil)			Harder drilling at 33 feet
	35										

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-9

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-10
Sheet 1 of 2

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	35		17	51		10						
30												
								SM	Gray silty fine to coarse sand with gravel (very dense, wet)			
	40		16	78		11						

Log of Boring B-9 (continued)

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Drilled	Start 8/24/2021	End 8/24/2021	Total Depth (ft)	21.5	Logged By CJL Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger

Surface Elevation (ft) Vertical Datum	54.5 NAVD88	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D50 Turbo
Easting (X) Northing (Y)	1282969 260994	System Datum	WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed	

Notes:

FIELD DATA

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0							SOD	Approximately 4 inches sod			
								SM	Brown to gray silty fine to coarse sand with occasional gravel (medium dense, moist) (fill)			
		X	8	25								No recovery
50	5	X	8	9		1			Grades to without gravel and loose			
		X	12	26		2 / %F		SM	Gray silty fine to medium sand (medium dense, moist) (lake deposits)	21	36	
45								ML	Gray sandy silt (very stiff, moist)			
	10	X	12	16		3 / MC				25		
40								ML	Gray silt with occasional sand (soft, wet)			
	15	X	8	2		4 / MC				34		Groundwater observed at approximately 15 feet below ground surface during drilling
35								ML	Gray silt with sand (very stiff, moist)			
	20	X	12	29		5 / MC				20		

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-10

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Figure A-11
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/24/2021	8/24/2021	21.5	CJL	BEL	Holocene Drilling, Inc.	Hollow-stem Auger

Surface Elevation (ft) Vertical Datum	54.5 NAVD88	Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D50 Turbo
Easting (X) Northing (Y)	1283161 260984	System Datum	WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0							SOD	Approximately 4 inches sod			
								SM	Dark brown silty fine sand with occasional organic matter (wood roots) (loose, moist) (fill)			
			13	7		1a / MC / 1b		SM	Blue-gray silty fine to medium sand with gravel (loose, moist)	29		
50	5		18	10		2		ML	Blue-gray with occasional iron-oxide staining sandy silt (stiff, moist) (lake deposits)			
			7	6		3 / MC			Becomes medium stiff	18		
45	10		2	2		4		CL	Gray clay (soft, wet)			Groundwater observed at approximately 10 feet below ground surface during drilling
40	15		8	2		5 / MC				54		
35								SM	Gray silty fine to medium sand with occasional gravel (dense, wet) (glacially consolidated soils)			Harder drilling at 18 feet
	20		18	40		6						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-11

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Drilled	Start 8/24/2021	End 8/24/2021	Total Depth (ft) 16.5	Logged By CJL / Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 52 / Vertical Datum NAVD88	Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment: Diedrich D50 Turbo
Easting (X) 1283004 / Northing (Y) 260742	System Datum: WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
52	0							SOD	Approximately 4 inches sod			
								SM	Gray silty fine to medium sand with occasional gravel (medium dense, moist) (fill)			
50		X	12	15		1						
	5	X	12	18		2		SM	Brown and gray with orange staining silty fine sand (medium dense, moist)			
45		X	6	2		3 / MC		ML	Gray sandy silt (soft, wet) (lake deposits)	25		Groundwater observed at approximately 7½ feet below ground surface during drilling
	10	X	6	0		4a / MC / 4b		ML	Dark gray and brown sandy silt with occasional organic matter (roots) (very soft, moist)	18		
								CL	Gray clay with occasional sand (very soft, moist)			
40												
	15	X	18	WOH		5						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-12

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Drilled	Start 8/24/2021	End 8/24/2021	Total Depth (ft) 11.5	Logged By CJL Checked By BEL	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger

Surface Elevation (ft) 52 Vertical Datum NAVD88	Hammer Data Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment Diedrich D50 Turbo
Easting (X) 1283145 Northing (Y) 260740	System Datum WA State Plane North NAD83 (feet)	Groundwater not observed at time of exploration

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0							SOD	Approximately 4 inches sod			
50								SP-SM	Brown fine to medium sand with silt (loose, moist) (fill)			
			7	8		1a 1b		SM	Dark brown silty fine sand with gravel (loose, moist)			
	5		0	11		2		SM	Gray silty fine to medium sand (medium dense, moist) (lake deposits)			
45			2	2		3		CL	Gray clay (soft, moist)			
	10		18	0		4 MC			Becomes very soft	60		

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Boring B-13

GeoEngineers

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

Drilled	Start: 9/2/2021	End: 9/2/2021	Total Depth (ft)	16.5	Logged By: CJL	Checked By: BEL	Driller	Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger

Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D50 Turbo
Surface Elevation (ft) / Vertical Datum	52 / NAVD88	Top of Casing Elevation (ft)	
Easting (X) / Northing (Y)	1283082 / 260739	Horizontal Datum	WA State Plane North NAD83 (feet)

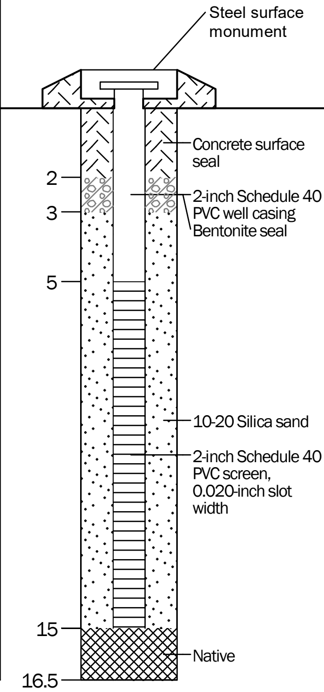
A 2-in well was installed on 9/2/2021 to a depth of 15 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
9/22/2021	7.80	44.20

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)
52	0							SOD	Approximately 4 inches of sod		
								SP-SM	Brown fine sand with silt (medium dense, moist) (fill)		
50								SM	Brown-gray silty fine sand with occasional gravel (medium dense, moist)		
		X	12	17		1					
	5	X	0	12		2			Grades to with occasional iron-oxide staining and organic matter (roots)		
45											
		X	12	8		3	▼	CL	Brown-gray clay (stiff, moist) (lake deposits)		
	10	X	18	1		4			Becomes gray, very soft		
40											
	15	X	18	1		5					

WELL LOG



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on LIDAR.

Log of Monitoring Well B-14

GEOENGINEERS

Project: John Rogers Elementary School
Project Location: Seattle, Washington
Project Number: 2820-014-00

APPENDIX B
Laboratory Testing

APPENDIX B
LABORATORY TESTING

Soil samples obtained from the borings were returned to our Redmond laboratory for further examination and testing. A description of the completed laboratory tests is provided below.

Moisture Content

Moisture content tests were determined using the ASTM D2216 test method for several samples obtained from the borings. The results of these tests are presented on the boring logs in Appendix A at the respective sample depths.

Percent Passing the U.S. No. 200 Sieve

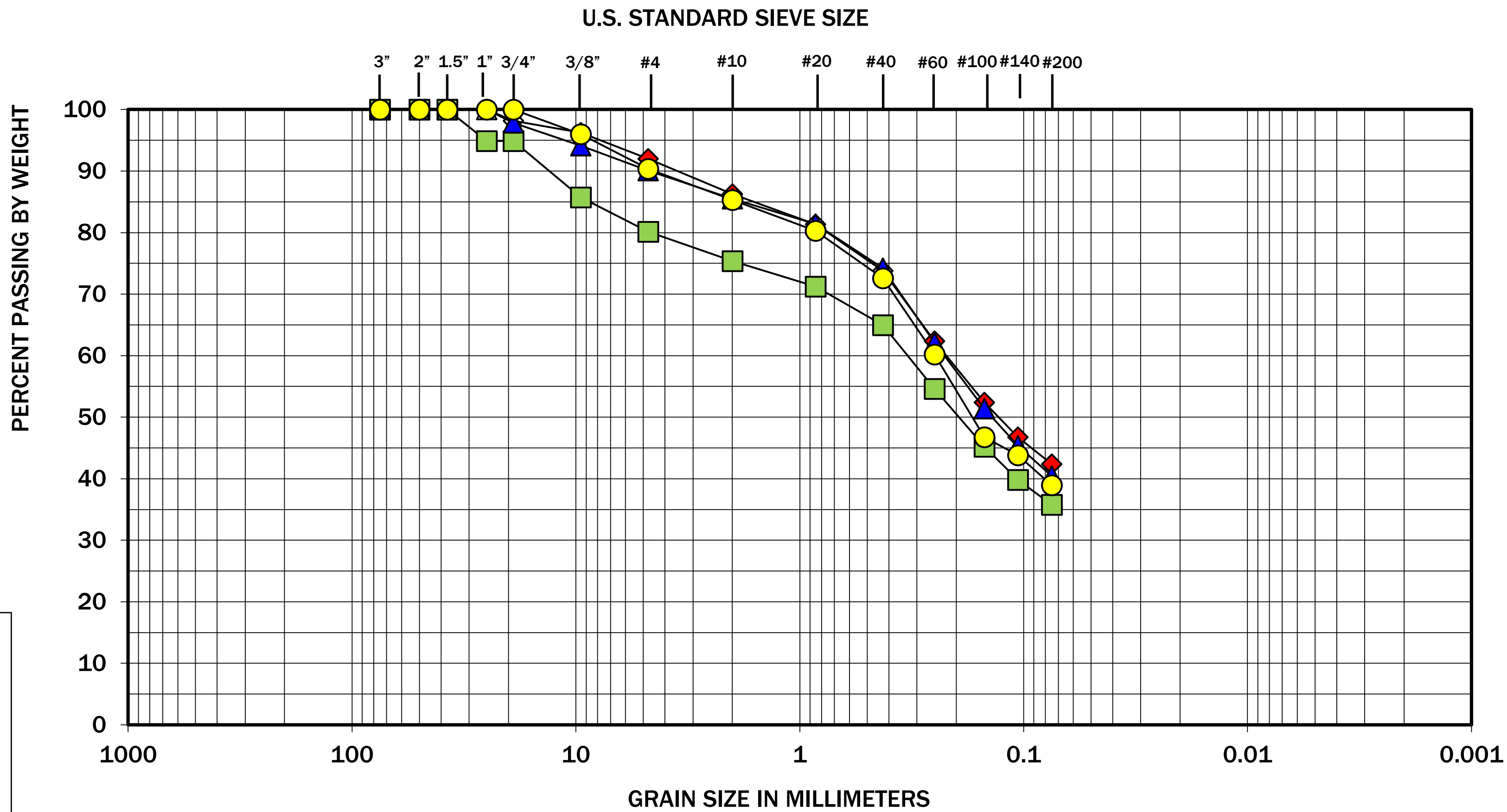
Selected samples were "washed" through the U.S. No. 200 sieve to estimate the relative percentages of coarse- and fine-grained particles in the soil. The percent passing value represents the percentage by weight of the sample finer than the U.S. No. 200 sieve (fines). The tests were conducted in general accordance with ASTM International (ASTM) D 1140. The test results are presented on the exploration logs in Appendix A at the respective sample depths.

Grain Size Analysis

Grain size (sieve) analyses were performed on selected soil samples in general accordance with ASTM Test Method C 136. This test provides a quantitative determination of the distribution of particle sizes in soils. Figures B-1 through B-3 present the results of the grain-size analyses.

Atterberg Limits

Atterberg limit tests were used to classify the soil and to aid in evaluating index properties of the fine-grained soil deposits. The liquid limit and the plastic limit were obtained in general accordance with ASTM D 4318. The results of the Atterberg limits testing are plotted on Figure B-4 and presented on the respective boring logs.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆ (red diamond)	B1	0	10	Silty sand (SM)
■ (green square)	B2	2.5	8	Silty sand with gravel (SM)
▲ (blue triangle)	B3	2.5	11	Silty sand (SM)
● (yellow circle)	B4	2.5	11	Silty sand (SM)

AASHTO ACCREDITED

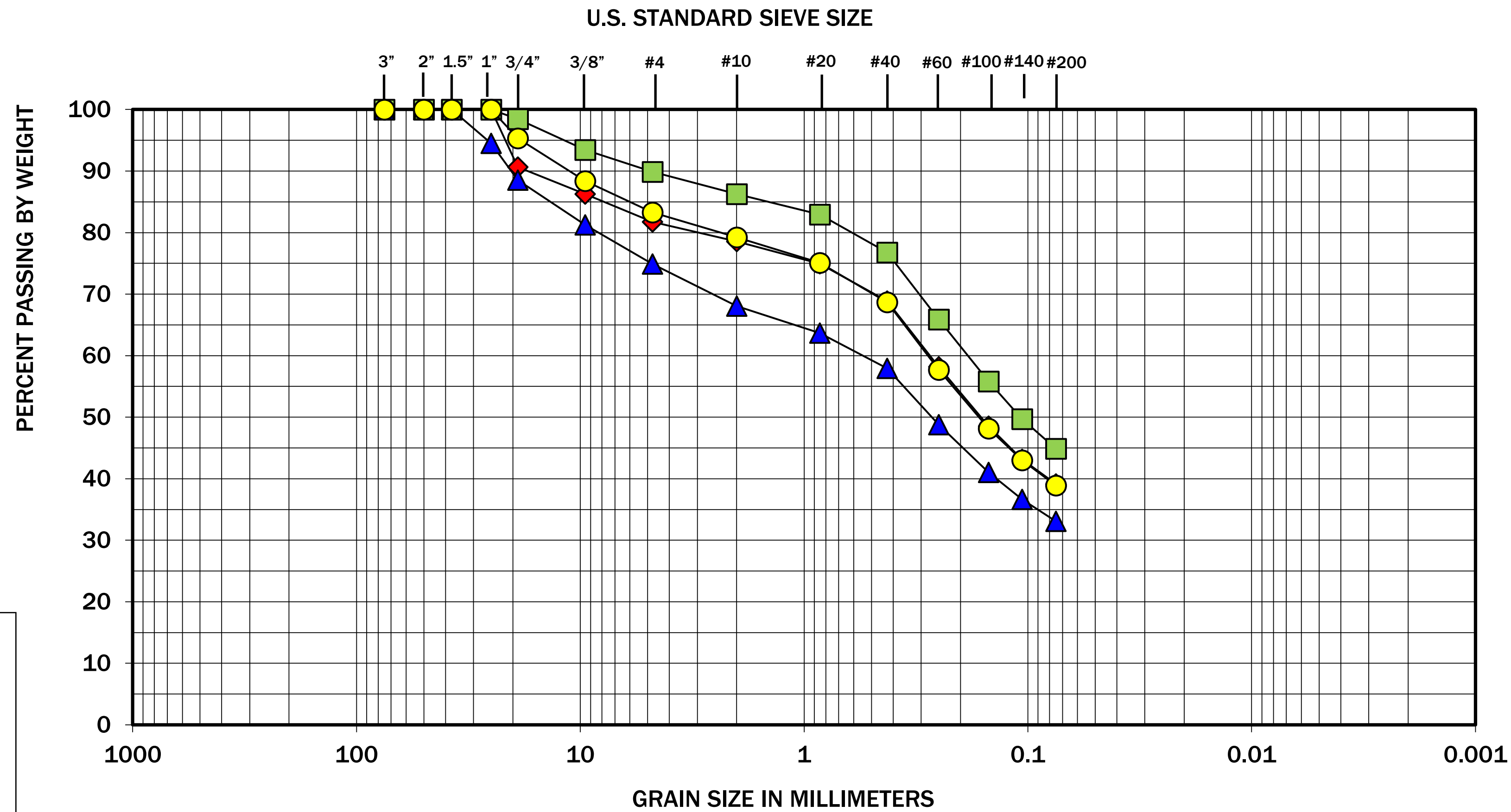
The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

GEOENGINEERS

John Rodgers Elementary School
Seattle, Washington

Sieve Analysis Results

Figure-B-1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
	B5	7.5	10	Silty sand with gravel (SM)
	B6	2.5	11	Silty sand (SM)
	B7	0	6	Silty sand with gravel (SM)
	B8	0	7	Silty sand with gravel (SM)

Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes.

The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

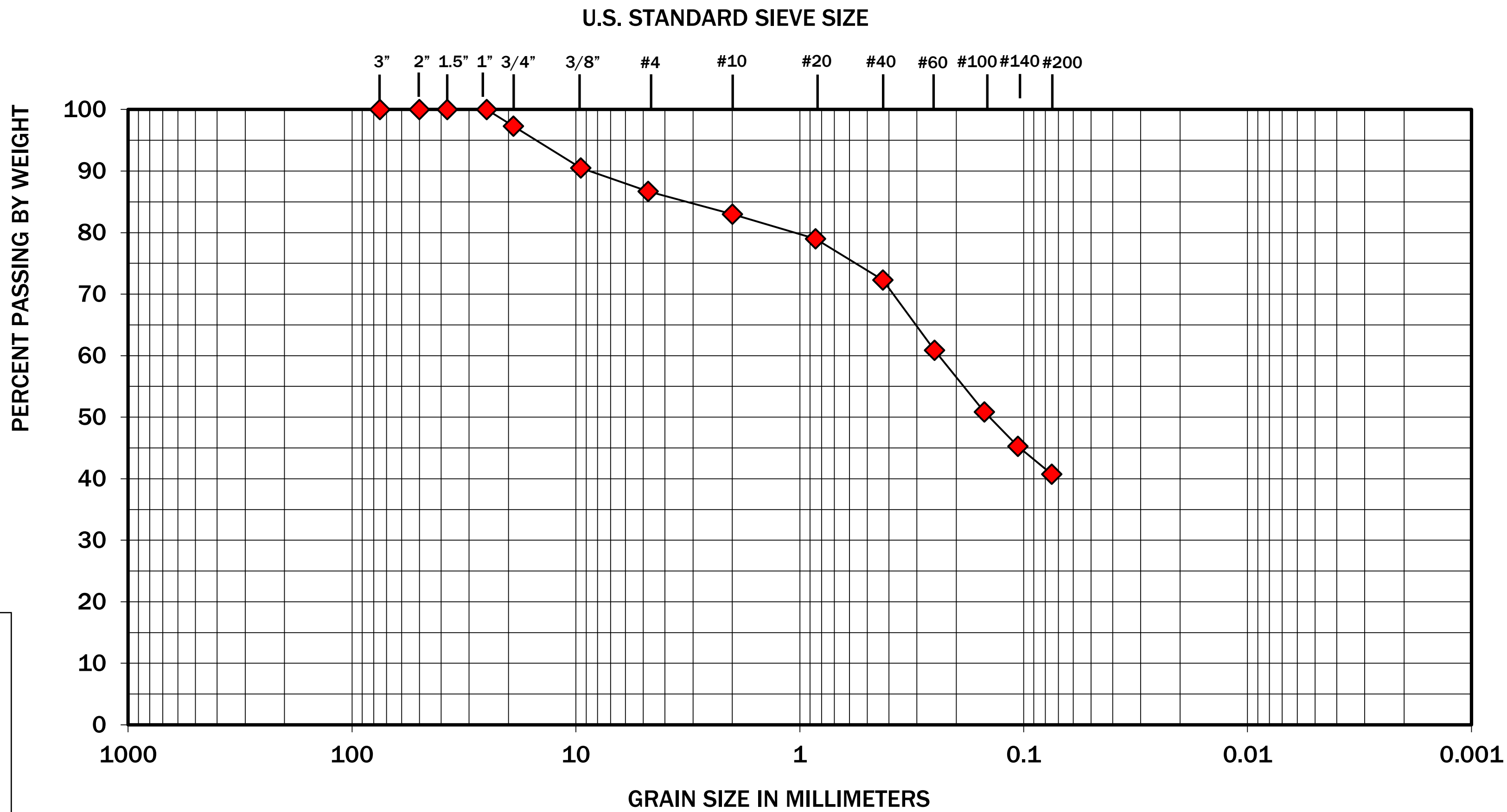
AASHTO ACCREDITED

GEOENGINEERS

Sieve Analysis Results

John Rodgers Elementary School
Seattle, Washington

Figure-B-2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	B9	2.5	9	Silty sand (SM)

Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes.

The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

AASHTO ACCREDITED

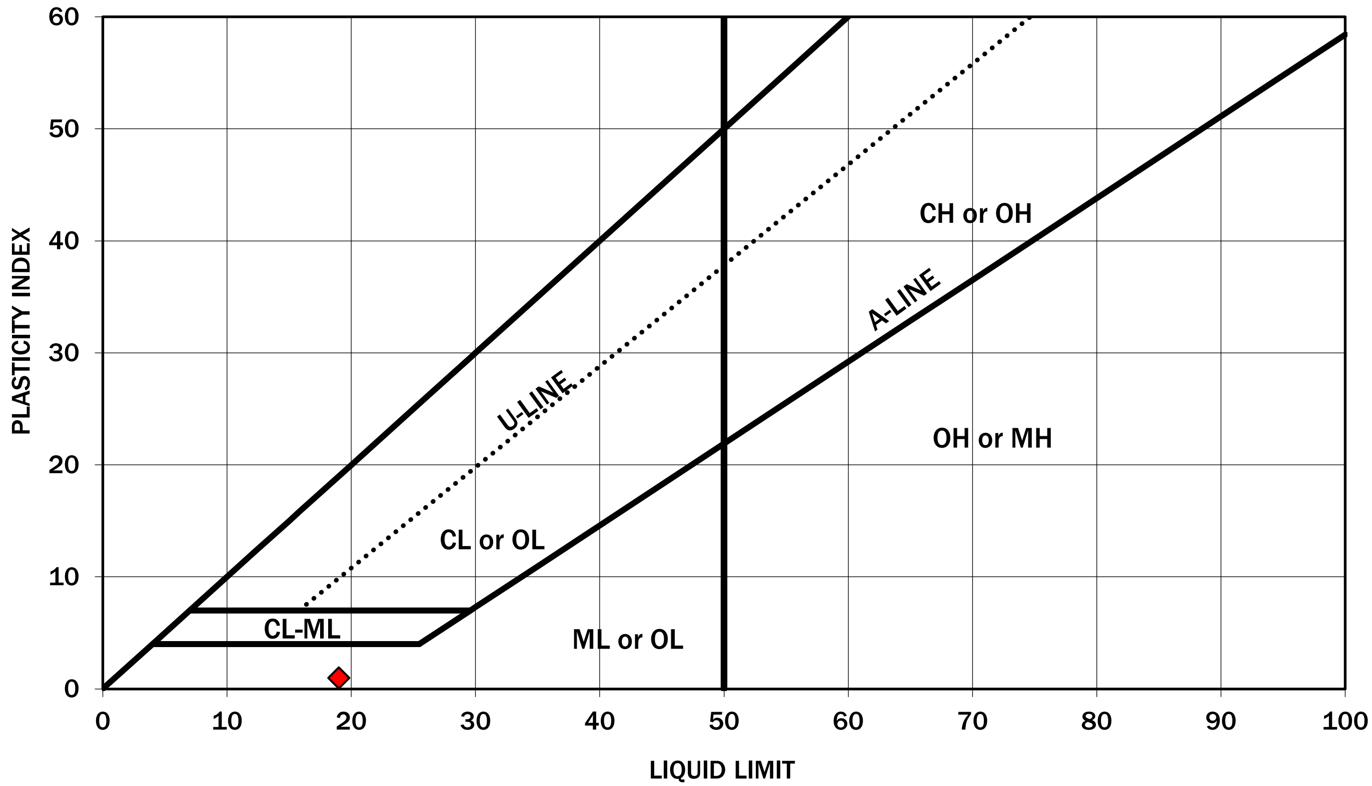
GeoEngineers

John Rodgers Elementary School
Seattle, Washington

Sieve Analysis Results

Figure-B-3

PLASTICITY CHART



Symbol	Boring Number	Depth (feet)	Moisture Content (%)	Liquid Limit (%)	Plasticity Index (%)	Soil Description
◆	B2	15	20	19	1	Silt (ML)

AASHTO ACCREDITED

Atterberg Limits Test Results

John Rodgers Elementary School
Seattle, Washington

GEOENGINEERS

Figure-B-4

APPENDIX C
Report Limitations and Guidelines for Use

APPENDIX C
REPORT LIMITATIONS AND GUIDELINES FOR USE

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory "limitations" provisions in its reports. Please confer with GeoEngineers if you need to know more how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for Seattle Public Schools, for the John Rogers Elementary School Replacement project in Seattle, Washington. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the John Rogers Elementary School Replacement project, and its schedule and budget, our services have been executed in accordance with our Contract for Consulting Services with Seattle Public Schools dated August 25, 2021 and authorized on September 1, 2021, and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is based on a Unique Set of Project-Specific Factors

This report has been prepared for the John Rogers Elementary School Replacement project in Seattle, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

- The function of the proposed structure;
- Elevation, configuration, location, orientation or weight of the proposed structure;

- Composition of the design team; or
- Project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Environmental Concerns are Not Covered

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Geotechnical and Geologic Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations are Not Final

We have developed the following recommendations based on data gathered from subsurface investigation(s). These investigations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- Advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- Encourages contractors to conduct additional study to obtain the specific types of information they need or prefer.

Contractors are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

GeoEngineers

Appendix B

CONSTRUCTION BEST MANAGEMENT PRACTICES

APPENDIX B

CONSTRUCTION BEST MANAGEMENT PRACTICES

The contractor will be required to implement measures to ensure the minimal environmental impacts throughout the construction process, which could include the following:

- The contractor will submit a written earthwork plan to the Project Engineer for approval prior to the commencing with any mass excavation or filling. The earthwork plan will also include:
    - Sequencing of the earthwork and grading activities;
    - Proposed equipment to be utilized;
    - Surface water diversion and control (description of how existing catch basins at the project site would remain intact and measures used to protect them from sediment during construction);
    - Proposed protection methods for excavated stockpiled fill materials and trenches;
    - Soil drying procedures; and,
    - Any other information pertinent to the manner in which the earthwork and grading will be performed.
- The contractor will obtain the City of Seattle's Department of Construction and Inspection approval that erosion control measures are in place and functioning, and will maintain erosion control measures as earthwork and utility construction commences in accordance with City of Seattle Standards.
- Surface water controls (i.e., temporary interceptor swales, check dams, silt fences, etc.) will be constructed simultaneously with clearing and grading for project development.
- Surface water and erosion control measures will be relocated or new measures will be installed so as site conditions change, erosion control measures remain in accordance with City of Seattle Best Management Practice (BMP) requirements during the construction period.
- All construction areas inactive for more than seven days during the dry season (April 1st to October 31st) or two days during the wet season (November 1st to March 31st) will be covered.
- Mitigation measures to reduce and/or control impacts to air will include:
    - Watering surfaces to control dust, the use of temporary ground covers, sprinkling the project site with approved dust palliatives, or use of temporary stabilizations practices upon the completion of grading.
    - Wheel-cleaning stations will be provided to ensure construction vehicle wheels and undercarriages do not carry excess dirt from the site onto adjacent roadways.

- Streets will be regularly cleaned to ensure excess dust and debris is not transported from the construction site onto adjacent roads.
- Construction activities will be planned to minimize exposing areas of earth for extended periods.
- The contractor will be required to comply with the Puget Sound Clean Air Agency's (PSCAA) Regulation I, Section 9.15, requiring reasonable precautions to avoid dust emissions and Regulation I, Section 9.11, requiring the best available measures to control emissions of odor-bearing contaminants. The contractor will be required to comply with recommendations in the Washington Associated General Contractor brochure "Guide to Handling Fugitive Dust from Construction Projects."

- During construction, BMPs would be implemented to ensure that sediment originating from disturbed soils would be retained within the limits of disturbance. BMP measures may include installation of filter fabric between grate and rings of all catch basin inlets, fabric fencing, barriers, check dams, etc.

- Construction activities will be restricted to hours designated by the City of Seattle Noise Control Ordinance (SMC 25.08.425). If construction activities exceed permitted noise levels, the District would instruct the contractor to implement measures to reduce noise impacts to comply with the Noise Ordinance, which may include additional muffling of equipment.

- Construction vehicle traffic to and from the site will be minimized during peak traffic hours.

- Construction vehicles will not be parked in traffic lanes.

- Flaggers will be provided as required.

- Barriers, flashing lights, walkways, guardrails, and night lighting will be provided as required for safety and control.

- Fire lanes and roadways to existing buildings will be retained, as required by the fire department.

- Walkways leading past the site will remain clear of construction vehicles and debris and will remain safe at all times.

Appendix C

GREENHOUSE GAS EMISSIONS WORKSHEET

City of Seattle Department of Planning and Development
SEPA GHG Emissions Worksheet
Version 1.7 12/26/07

Introduction

The Washington State Environmental Policy Act (SEPA) requires environmental review of development proposals that may have a significant adverse impact on the environment. If a proposed development is subject to SEPA, the project proponent is required to complete the SEPA Checklist. The Checklist includes questions relating to the development's air emissions. The emissions that have traditionally been considered cover smoke, dust, and industrial and automobile emissions. With our understanding of the climate change impacts of GHG emissions, the City of Seattle requires the applicant to also estimate these emissions.

Emissions created by Development

GHG emissions associated with development come from multiple sources:

- The extraction, processing, transportation, construction and disposal of materials and landscape disturbance (Embodied Emissions)
- Energy demands created by the development after it is completed (Energy Emissions)
- Transportation demands created by the development after it is completed (Transportation Emissions)

GHG Emissions Worksheet

This GHG Emissions Worksheet has been developed to assist applicants in answering the SEPA Checklist question relating to GHG emissions. The worksheet was originally developed by King County, but the City of Seattle and King County are working together on future updates to maintain consistency of methodologies across jurisdictions.

The SEPA GHG Emissions worksheet estimates all GHG emissions that will be created over the life span of a project. This includes emissions associated with obtaining construction materials, fuel used during construction, energy consumed during a buildings operation, and transportation by building occupants.

Using the Worksheet

1. Descriptions of the different residential and commercial building types can be found on the second tabbed worksheet ("Definition of Building Types"). If a development proposal consists of multiple projects, e.g. both single family and multi-family residential structures or a commercial development that consists of more than on type of commercial activity, the appropriate information should be estimated for each type of building or activity.

2. For paving, estimate the total amount of paving (in thousands of square feet) of the project.

3. The Worksheet will calculate the amount of GHG emissions associated with the project and display the amount in the "Total Emissions" column on the worksheet. The applicant should use this information when completing the SEPA checklist.

4. The last three worksheets in the Excel file provide the background information that is used to calculate the total GHG emissions.

5. The methodology of creating the estimates is transparent; if there is reason to believe that a better estimate can be obtained by changing specific values, this can and should be done. Changes to the values should be documented with an explanation of why and the sources relied upon.

6. Print out the “Total Emissions” worksheet and attach it to the SEPA checklist. If the applicant has made changes to the calculations or the values, the documentation supporting those changes should also be attached to the SEPA checklist.

John Rogers Elementary School Replacement Project

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO2e) Embodied	Energy	Transportation	**Lifespan Emissions (MTCO2e)**
Single-Family Home............................	0		98	672	792	**0**
Multi-Family Unit in Large Building	0		33	357	766	**0**
Multi-Family Unit in Small Building	0		54	681	766	**0**
Mobile Home.......................................	0		41	475	709	**0**
Education		88.0	39	646	361	**92002**
Food Sales		0.0	39	1,541	282	**0**
Food Service		0.0	39	1,994	561	**0**
Health Care Inpatient		0.0	39	1,938	582	**0**
Health Care Outpatient		0.0	39	737	571	**0**
Lodging		0.0	39	777	117	**0**
Retail (Other Than Mall).......................		0.0	39	577	247	**0**
Office		0.0	39	723	588	**0**
Public Assembly		0.0	39	733	150	**0**
Public Order and Safety		0.0	39	899	374	**0**
Religious Worship		0.0	39	339	129	**0**
Service		0.0	39	599	266	**0**
Warehouse and Storage		0.0	39	352	181	**0**
Other		0.0	39	1,278	257	**0**
Vacant		0.0	39	162	47	**0**

Section II: Pavement..........................

Pavement...		0.00				**0**

Total Project Emissions: **92002**

Version 1.7 12/26/07

Definition of Building Types

Type (Residential) or Principal Activity (Commercial)	**Description**
Single-Family Home..................................	Unless otherwise specified, this includes both attached and detached buildings
Multi-Family Unit in Large Building	Apartments in buildings with more than 5 units
Multi-Family Unit in Small Building	Apartments in building with 2-4 units
Mobile Home...	
Education	Buildings used for academic or technical classroom instruction, such as elementary, middle, or high schools, and classroom buildings on college or university campuses. Buildings on education campuses for which the main use is not classroom are included in the category relating to their use. For example, administration buildings are part of "Office," dormitories are "Lodging," and libraries are "Public Assembly."
Food Sales	Buildings used for retail or wholesale of food.
Food Service	Buildings used for preparation and sale of food and beverages for consumption.
Health Care Inpatient	Buildings used as diagnostic and treatment facilities for inpatient care.
Health Care Outpatient	Buildings used as diagnostic and treatment facilities for outpatient care. Doctor's or dentist's office are included here if they use any type of diagnostic medical equipment (if they do not, they are categorized as an office building).
Lodging	Buildings used to offer multiple accommodations for short-term or long-term residents, including skilled nursing and other residential care buildings.
Retail (Other Than Mall)............................	Buildings used for the sale and display of goods other than food.
Office	Buildings used for general office space, professional office, or administrative offices. Doctor's or dentist's office are included here if they do not use any type of diagnostic medical equipment (if they do, they are categorized as an outpatient health care building).
Public Assembly	Buildings in which people gather for social or recreational activities, whether in private or non-private meeting halls.
Public Order and Safety	Buildings used for the preservation of law and order or public safety.
Religious Worship	Buildings in which people gather for religious activities, (such as chapels, churches, mosques, synagogues, and temples).
Service	Buildings in which some type of service is provided, other than food service or retail sales of goods
Warehouse and Storage	Buildings used to store goods, manufactured products, merchandise, raw materials, or personal belongings (such as self-storage).
Other	Buildings that are industrial or agricultural with some retail space; buildings having several different commercial activities that, together, comprise 50 percent or more of the floorspace, but whose largest single activity is agricultural, industrial/ manufacturing, or residential; and all other miscellaneous buildings that do not fit into any other category.
Vacant	Buildings in which more floorspace was vacant than was used for any single commercial activity at the time of interview. Therefore, a vacant building may have some occupied floorspace.

Sources: ....

Residential — 2001 Residential Energy Consumption Survey
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

Commercial — Commercial Buildings Energy Consumption Survey (CBECS),
Description of CBECS Building Types
http://www.eia.doe.gov/emeu/cbecs/pba99/bldgtypes.html

Embodied Emissions Worksheet

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Single-Family Home................................	2.53	98	39
Multi-Family Unit in Large Building	0.85	33	39
Multi-Family Unit in Small Building	1.39	54	39
Mobile Home..	1.06	41	39
Education	25.6	991	39
Food Sales	5.6	217	39
Food Service	5.6	217	39
Health Care Inpatient	241.4	9,346	39
Health Care Outpatient	10.4	403	39
Lodging	35.8	1,386	39
Retail (Other Than Mall).........................	9.7	376	39
Office	14.8	573	39
Public Assembly	14.2	550	39
Public Order and Safety	15.5	600	39
Religious Worship	10.1	391	39
Service	6.5	252	39
Warehouse and Storage	16.9	654	39
Other	21.9	848	39
Vacant	14.1	546	39

Section II: Pavement.............................

All Types of Pavement............................			50

	Columns and Beams	Intermediate Floors	Exterior Walls	Windows	Interior Walls	Roofs	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building	5.3	7.8	19.1	51.2	5.7	21.3		
Average Materials in a 2,272-square foot single family home	0.0	2269.0	3206.0	285.0	6050.0	3103.0		
MTCO2e	0.0	8.0	27.8	6.6	15.6	30.0	88.0	38.7

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Residential floorspace per unit — 2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

Floorspace per building — EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building — Athena EcoCalculator
Athena Assembly Evaluation Tool v2.3- Vancouver Low Rise Building
Assembly Average GWP (kg) per square meter
http://www.athenasmi.ca/tools/ecoCalculator/index.html
Lbs per kg 2.20
Square feet per square meter 10.76

Average Materials in a 2,272-square foot single family home — Buildings Energy Data Book: 7.3 Typical/Average Household
Materials Used in the Construction of a 2,272-Square-Foot Single-Family Home, 2000
http://buildingsdatabook.eren.doe.gov/?id=view_book_table&TableID=2036&t=xls
See also: NAHB, 2004 Housing Facts, Figures and Trends, Feb. 2004, p. 7.

Average window size — Energy Information Administration/Housing Characteristics 1993
Appendix B, Quality of the Data. Pg. 5.
ftp://ftp.eia.doe.gov/pub/consumption/residential/rx93hcf.pdf

Pavement Emissions Factors
MTCO2e/thousand square feet of asphalt
or concrete pavement 50 (see below)

Embodied GHG Emissions……………………Worksheet Background Information

Buildings
Embodied GHG emissions are emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass).

Estimating embodied GHG emissions is new field of analysis; the estimates are rapidly improving and becoming more inclusive of all elements of construction and development.

The estimate included in this worksheet is calculated using average values for the main construction materials that are used to create a typical family home. In 2004, the National Association of Home Builders calculated the average materials that are used in a typical 2,272 square foot single-family household. The quantity of materials used is then multiplied by the average GHG emissions associated with the life-cycle GHG emissions for each material.

This estimate is a rough and conservative estimate; the actual embodied emissions for a project are likely to be higher. For example, at this stage, due to a lack of comprehensive data, the estimate does not include important factors such as landscape disturbance or the emissions associated with the interior components of a building (such as furniture).

King County realizes that the calculations for embodied emissions in this worksheet are rough. For example, the emissions associated with building 1,000 square feet of a residential building will not be the same as 1,000 square feet of a commercial building. However, discussions with the construction community indicate that while there are significant differences between the different types of structures, this method of estimation is reasonable; it will be improved as more data become available.

Additionally, if more specific information about the project is known, King County recommends two online embodied emissions calculators that can be used to obtain a more tailored estimate for embodied emissions: www.buildcarbonneutral.org and www.athenasmi.ca/tools/ecoCalculator/.

Pavement
Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle. For specifics, see the worksheet.

Special Section: Estimating the Embodied Emissions for Pavement

Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle.

The results of the studies are presented in different units and measures; considerable effort was undertaken to be able to compare the results of the studies in a reasonable way. For more details about the below methodology, contact matt.kuharic@kingcounty.gov.

The four studies, Meil (2001), Park (2003), Stripple (2001) and Treolar (2001) produced total GHG emissions of 4-34 MTCO2e per thousand square feet of finished paving (for similar asphalt and concrete based pavements). This estimate does not including downstream maintenance and repair of the highway. The average (for all concrete and asphalt pavements in the studies, assuming each study gets one data point) is ~17 MTCO2e/thousand square feet.

Three of the studies attempted to thoroughly account for the emissions associated with long term maintenance (40 years) of the roads. Stripple (2001), Park et al. (2003) and Treolar (2001) report 17, 81, and 68 MTCO2e/thousand square feet, respectively, after accounting for maintenance of the roads.

Based on the above discussion, King County makes the conservative estimate that 50 MTCO2e/thousand square feet of pavement (over the development's life cycle) will be used as the embodied emission factor for pavement until better estimates can be obtained. This is roughly equivalent to 3,500 MTCO2e per lane mile of road (assuming the lane is 13 feet wide).

It is important to note that these studies estimate the embodied emissions for roads. Paving that does not need to stand up to the rigors of heavy use (such as parking lots or driveways) would likely use less materials and hence have lower embodied emissions.

Sources:

Meil, J. A Life Cycle Perspective on Concrete and Asphalt Roadways: Embodied Primary Energy and Global Warming Potential. 2006. Available: http://www.cement.ca/cement.nsf/eee9ec7bbd630126852566c40052107b/6ec79dc8ae03a782852572b90061b914/$FILE/ATTK0WE3/athena%20report%20Feb.%202%202007.pdf

Park, K, Hwang, Y., Seo, S., M.ASCE, and Seo, H. , "Quantitative Assessment of Environmental Impacts on Life Cycle of Highways," Journal of Construction Engineering and Management , Vol 129, January/February 2003, pp 25-31, (DOI: 10.1061/(ASCE)0733-9364(2003)129:1(25)).

Stripple, H. Life Cycle Assessment of Road. A Pilot Study for Inventory Analysis. Second Revised Edition. IVL Swedish Environmental Research Institute Ltd. 2001. Available: http://www.ivl.se/rapporter/pdf/B1210E.pdf

Treloar, G., Love, P.E.D., and Crawford, R.H. Hybrid Life-Cycle Inventory for Road Construction and Use. Journal of Construction Engineering and Management. P. 43-49. January/February 2004.

Energy Emissions Worksheet

Type (Residential) or Principal Activity (Commercial)	Energy consumption per building per year (million Btu)	Carbon Coefficient for Buildings	MTCO2e per building per year	Floorspace per Building (thousand square feet)	MTCE per thousand square feet per year	MTCO2e per thousand square feet per year	Average Building Life Span	Lifespan Energy Related MTCO2e emissions per unit	Lifespan Energy Related MTCO2e emissions per thousand square feet
Single-Family Home............................	107.3	0.108	11.61	2.53	4.6	16.8	57.9	672	266
Multi-Family Unit in Large Building	41.0	0.108	4.44	0.85	5.2	19.2	80.5	357	422
Multi-Family Unit in Small Building	78.1	0.108	8.45	1.39	6.1	22.2	80.5	681	489
Mobile Home..	75.9	0.108	8.21	1.06	7.7	28.4	57.9	475	448
Education	2,125.0	0.124	264.2	25.6	10.3	37.8	62.5	16,526	646
Food Sales	1,110.0	0.124	138.0	5.6	24.6	90.4	62.5	8,632	1,541
Food Service	1,436.0	0.124	178.5	5.6	31.9	116.9	62.5	11,168	1,994
Health Care Inpatient	60,152.0	0.124	7,479.1	241.4	31.0	113.6	62.5	467,794	1,938
Health Care Outpatient	985.0	0.124	122.5	10.4	11.8	43.2	62.5	7,660	737
Lodging	3,578.0	0.124	444.9	35.8	12.4	45.6	62.5	27,826	777
Retail (Other Than Mall).......................	720.0	0.124	89.5	9.7	9.2	33.8	62.5	5,599	577
Office	1,376.0	0.124	171.1	14.8	11.6	42.4	62.5	10,701	723
Public Assembly	1,338.0	0.124	166.4	14.2	11.7	43.0	62.5	10,405	733
Public Order and Safety	1,791.0	0.124	222.7	15.5	14.4	52.7	62.5	13,928	899
Religious Worship	440.0	0.124	54.7	10.1	5.4	19.9	62.5	3,422	339
Service	501.0	0.124	62.3	6.5	9.6	35.1	62.5	3,896	599
Warehouse and Storage	764.0	0.124	95.0	16.9	5.6	20.6	62.5	5,942	352
Other	3,600.0	0.124	447.6	21.9	20.4	74.9	62.5	27,997	1,278
Vacant	294.0	0.124	36.6	14.1	2.6	9.5	62.5	2,286	162

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Energy consumption for residential buildings — 2007 Buildings Energy Data Book: 6.1 Quad Definitions and Comparisons (National Average, 2001)
Table 6.1.4: Average Annual Carbon Dioxide Emissions for Various Functions
http://buildingsdatabook.eren.doe.gov/
Data also at: http://www.eia.doe.gov/emeu/recs/recs2001_ce/ce1-4c_housingunits2001.html

Energy consumption for commercial buildings and Floorspace per building — EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Note: Data in plum color is found in both of the above sources (buildings energy data book and commercial buildings energy consumption survey).

Carbon Coefficient for Buildings — Buildings Energy Data Book (National average, 2005)
Table 3.1.7. 2005 Carbon Dioxide Emission Coefficients for Buildings (MMTCE per Quadrillion Btu)
http://buildingsdatabook.eere.energy.gov/?id=view_book_table&TableID=2057
Note: Carbon coefficient in the Energy Data book is in MTCE per Quadrillion Btu.
To convert to MTCO2e per million Btu, this factor was divided by 1000 and multiplied by 44/12.

Residential floorspace per unit — 2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

average lief span of buildings, estimated by replacement time method

	Single Family Homes	Multi-Family Units in Large and Small Buildings	All Residential Buildings	
New Housing Construction, 2001	1,273,000	329,000	1,602,000	
Existing Housing Stock, 2001	73,700,000	26,500,000	100,200,000	
Replacement time:	57.9	80.5	62.5	(national average, 2001)

Note: Single family homes calculation is used for mobile homes as a best estimate life span.
Note: At this time, KC staff could find no reliable data for the average life span of commercial buildings.
Therefore, the average life span of residential buildings is being used until a better approximation can be ascertained.

Sources:

New Housing Construction, 2001 **Quarterly Starts and Completions by Purpose and Design - US and Regions (Excel)**
http://www.census.gov/const/quarterly_starts_completions_cust.xls
See also: http://www.census.gov/const/www/newresconstindex.html

Existing Housing Stock, 2001 **Residential Energy Consumption Survey (RECS) 2001**
Tables HC1:Housing Unit Characteristics, Million U.S. Households 2001
Table HC1-4a. Housing Unit Characteristics by Type of Housing Unit, Million U.S. Households, 2001
Million U.S. Households, 2001
http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/housunits/hc1-4a_housingunits2001.pdf

Transportation Emissions Worksheet

Type (Residential) or Principal Activity (Commercial)	# people/ unit or building	# thousand sq feet/ unit or building	# people or employees/ thousand square feet	vehicle related GHG emissions (metric tonnes CO2e per person per year)	MTCO2e/ year/ unit	MTCO2e/ year/ thousand square feet	Average Building Life Span	Life span transportation related GHG emissions (MTCO2e/ per unit)	Life span transportation related GHG emissions (MTCO2e/ thousand sq feet)
Single-Family Home..................................	2.8	2.53	1.1	4.9	13.7	5.4	57.9	792	313
Multi-Family Unit in Large Building	1.9	0.85	2.3	4.9	9.5	11.2	80.5	766	904
Multi-Family Unit in Small Building	1.9	1.39	1.4	4.9	9.5	6.8	80.5	766	550
Mobile Home...	2.5	1.06	2.3	4.9	12.2	11.5	57.9	709	668
Education	30.0	25.6	1.2	4.9	147.8	5.8	62.5	9247	361
Food Sales	5.1	5.6	0.9	4.9	25.2	4.5	62.5	1579	282
Food Service	10.2	5.6	1.8	4.9	50.2	9.0	62.5	3141	561
Health Care Inpatient	455.5	241.4	1.9	4.9	2246.4	9.3	62.5	140506	582
Health Care Outpatient	19.3	10.4	1.9	4.9	95.0	9.1	62.5	5941	571
Lodging	13.6	35.8	0.4	4.9	67.1	1.9	62.5	4194	117
Retail (Other Than Mall)............................	7.8	9.7	0.8	4.9	38.3	3.9	62.5	2394	247
Office	28.2	14.8	1.9	4.9	139.0	9.4	62.5	8696	588
Public Assembly	6.9	14.2	0.5	4.9	34.2	2.4	62.5	2137	150
Public Order and Safety	18.8	15.5	1.2	4.9	92.7	6.0	62.5	5796	374
Religious Worship	4.2	10.1	0.4	4.9	20.8	2.1	62.5	1298	129
Service	5.6	6.5	0.9	4.9	27.6	4.3	62.5	1729	266
Warehouse and Storage	9.9	16.9	0.6	4.9	49.0	2.9	62.5	3067	181
Other	18.3	21.9	0.8	4.9	90.0	4.1	62.5	5630	257
Vacant	2.1	14.1	0.2	4.9	10.5	0.7	62.5	657	47

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

people/ unit — Estimating Household Size for Use in Population Estimates (WA state, 2000 average)
Washington State Office of Financial Management
Kimpel, T. and Lowe, T. Research Brief No. 47. August 2007
http://www.ofm.wa.gov/researchbriefs/brief047.pdf
Note: This analysis combines Multi Unit Structures in both large and small units into one category;
the average is used in this case although there is likely a difference

Residential floorspace per unit — 2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

employees/thousand square feet — Commercial Buildings Energy Consumption Survey commercial energy uses and costs (National Median, 2003)
Table B2 Totals and Medians of Floorspace, Number of Workers, and Hours of Operation for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set1/2003excel/b2.xls

Note: Data for # employees/thousand square feet is presented by CBECS as square feet/employee.
In this analysis employees/thousand square feet is calculated by taking the inverse of the CBECS number and multiplying by 1000.

vehicle related GHG emissions

Estimate calculated as follows (Washington state, 2006)_

56,531,930,000	2006 Annual WA State Vehicle Miles Traveled	
		Data was daily VMT. Annual VMT was 365*daily VMT.
		http://www.wsdot.wa.gov/mapsdata/tdo/annualmileage.htm
6,395,798	2006 WA state population	
		http://quickfacts.census.gov/qfd/states/53000.html
8839	vehicle miles per person per year	
0.0506	gallon gasoline/mile	
		This is the weighted national average fuel efficiency for all cars and 2 axle, 4 wheel light trucks in 2005. This includes pickup trucks, vans and SUVs. The 0.051 gallons/mile used here is the inverse of the more commonly known term “miles/per gallon” (which is 19.75 for these cars and light trucks).
		Transportation Energy Data Book. 26th Edition. 2006. Chapter 4: Light Vehicles and Characteristics. Calculations based on weighted average MPG efficiency of cars and light trucks.
		http://cta.ornl.gov/data/tedb26/Edition26_Chapter04.pdf
		Note: This report states that in 2005, 92.3% of all highway VMT were driven by the above described vehicles.
		http://cta.ornl.gov/data/tedb26/Spreadsheets/Table3_04.xls
24.3	lbs CO2e/gallon gasoline	
		The CO2 emissions estimates for gasoline and diesel include the extraction, transport, and refinement of petroleum as well as their combustion.
		Life-Cycle CO2 Emissions for Various New Vehicles. RENew Northfield.
		Available: http://renewnorthfield.org/wpcontent/uploads/2006/04/CO2%20emissions.pdf
		Note: This is a conservative estimate of emissions by fuel consumption because diesel fuel,
2205		with a emissions factor of 26.55 lbs CO2e/gallon was not estimated.
4.93	lbs/metric tonne	
	vehicle related GHG emissions (metric tonnes CO2e per person per year)	

average lief span of buildings, estimated by replacement time method	See Energy Emissions Worksheet for Calculations
Commercial floorspace per unit	EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
	Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
	http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Appendix D

WETLAND AND STREAM ASSESSMENT REPORT

GeoEngineers
554 West Bakerview Road
Bellingham, Washington 98226
360.647.1510

May 31, 2022

Seattle School District No. 1
2445 3rd Avenue South
Seattle, Washington 98134

Attention: Amanda Fulford

Subject: Wetland and Stream Assessment Report
John Rogers Elementary School Replacement Project
Seattle, Washington
GeoEngineers File No. 2820-014-00

1.0 INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) was contracted by Seattle School District No. 1 (District) to perform a wetland and stream assessment—including wetland delineation, Fish and Wildlife Habitat Conservation Areas (FWHCAs) assessment, and stream ordinary high water mark (OHWM) delineation—for the John Rogers Elementary School Replacement Project (project) in Seattle, Washington. We understand that the existing John Rogers Elementary school is to be demolished and replaced with a new school building. The proposed building is expected to be an 88,000-square-foot multi-story structure. Conceptual site plans are still in development; however, we understand that the preferred building location is within the northern portion of the site where the current school building is located. The proposed building is expected to be larger than the existing school, so retaining walls may be necessary along property lines and existing slopes to accommodate the proposed construction. Improvements to site frontages, access roads, parking areas and bus areas will be included in the site development. We understand that stormwater infiltration facilities, if included in the project, will be designed in accordance with the City of Seattle (City) *Stormwater Manual* (July 2021).

We understand that the southern portion of the property may contain wetlands, streams and/or critical area buffers based on City of Seattle Geographic Information System (GIS) mapping databases, as identified during preliminary planning department review. The southern portion of the site is currently occupied by a ballfield and stormwater swale. This report is intended to provide baseline critical areas (wetland, stream and FWHCAs) review in accordance with Seattle Municipal Code (SMC), Chapter 25.09 (Regulations for Environmentally Critical Areas) (City of Seattle 2022).

1.1. Project Location and Site Description

The proposed project is located at 4030 NE 109th Street in Seattle, Washington within King County in Section 27 of Township 26 N and Range 4 E of the Willamette Meridian (W.M.) (Figure 1, Vicinity Map). The project is located within a residential area. The assessment area, or site, for the purposes of our work, focused on the developed portion of parcel 2726049114, as shown on Figure 2, Site Plan. This area contains developed uplands and is adjacent to one stream, Thornton Creek (Figure 2). Representative photographs are included in Appendix A, Site Photographs.

The project parcel is currently graded into a series of terraces, which are situated on a hillside that slopes down and south from NE 110th Street to NE 105th Street. Asphalt-surfaced parking lots are on the northern, highest elevation terrace, which is also the smallest of the series of terraces. The existing school and asphalt paved play areas are located on a larger central terrace. The elevation of the central terrace is approximately 60 feet below the elevation of NE 110th Street. We understand that the central terrace was constructed by cutting into the northern part of the slope and using the generated material to fill the south end of the central terrace. As a result of the cut, steep slopes surround the existing school on the east and north sides. The southern terrace is about 20 feet lower than the elevation of the central terrace. The grade change is accommodated by an approximately 2H:1V (horizontal to vertical) fill slope that was constructed when developing the central terrace. The southern terrace is currently developed as a ballfield, which includes a large grass playfield and a developed baseball/softball diamond.

2.0 WETLAND AND STREAM OHWM DELINEATION

2.1. Data Review

Environmental maps of the project site were collected and reviewed as part of a paper inventory. The Seattle Department of Construction and Inspections Map (Seattle Department of Construction and Inspections 2022) depicts Thornton Creek and its associated riparian corridor within the southwest corner of the project parcel. The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) online mapper also depicts Thornton Creek within the southwest corner of the property and does not depict any wetlands at the project site (USFWS 2022). The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey shows two soil types within the project site: Urban land-Alderwood complex, 0 to 5 and 12 to 35 percent slopes. Both soils are on the National Hydric Soils List (USDA-NRCS 2021). The Seattle Construction and Inspections map, NWI map and soils information are included in Appendix B, Background Data and Maps.

The channel of Thornton Creek at the southwest corner of the project site is located within the Federal Emergency Management Agency (FEMA) mapped regulatory floodway and the channel and some adjacent upland areas upstream and downstream of the project parcel are within the FEMA mapped 100-year floodplain (Zone AE - Special Flood Hazard Areas with modeled base flood elevations or depths) (FEMA 2022). Portions of the project parcel are located within 0.2 percent annual chance flood hazard areas or areas of 1 percent annual chance flood with average depth less than 1-foot or with drainage areas of less than 1 square-mile. The base flood elevation directly upstream of the project site is approximately 17.5 feet and the cross section with a 1 percent annual chance of recurrence is approximately 20.2 feet (FEMA 2022). The FEMA National Flood Hazard Layer FIRMette is included in Appendix B.

Additional information was obtained from the Washington Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (FPAMT), the Northwest Indian Fisheries Commission (NWIFC) Statewide Integrated Fish Distribution (SWIFD) mapper and the Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) Interactive map viewer (DNR 2022; NWIFC 2022; WDFW 2022). FPAMT depicts one type F (fish-bearing) stream, Thornton Creek, at the southwestern corner of the project site. Within the project reach, SWIFD depicts Thornton Creek as a perennial stream with documented presence of winter Steelhead (*Oncorhynchus mykiss*) and coastal Cutthroat Trout (*Oncorhynchus clarki*). SWIFD also maps documented spawning habitat of Sockeye Salmon (*Oncorhynchus nerka)* and fall Chinook Salmon (*Oncorhynchus tshawytscha*) and documented rearing habitat of Coho Salmon (*Oncorhynchus kisutch*) within Thornton Creek adjacent to the project site.

The WDFW PHS map viewer (WDFW 2022) depicts the following additional priority habitats and species within 1 mile of the project site; however, none of the following species or habitats are known to occupy the site:

- Great blue heron (*Ardea herodias*)
- Dolly Varden/Bull Trout (*Salvelinus malma/S. confluentus*)
- Kokanee (*Oncorhynchus nerka*)
- Little brown bat (*Myotis lucifugus*)
- Freshwater Forested/Shrub Wetland
- Freshwater Emergent Wetland
- Lake
- Freshwater Pond

Maps from FPAMT, SWIFD and PHS are included in Appendix B.

2.2. Field Assessment Methods

Two GeoEngineers' biologists conducted a field assessment on February 28, 2022, within the approximately 9.0-acre assessment area (site) to characterize and delineate streams, wetland features or other FWHCAs in the field. Figure 2 depicts the area assessed. The assessment of potential wetlands was conducted in accordance with guidelines presented in SMC Chapter 25.09, using the *U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: *Western Mountains, Valleys, and Coast* (USACE 2010).

SMC 25.09.520 defines the OHWM as "… the mark on lake and stream shorelines which will be found by examining the beds and bank and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland in respect to vegetation" (based on the definition in Revised Code of Washington [RCW] 90.58.030). The eastern bank of Thornton Creek is located within the southwest corner of the project parcel, but outside of the fenced boundary of the developed portion of the site, and therefore beyond our assessment area. The OHWM of Thornton Creek was therefore estimated using aerial imagery from the city and Light Detection and Ranging (LiDAR) data (DNR 2022). This approach was selected in part because the project does not propose any modifications of the stream or stream bank, which are beyond the developed portion of the site, but may impact the regulated stream buffer ("riparian management area"; see Section 2.3 below) within the developed portion of the site, as well as safety concerns associated with accessing the steep unvegetated stream bank immediately upstream of a low-clearance road crossing structure during a time of heavy precipitation and runoff.

2.3. Field Assessment Results

GeoEngineers identified no wetlands within or adjacent to the assessment area and one stream (Thornton Creek) adjacent to the southwest corner of the assessment area (site). Thornton Creek overlaps the subject parcel slightly but is beyond the developed portion of the site and fence limits. Figure 2 and Figure 3, Site Plan (Southwest Portion) show the assessment area, estimated OHWM of Thornton Creek, riparian management area, and Limited Riparian Development Area (LRDA) associated with Thornton Creek per SMC 25.09.020.D.5a. The LRDA refers to the outer 25 feet of the 100-foot riparian management area associated with Thornton Creek (SMC 25.09.200.A.3.b.3). According to SMC, some limited development is allowed within this area; however, development, including but not limited to impervious surfaces, must not exceed 35 percent of the LRDA.

One formal sample plot (Appendix C, Wetland Determination Datasheet) was established to document upland conditions in the southwest corner of the site, which were verified to be non-wetland despite some shallow standing water occurring in the mowed grass area during the time of our site visit, which occurred during a heavy rainfall event (“atmospheric river”). Shallow standing water was also observed within the stormwater swale located in the southeast corner of the project site. The water surface elevation in the swale was approximately 6 feet or more below the adjacent ground surface of the ballfield and mowed grass area. Black cottonwood (*Populus balsamifera*) and paper birch (*Betula papyrifera*) dominate this stormwater swale, which was constructed in 2006 based on as-built documentation obtained for the site. Per SMC 25.09.020.C, stormwater facilities are not considered wetlands.

Thornton Creek flows from under 39th Avenue NE approximately 300 feet east through residential backyards toward the parcel, then turns to flow south for approximately 100 feet adjacent to the southwest corner of the site prior to entering a culvert under NE 105th Street, after which it turns again and meanders eastward through residential yards roughly parallel to NE 105th Street. Beyond the project area, Thornton Creek continues generally southeast into Lake Washington.

The portion of the stream adjacent to the project site, and partially overlapping the subject parcel, is characterized by steep armored banks varying from unvegetated to densely vegetated. Riparian vegetation consists primarily of English Ivy (*Hedera helix*), salmonberry (*Rubus spectabilis*), English holly (*Ilex aquifolium*), and Himalayan blackberry (*Rubus armeniacus*), with an overstory of Douglas fir (*Pseudotsuga menziesii*) and lodgepole pine (*Pinus contorta*). No large woody debris was observed within the channelized stream. According to SMC 25.09.012.D.3, Thornton Creek is a Type F stream with an associated riparian management area that extends 100 feet from the top of bank or OHWM. Table 1 below summarizes information regarding the stream feature identified adjacent to the assessment area (parcel).

TABLE 1. THORNTON CREEK

Information		
Location	North of the intersection of NE 105th Street and 40th Avenue NE	
WRIA	8 – Cedar-Sammamish	
Local Jurisdiction	City of Seattle	
Stream Type[1]	F, Fish-bearing	
Riparian Management Area[2]	100 feet	
Limited Riparian Development Area (LRDA)[3]	Outer 25 feet of 100-foot riparian management area	
Average Width	12 to 15 feet (OHWM channel)	
Flow Duration	Perennial	
Connectivity	Flows southeast to Lake Washington	
Description Summary		
Surrounding Vegetation	**Shrubs:** English holly (*Ilex aquifolium*), Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*) and Sitka willow (*Salix sitchensis*), Salmonberry (*Rubus spectabilis)*, cherry	
Fish Use[4]	Winter Steelhead (*Oncorhynchus mykiss*), Sockeye Salmon (*Oncorhynchus nerka*), Fall Chinook Salmon (*Oncorhynchus tshawytscha*), Coastal Cutthroat Trout (*Oncorhynchus clarki*), and Coho	
Buffer Condition	The buffer is impacted and characterized by mowed residential lawns and a sports field with occasional trees and shrubs. The riparian buffer in the vicinity of the southwest corner of the	

Notes:

[1] According to WAC 222-16-031

[2] Per SMC 25.09.012.D.5a

[3] Per SMC 25.09.200.A3.b3

[4] NWIFC 2021; WDFW 2021

3.0 DEVELOPMENT CONSIDERATIONS

Limited development is allowed within the LRDA, which for this site is defined as the portion of the Riparian Management Area beyond 75 feet from the stream bank or OHWM (Table 1, above, and SMC 25.09.200.A3.b3). Development within the LRDA is limited to 35 percent coverage of impervious surfaces.

According to SMC 25.09.045.H.3f, public projects that intrude into an environmentally critical area or buffer may be exempt from the City's critical areas regulations if the project benefits the public. Such projects could include trails that provide access to a creek or wetland area when they are located and designed to keep environmental disturbance to a minimum. Trail projects specifically should be limited to pervious surface or raised boardwalk, no more than 5 feet wide, for pedestrian use only, and located to avoid tree removal where possible.

Additionally, per SMC 25.09.200.A.3.c, if a riparian management area is not functioning as protection for fish and wildlife habitat, a project applicant should prepare and carry out a tree and vegetation plan that augments the existing vegetation with native vegetation to the extent commensurate with the impact of the development on the riparian management area. A monitoring plan should be prepared to monitor the establishment of the vegetation and should cover five growing seasons, or the period needed to successfully carry out the plan, whichever is earlier.

4.0 SUMMARY

GeoEngineers conducted a site investigation, at the existing John Rogers Elementary School, to identify the presence of wetlands, streams, and FWHCAs within and adjacent to the assessment area shown on Figure 2. The District is proposing to demolish the existing John Rogers Elementary School and replace it with a new school building. This report is intended to provide baseline critical areas (wetlands, streams and other FWCHAs) data in support of design and permitting. No wetlands and one fish-bearing stream (Thornton Creek) were identified during the field investigation. Thornton Creek is a FWCHA (per SMC 25.09.020.D.3), with a 100-foot riparian management area. No other FWCHAs were identified at or adjacent to the site. Potential impacts to the riparian management area will be evaluated during design advancement and avoidance, minimization and mitigation measures will be incorporated into the design as appropriate.

5.0 LIMITATIONS

GeoEngineers has prepared this Wetland and Stream Assessment Report in general accordance with the scope and limitations of our proposal. Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices for wetland delineation, stream OHWM delineation, and FWHCAs assessment in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

This report has been prepared for the exclusive use of Seattle School District No. 1, authorized agents and regulatory agencies following the described methods and information available at the time of the work. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. The information contained herein should not be applied for any purpose or project except the one originally contemplated.

The applicant is advised to contact all appropriate regulatory agencies (local, state and federal) prior to design or construction of any development to obtain necessary permits and approvals.

6.0 REFERENCES

Anderson, Paul S., S. Meyer, Dr. P. Olson, and E. Stockdale. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. Publication Number 16-06-029. March 2010, revised October 2016.

City of Seattle. 2022. Regulations for Environmentally Critical Areas (Chapter 25.09). Available at: https://library.municode.com/wa/seattle/codes/municipal_code/243570?nodeId=TIT25ENPRHIPR_CH25.09REENCRAR_25.09.045EX

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

Federal Emergency Management Agency (FEMA). 2022. FEMA National Flood Hazard Layer. Available online at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

Northwest Indian Fisheries Commission (NWIFC). 2022. Statewide Integrated Fish Distribution (SWIFD). Available online at: https://geo.nwifc.org/swifd/

Seattle Department of Construction and Inspections. 2022. Online Map. Available at: https://www.arcgis.com/apps/webappviewer/index.html?id=f822b2c6498c4163b0cf908e2241e9c2

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

United States Department of Agriculture – National Resource Conservation Service (USDA-NRCS). 2022. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/.

United States Fish and Wildlife Service (USFWS). 2022. Wetlands Mapper. Available at: http://www.fws.gov/wetlands/Data/mapper.html.

Washington Department of Fish and Wildlife (WDFW). 2022. Priority Habitats and Species (PHS) on the Web. Available at: http://wdfw.wa.gov/mapping/phs/.

Washington Department of Natural Resources (DNR). 2022. Forest Practices Application Mapping Tool (FPAMT). Available at: https://fpamt.dnr.wa.gov/default.aspx#

Washington State Administrative Code (WAC). 2007. WAC 173-22-030. Definitions. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-22-030.

Sincerely,
GeoEngineers, Inc.

Lydia R. Baldwin, MS, PWS
Ecologist

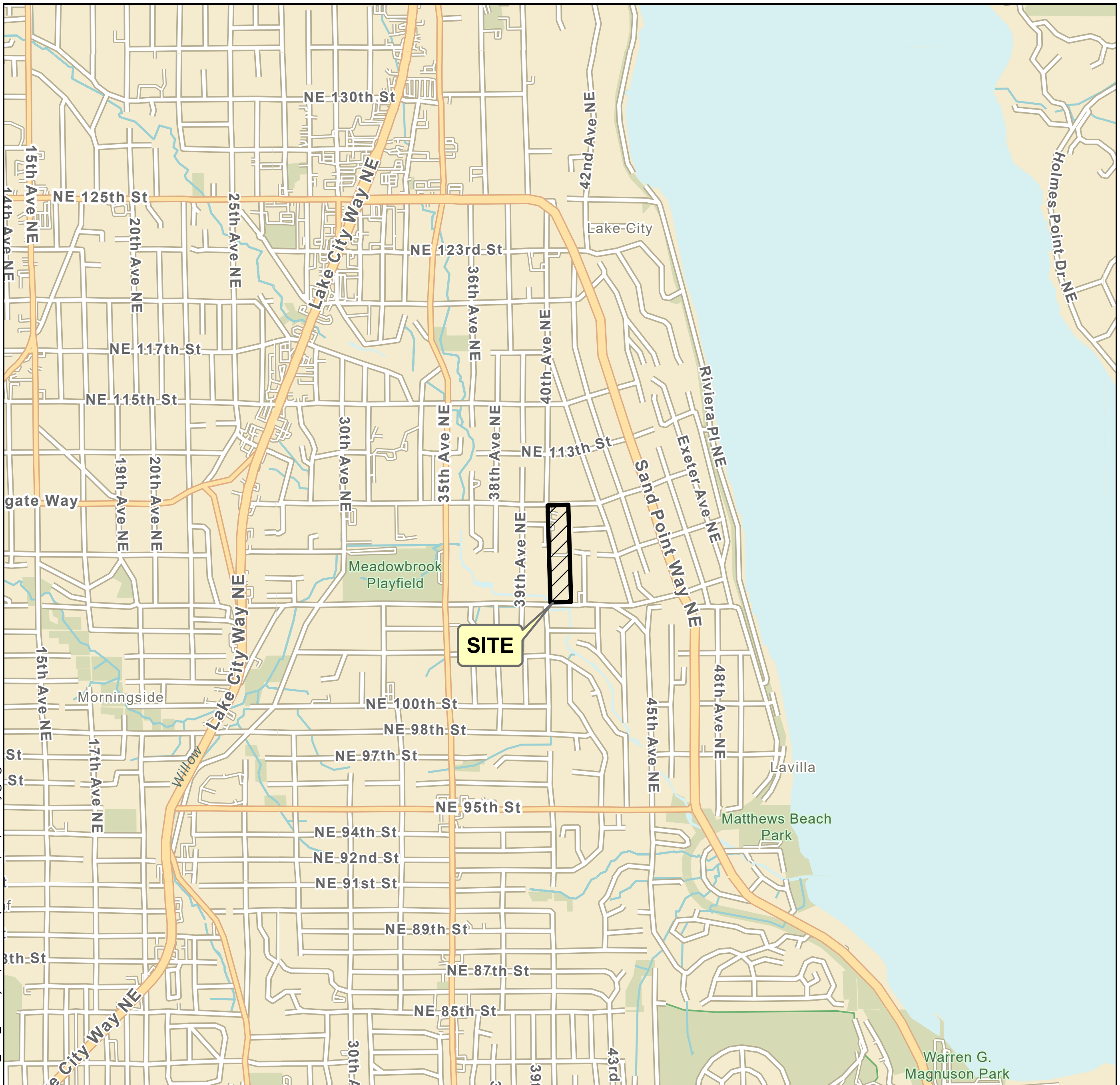
David B. Conlin, MS, PWS
Senior Biologist

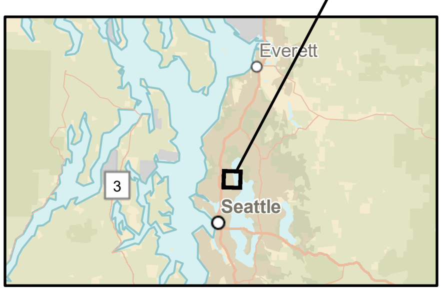
Joseph O. Callaghan, MS, PWS
Principal Biologist

LRB:DBC:JOC:tlm

Attachments:
Figure 1. Vicinity Map
Figure 2. Site Plan
Figure 3. Site Plan (Southwest Portion)
Appendix A. Site Photographs
Appendix B. Background Data and Maps
Appendix C. Wetland Determination Datasheet

One electronic copy submitted





N
W E
S

2,000 0 2,000
Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 10N

Vicinity Map

John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure 1

P:\2\2820014\GIS\2820014_Project\282001400_F01_VicinityMap.aprx\282001400_F01_VicinityMap Date Exported: 10/07/21 by gregister

Legend

- Sample Plot
- Thornton Creek Estimated OHWM
- Riparian Management Area (100-ft Offset from OHWM)
- Limited Riparian Development Area (Outer 25-ft of Riparian Management Area)
- Assessment Area

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source:

Projection: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

200 0 200

Feet

N W E S

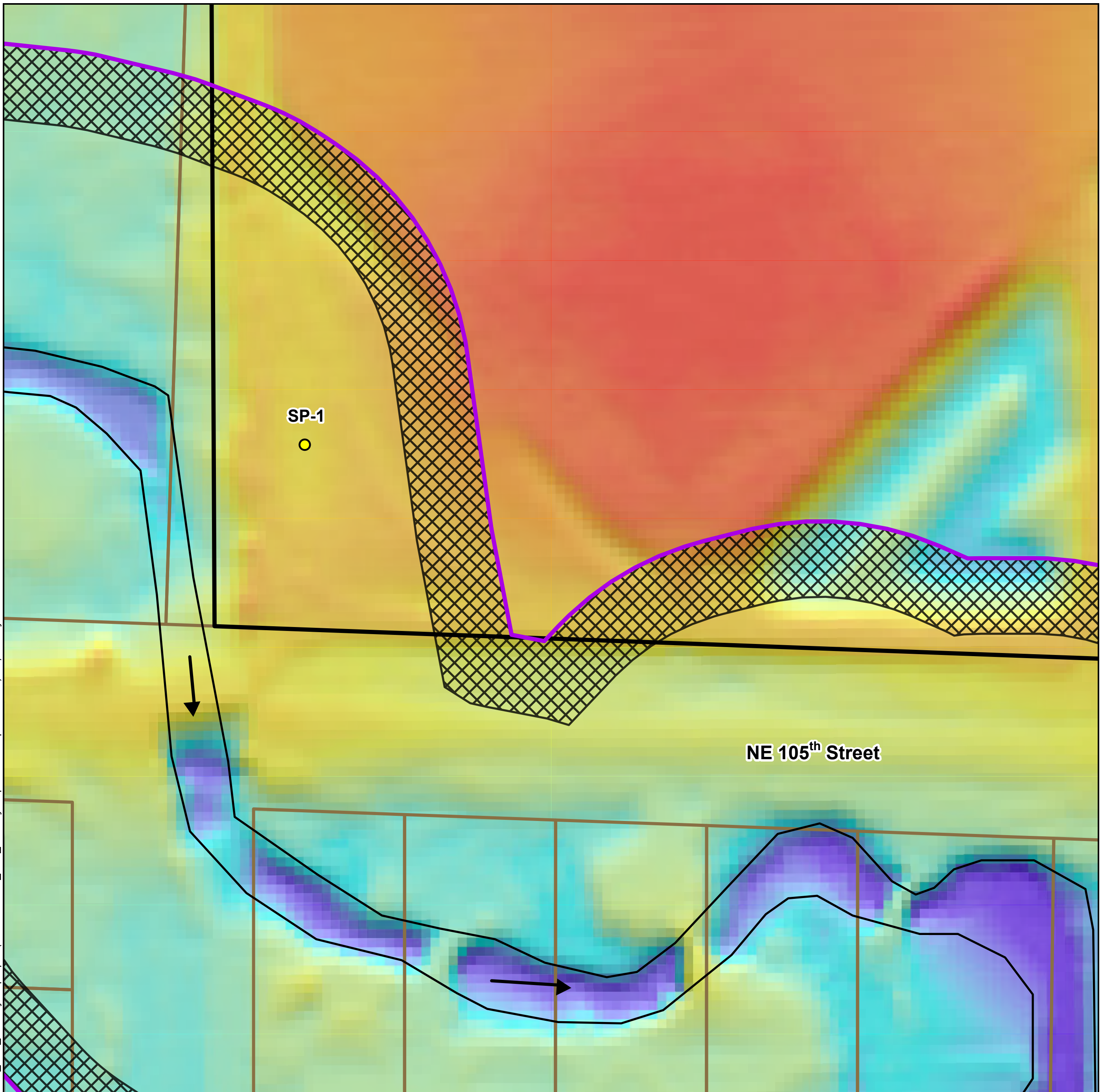
Site Plan

John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure 2

\\geoengineers.com\WAN\Projects\2\2820014\GIS\2820014_Project\282001400_F01_VicinityMap.aprx\282001400_F01_VicinityMap Date Exported: 04/21/22 by lbaldwin



Legend

- Sample Plot
- Thornton Creek Estimated OHWM
- Riparian Management Area (100-ft Offset from OHWM)
- Limited Riparian Development Area (Outer 25-ft of Riparian Management Area)
- Assessment Area
- Parcel Boundary

Elevation (ft)
52.2947
40.0088

50 0 50
Feet

N E S W

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: LiDAR from King County (2019)

Projection: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

Site Plan (Southwest Portion)

John Rogers Elementary School Replacement
Seattle, Washington

GeoEngineers

Figure 3

\\geoengineers.com\WAN\Projects\2\2820014\GIS\2820014_Project\282001400_F01_VicinityMap.aprx\282001400_F01_VicinityMap Date Exported: 05/25/22 by lbaldwin

APPENDIX A
Site Photographs

Photograph 1. Looking north at Thornton Creek where it flows adjacent to the southwest corner of the project parcel.

Photograph 2. Looking southwest at the narrow riparian buffer corridor located between the project parcel and Thornton Creek.

Site Photographs

John Rogers Elementary School Replacement
Seattle, Washington

GEOENGINEERS

Figure A-1

02820-014-00 Date Exported: 12/10/2021

Photograph 3. Shallow ponded water was observed within the southwest corner of the project site. Photograph was taken during a rainfall event.

Photograph 4. Looking south at the mowed ballfield.

Site Photographs

John Rogers Elementary School Replacement
Seattle, Washington

GeoEngineers

Figure A-2

Photograph 5. Looking east at the stormwater facility located in the southeast corner of the site.

Photograph 6. Paper birch and black cottonwood dominate the stormwater swale.

Site Photographs

John Rogers Elementary School Replacement
Seattle, Washington

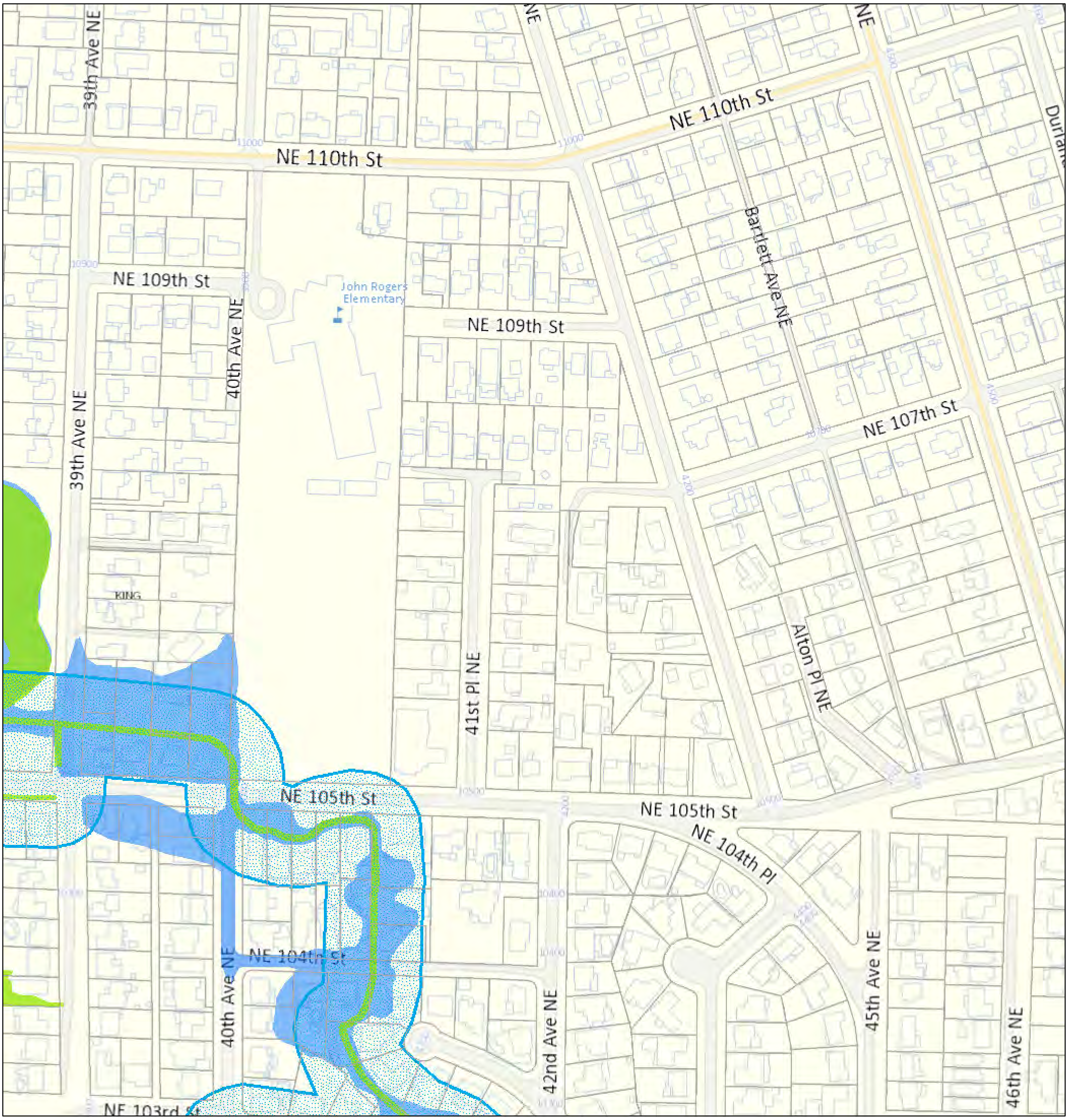
GeoEngineers

Figure A-3

02820-014-00 Date Exported: 12/10/2021

APPENDIX B
Background Data and Maps

SDCI GIS Web Map



2/28/2022, 7:25:03 AM

Parcels

Riparian Corridor - ECA3

Wetland - ECA4

Flood Prone Area - ECA6 and other sources

2020 FEMA FIRM

Flood-prone - other sources

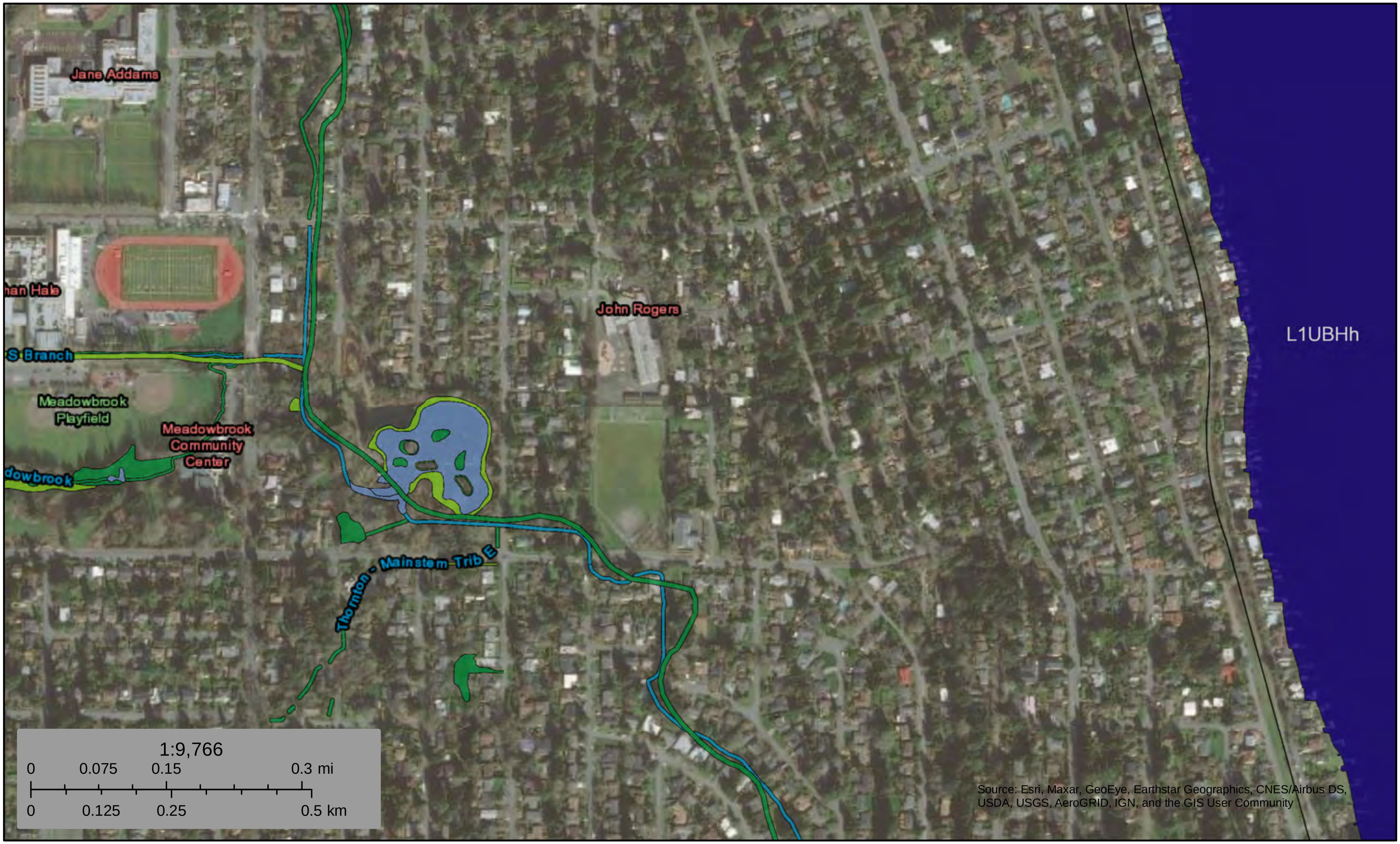
1:2,400

0 0.0275 0.055 0.11 mi

0 0.0425 0.085 0.17 km

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



February 23, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Soil Map—City of Seattle, Washington

Map Scale: 1:2,350 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 30, 60, 120, 180

Feet: 0, 100, 200, 400, 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: City of Seattle, Washington
Survey Area Data: Version 5, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 6, 2020—Jul 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3055	Urban land-Alderwood complex, 0 to 5 percent slopes	6.7	73.3%
3057	Urban land-Alderwood complex, 12 to 35 percent slopes	2.4	26.7%
Totals for Area of Interest		**9.1**	**100.0%**

City of Seattle, Washington

3057—Urban land-Alderwood complex, 12 to 35 percent slopes

Map Unit Setting

National map unit symbol: 2xtbf
Elevation: 20 to 540 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 180 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Alderwood and similar soils: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Alderwood

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Glacial drift and/or glacial outwash over dense glaciomarine deposits

Typical profile

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

Properties and qualities

Slope: 12 to 35 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: About 18 to 35 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Minor Components

Everett

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Mckenna

Percent of map unit: 10 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F002XA007WA - Puget Lowlands Wet Forest
Hydric soil rating: Yes

Kitsap

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Data Source Information

Soil Survey Area: City of Seattle, Washington
Survey Area Data: Version 5, Sep 1, 2021

City of Seattle, Washington

3055—Urban land-Alderwood complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2xtbc
Elevation: 20 to 540 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 180 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Alderwood and similar soils: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Alderwood

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Glacial drift and/or glacial outwash over dense glaciomarine deposits

Typical profile

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

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Depth to water table: About 18 to 35 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Minor Components

Mckenna

Percent of map unit: 10 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F002XA007WA - Puget Lowlands Wet Forest
Hydric soil rating: Yes

Everett

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Kitsap

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Data Source Information

Soil Survey Area: City of Seattle, Washington
Survey Area Data: Version 5, Sep 1, 2021

National Flood Hazard Layer FIRMette

FEMA

122°17'24"W 47°42'33"N

122°16'46"W 47°42'9"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	Coastal Transect
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/28/2022 at 10:33 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

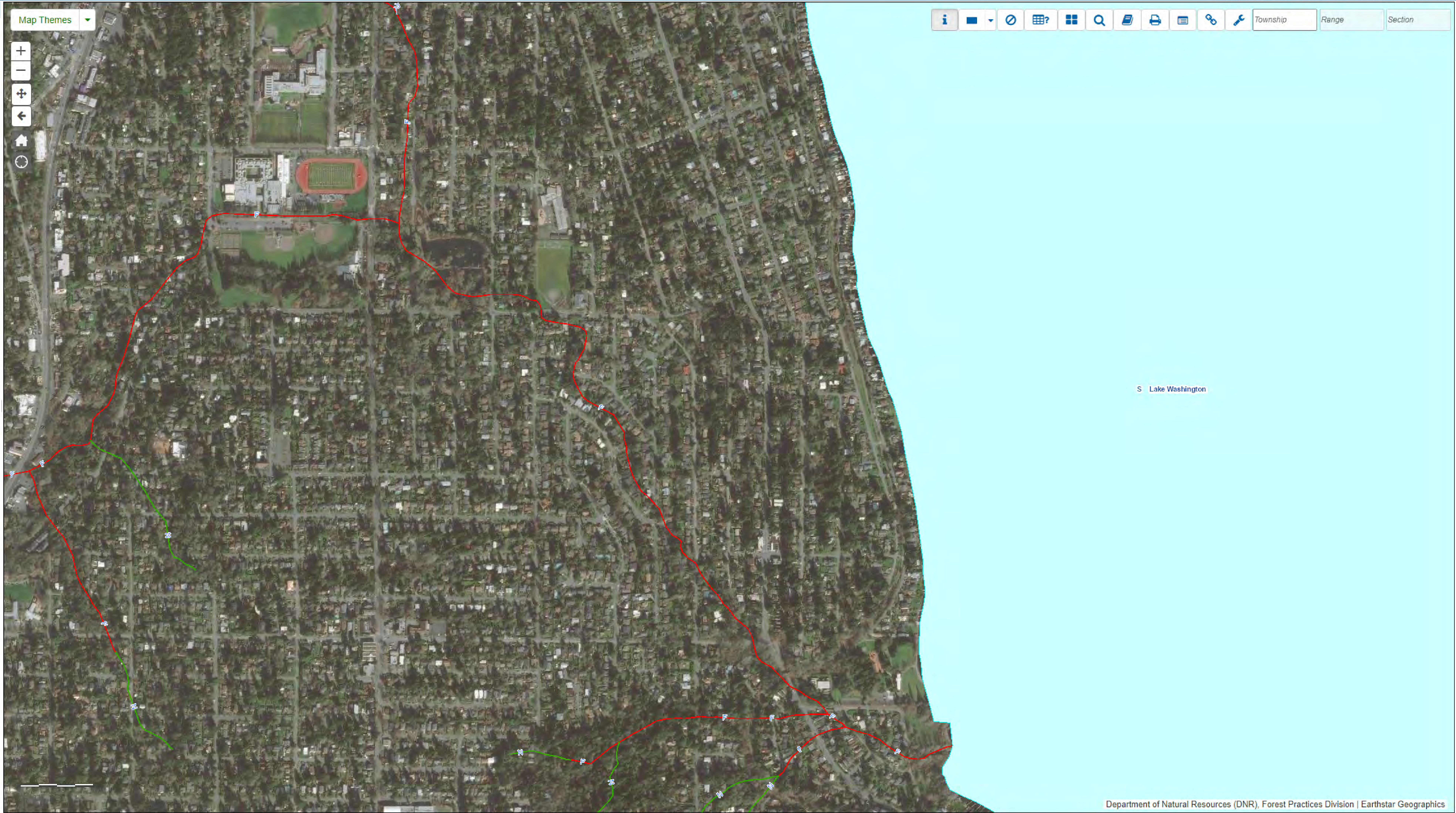
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Forest Practices Application Mapping Tool

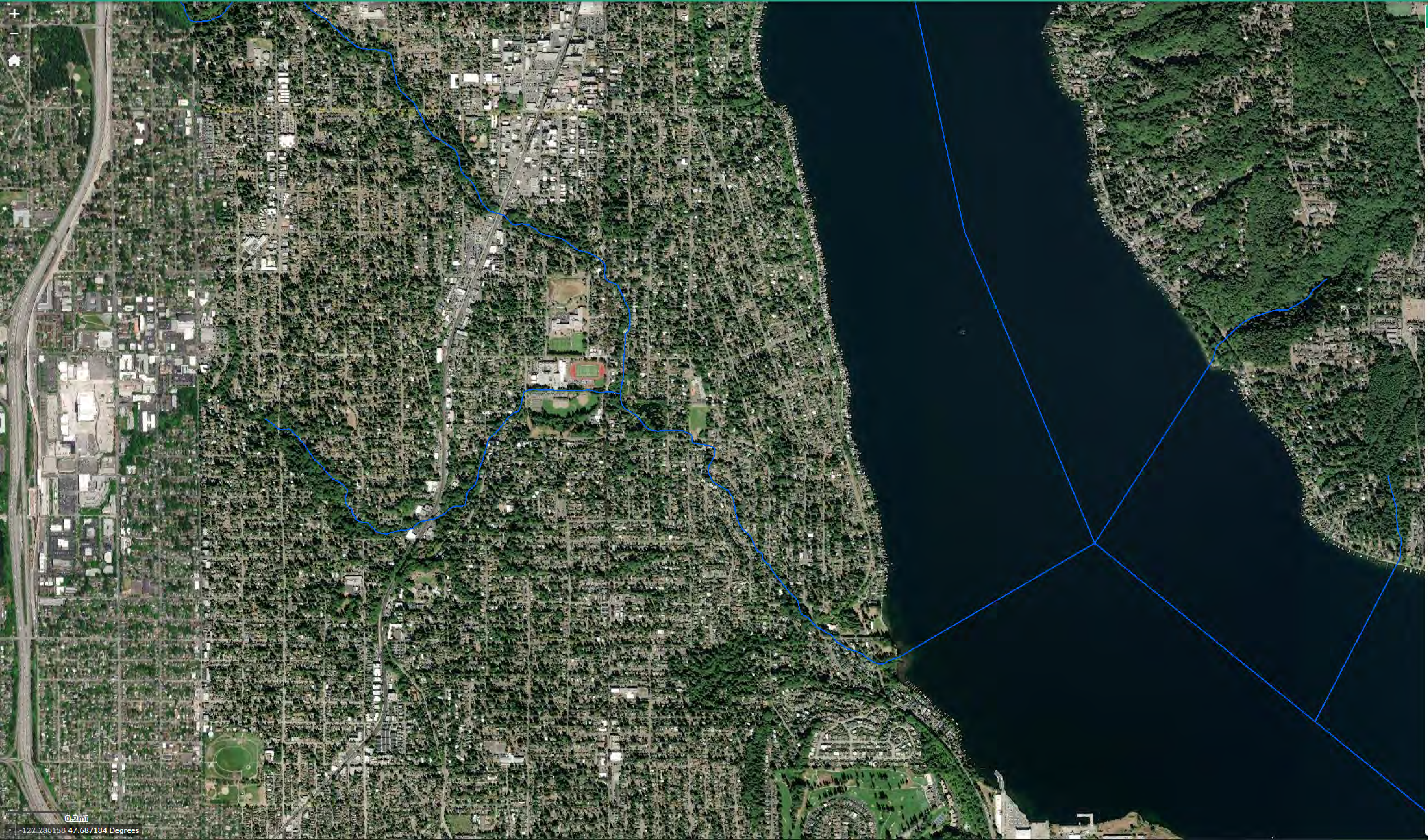
Data | Active (3) | Legend

Water Bodies (FP)
Water Bodies (FP)
- Other Impoundments
- Open Freshwater
- Subject to Inundation
- Glacier / Snowfield
- Wet Area
- Open Saltwater
- Artificial Feature

Water Courses (FP)
Water Courses (FP)
- Type S
- Type F
- Type N, Np, Ns
- U, unknown
- X, non-typed per WAC 222-16



SWIFD



Legend

Fish Distribution

Other Fish Species

Coastal Cuthroat Trout

- Documented Presence
- Presumed Presence (All Types)
- Gradient Accessible, Presence
- Potential Presence (All Types)
- Document Historic Presence (All Types)

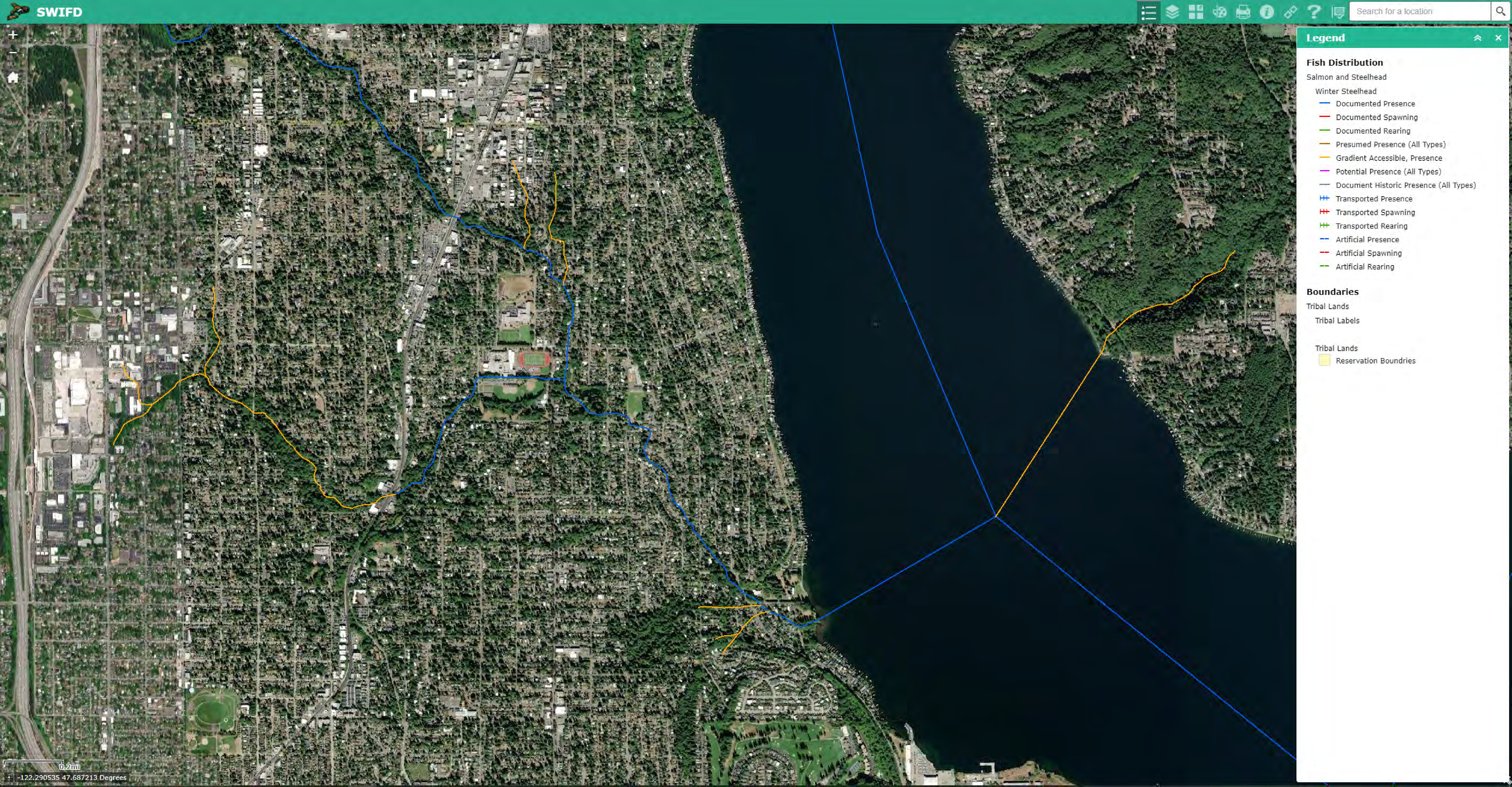
Boundaries

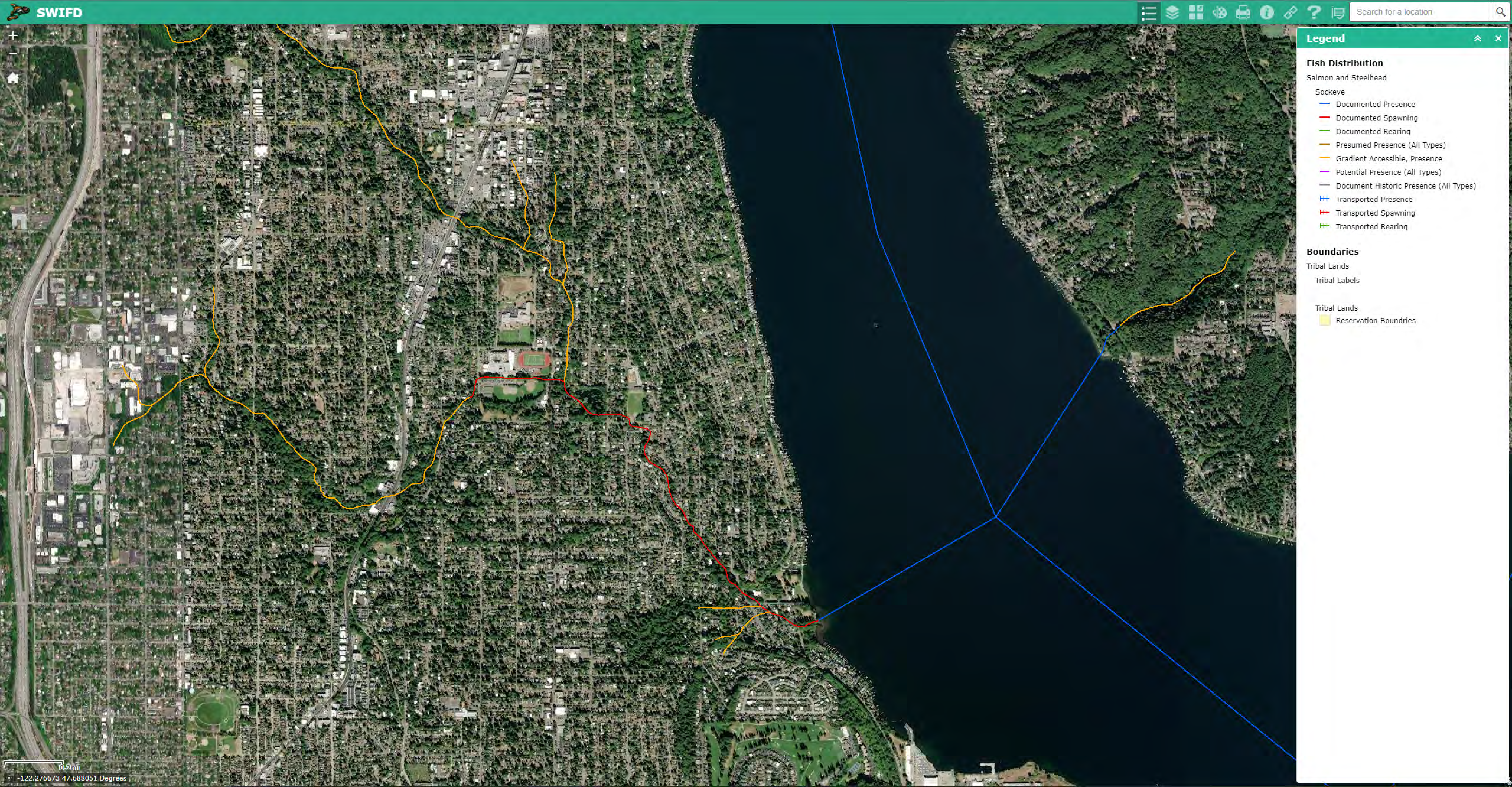
Tribal Lands

Tribal Labels

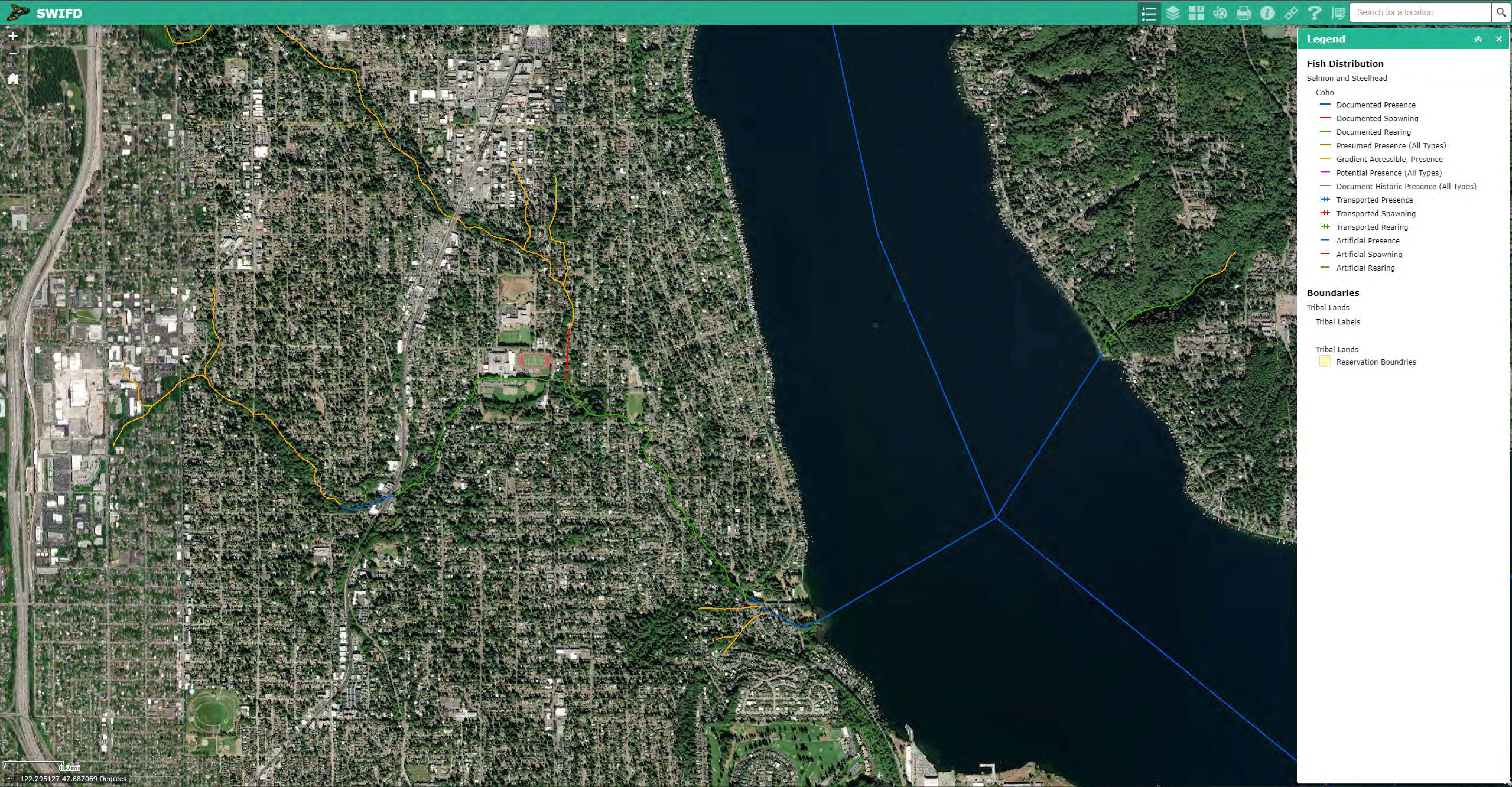
Tribal Lands

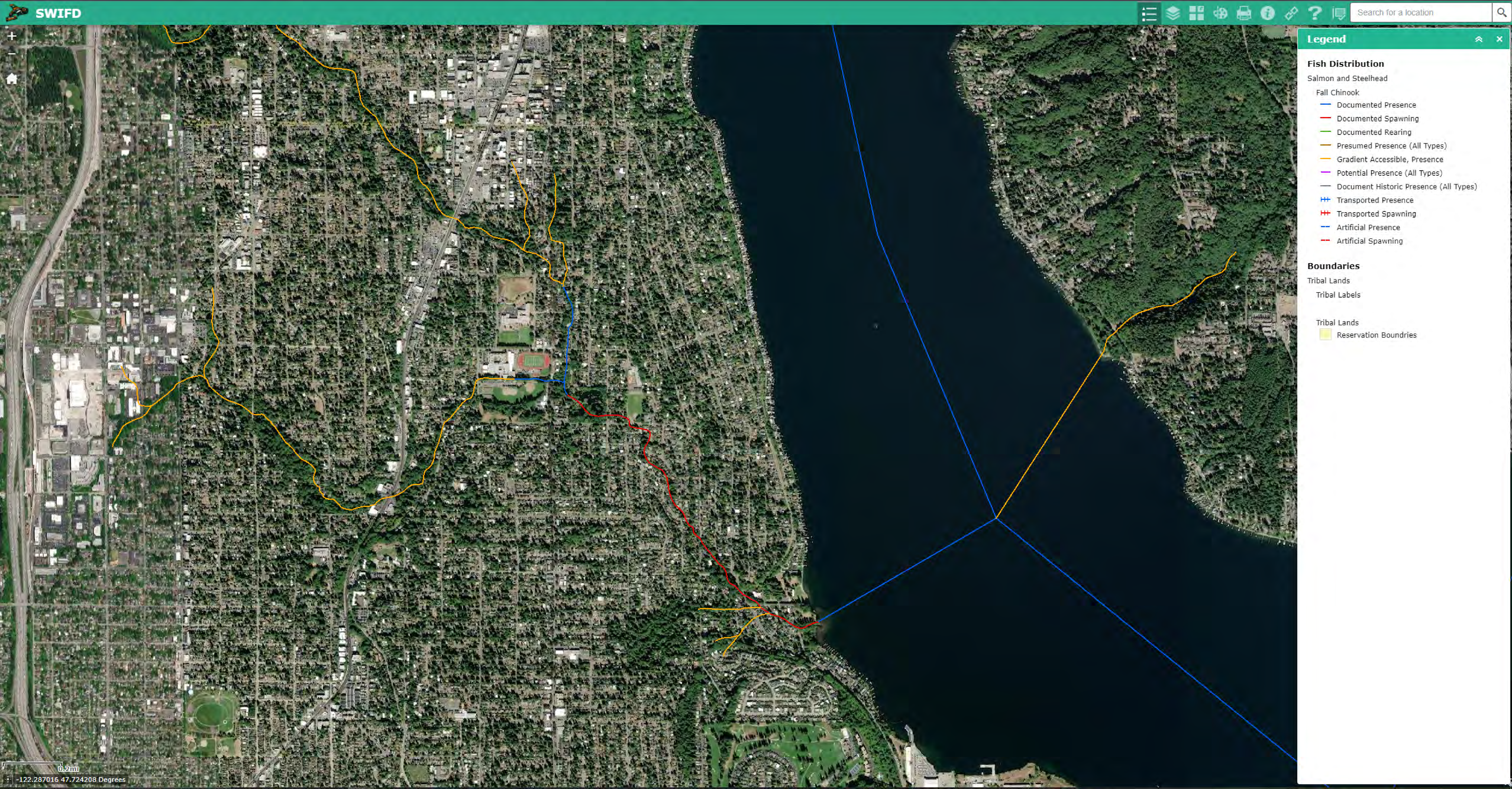
- Reservation Boundries


SWIFD
Search for a location
Legend
Fish Distribution
Salmon and Steelhead
Winter Steelhead
Documented Presence
Documented Spawning
Documented Rearing
Presumed Presence (All Types)
Gradient Accessible, Presence
Potential Presence (All Types)
Document Historic Presence (All Types)
Transported Presence
Transported Spawning
Transported Rearing
Artificial Presence
Artificial Spawning
Artificial Rearing
Boundaries
Tribal Lands
Tribal Labels
Tribal Lands
Reservation Boundries
0.2mi
-122.290535 47.687213 Degrees

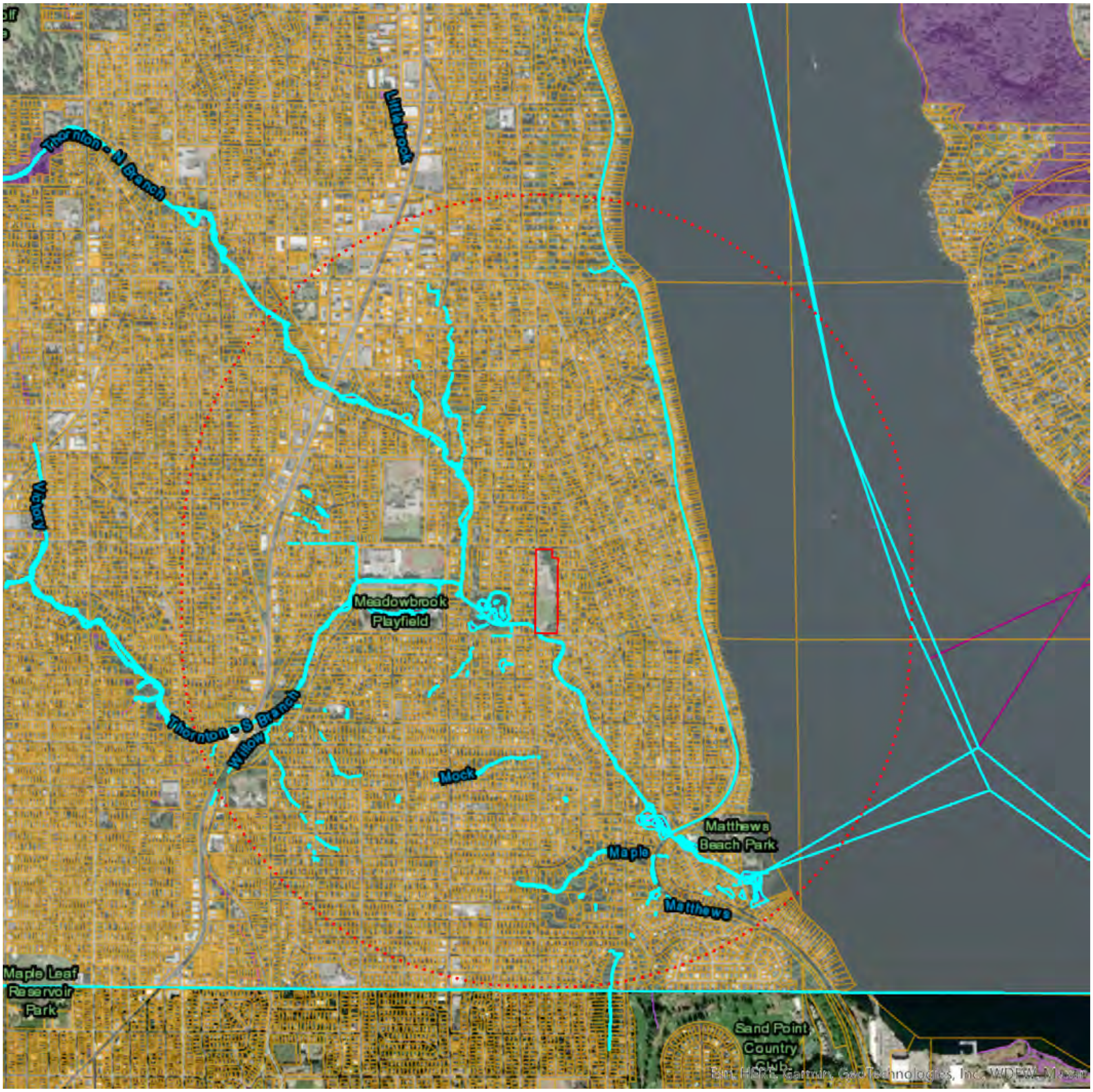


SWIFD
Search for a location
Legend
Fish Distribution
Salmon and Steelhead
Sockeye
Documented Presence
Documented Spawning
Documented Rearing
Presumed Presence (All Types)
Gradient Accessible, Presence
Potential Presence (All Types)
Document Historic Presence (All Types)
Transported Presence
Transported Spawning
Transported Rearing
Boundaries
Tribal Lands
Tribal Labels
Tribal Lands
Reservation Boundries
0.2mi
-122.276673 47.688051 Degrees


SWIFD
Search for a location
Legend
Fish Distribution
Salmon and Steelhead
Coho
Documented Presence
Documented Spawning
Documented Rearing
Presumed Presence (All Types)
Gradient Accessible, Presence
Potential Presence (All Types)
Document Historic Presence (All Types)
Transported Presence
Transported Spawning
Transported Rearing
Artificial Presence
Artificial Spawning
Artificial Rearing
Boundaries
Tribal Lands
Tribal Labels
Tribal Lands
Reservation Boundries
0.2mi
-122.295127 47.687069 Degrees


SWIFD
Search for a location
Legend
Fish Distribution
Salmon and Steelhead
Fall Chinook
Documented Presence
Documented Spawning
Documented Rearing
Presumed Presence (All Types)
Gradient Accessible, Presence
Potential Presence (All Types)
Document Historic Presence (All Types)
Transported Presence
Transported Spawning
Artificial Presence
Artificial Spawning
Boundaries
Tribal Lands
Tribal Labels
Tribal Lands
Reservation Boundries
0.2mi
-122.287016 47.724208 Degrees

Priority Habitats and Species on the Web



Buffer radius: 1 Miles

Report Date: 02/28/2022, Parcel ID: 2726049114

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Great blue heron	N/A	N/A	No
Chinook	Threatened	N/A	No
Sockeye	Not Warranted	N/A	No
Coho	N/A	N/A	No
Sockeye	N/A	N/A	No
Coho	Candidate	N/A	No
Winter Steelhead	N/A	N/A	No
Fall Chinook	N/A	N/A	No
Dolly Varden/ Bull Trout	N/A	N/A	No
Resident Coastal Cutthroat	N/A	N/A	No
Steelhead	Threatened	N/A	No
Kokanee	N/A	N/A	No
Freshwater Emergent Wetland	N/A	N/A	No
Lake	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Freshwater Pond	N/A	N/A	No
Little Brown Bat	N/A	N/A	Yes

PHS Species/Habitats Details:

Great blue heron	
Scientific Name	*Ardea herodias*
Priority Area	Breeding Area
Site Name	MATTHEWS BEACH
Accuracy	Map 1:12,000 <= 33 feet
Notes	GREAT BLUE HERON NEST IN COTTONWOOD. VIEW FROM STREET IN FRONT OF 4532 NE 94TH; LOOK NORTH ABOVE CHIMNEY. ALSO VISIBLE FROM BURKE-GILMAN TRAIL IN THORNTON CREEK NATURAL AREA. STIENAME CHANGED FROM THORNTON CREEK, 2008.
Source Record	54927
Source Dataset	WS_OccurPoint
Source Date	WS_OccurPoint
Source Name	CAHN, P/HHH - HERON HABITAT HE
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Points

Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Stock Name: Sammamish Chinook, Run: Sum/Fall, Status: Healthy
Source Record	1128
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Stock Name: Lake Washington/Sammamish Tribs Sockeye, Run: Unspecified, Status: Healthy
Source Record	5200
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Breeding Area
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	38696
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Breeding Area
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Sockeye Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	38700
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Stock Name: Lake Washington/Sammamish Tribs Coho, Run: Unspecified, Status: Depressed
Source Record	3120
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Candidate
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Stock Name: Sammamish Chinook, Run: Sum/Fall, Status: Healthy
Source Record	1128
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	39857
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Stock Name: Lake Washington Beach Spawning Sockeye, Run: Unspecified, Status: Depressed
Source Record	5300
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence/Migration
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	38692
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence/Migration
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	38820
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Dolly Varden/ Bull Trout	
Scientific Name	*Salvelinus malma/S. confluentus*
Priority Area	Breeding Area
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Fish Name: Bull Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	38826
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Breeding Area
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	38693
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence/Migration
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	39852
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence/Migration
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Sockeye Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	38699
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Breeding Area
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Fish Name: Sockeye Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	39855
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence/Migration
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	38691
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence/Migration
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	38695
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence/Migration
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	39850
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Stock Name: Lake Washington/Sammamish Tribs Sockeye, Run: Unspecified, Status: Healthy
Source Record	5200
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Stock Name: Lake Washington Winter Steelhead, Run: Winter, Status: Critical
Source Record	6154
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence/Migration
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	39849
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Stock Name: Lake Washington/Sammamish Tribs Coho, Run: Unspecified, Status: Depressed
Source Record	3120
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Candidate
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Breeding Area
Site Name	Maple Leave Creek
Accuracy	NA
Notes	LLID: 1222886477068, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	39853
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Breeding Area
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	38697
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence/Migration
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	38823
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence/Migration
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	38819
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	38832
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Stock Name: Lake Washington/Sammamish Tribs Coho, Run: Unspecified, Status: Depressed
Source Record	3120
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Candidate
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Stock Name: Lake Washington Beach Spawning Sockeye, Run: Unspecified, Status: Depressed
Source Record	5300
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence/Migration
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Fish Name: Sockeye Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	38831
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Kokanee	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence/Migration
Site Name	Sammamish River
Accuracy	NA
Notes	LLID: 1222590476462, Fish Name: Kokanee Salmon, Run Time: Unknown or not Applicable, Life History: Adfluvial
Source Record	38827
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Stock Name: Sammamish Chinook, Run: Sum/Fall, Status: Healthy
Source Record	1128
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	38702
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	*Oncorhynchus nerka*
Priority Area	Occurrence
Site Name	Thornton Creek
Accuracy	NA
Notes	LLID: 1222574477002, Stock Name: Lake Washington/Sammamish Tribs Sockeye, Run: Unspecified, Status: Healthy
Source Record	5200
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Great blue heron	
Scientific Name	*Ardea herodias*
Priority Area	Breeding Area
Site Name	MATTHEWS BEACH
Accuracy	Map 1:12,000 <= 33 feet
Notes	GREAT BLUE HERON COLONY. WAS SINGLE NEST PREVIOUSLY. SITE DELINEATION UPDATED 3/2011. DIFFICULT TO SEE NESTS HIGH IN FIRS. COTTONWOODS AT THE END OF 95TH.
Source Record	4314
Source Dataset	WS_OccurPolygon
Source Date	WS_OccurPolygon
Source Name	CAHN, P/HHH - HERON HABITAT HE
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Polygons

Great blue heron	
Scientific Name	*Ardea herodias*
Priority Area	Breeding Area
Site Name	MATTHEWS BEACH
Accuracy	Map 1:12,000 <= 33 feet
Notes	GREAT BLUE HERON COLONY HIGH IN FIRS IN MATTHEWS BEACH PARK. DIFFICULT TO SEE. ONE OF 2 MATTHEWS BEACH COLONY LOCATIONS. ALL NESTS IN FIRS - 3 ON N. SIDE OF THORNTON CREEK AND 5 ON S. SIDE.
Source Record	4304
Source Dataset	WS_OccurPolygon
Source Date	WS_OccurPolygon
Source Name	CAHN, P/HHH - HERON HABITAT HE
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1A
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/SSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/SSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/SSA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/SSA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/FOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/FOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/FOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/FOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/FOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Lake - NWI Code: L2USCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1Cx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/EM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/SSCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFO/EM1B
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSS/FOCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSAx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSB
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1/SSA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PFOC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSS/EM1A
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Pond - NWI Code: PUSCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Pond - NWI Code: PUSCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSA
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Scientific Name	*Myotis lucifugus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

APPENDIX C
Wetland Determination Datasheet

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

Project/Site: John Rogers Elementary School Replacement Project City/County: Seattle/King Sampling Date: 2/28/2022

Applicant/Owner: Seattle School District No. 1 State: WA Sampling Point: 1

Investigator(s): L. Baldwin, D. Conlin Section, Township, Range: Sec 27, T26N, R04E

Landform (hillslope, terrace, etc.): flat field Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): B Lat: 47.705000 Long: -122.285278 Datum: WGS 1984

Soil Map Unit Name: Urban land-Alderwood complex 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? (●) 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
Hydric Soil Present?	( ) Yes	(●) No
Wetland Hydrology Present?	(●) Yes	( ) No

Is the Sampled Area within a Wetland? ( ) Yes (●) No

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
		= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft)				
1.				
2.				
3.				
4.				
5.				
		= Total Cover		
Herb Stratum (Plot size: 5ft)				
1. *Ranunculus repens*	20	**Y**	21.1	FAC
2. *Mowed grass*	75	**Y**	78.9	#N/A
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	95	= Total Cover		
Woody Vine Stratum (Plot size: 10ft)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum 5

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:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	20 (A)		60 (B)

Prevalence Index = B/A = 3.000

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: 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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	3/2	100						silt loam	
8-10	10YR	3/2	50	2.5Y	5/2	50	D	M	silt loam	
10-14									fill material	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: 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]:

- ☐ 2 cm 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 (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ 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, and 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 (D7)

Field Observations:

Surface Water Present?	○ Yes	○ No	Depth (inches):
Water Table Present?	◉ Yes	○ No	Depth (inches): 0
Saturation Present? (includes capillary fringe)	◉ Yes	○ No	Depth (inches): 0

Wetland Hydrology Present? ◉ Yes ○ No

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

Remarks:

Appendix E

TREE INVENTORY / ARBORIST REPORT AND ADDENDUM

Tree Solutions Inc
Consulting Arborists

Project No. TS -8051

Arborist Report

To:	Seattle Public Schools c/o Amanda Fulford
Site:	John Rodgers Elementary- 4030 NE 109th St, Seattle, WA
Re:	Tree Inventory
Date:	March 30, 2022
Project Arborists:	Holly Iosso, Registered Consulting Arborist # 567 ISA Certified Arborist #PN-6298A ISA Qualified Tree Risk Assessor
	Andrea Starbird ISA Certified Arborist #PN-9084A ISA Qualified Tree Risk Assessor
	George White ISA Certified Arborist #PN-8908A ISA Qualified Tree Risk Assessor
Referenced Documents:	Topographic Survey (Reid Middleton, no date)
Attached:	Table of Trees (February 10, 2022) Tree Site Map (March 11, 2022)

Summary

We inventoried and assessed 174 trees on this lot and 7 trees adjacent to the lot.

Of the 174 trees assessed, 6 met the Exceptional Tree criteria[1] as individual trees and 71 met the Exceptional Tree criteria because they were part of an Exceptional Grove[2]. Exceptional trees and groves are identified in the attached Table of Trees, Site Map and Exceptional Grove Study. All 77 exceptional trees require special protection during development.

There were seven trees adjacent to the property that required documentation because of their proximity to the site. Trees on neighboring properties were documented if they appeared to be greater than 6 inches diameter and their driplines extended over the property line.

One cottonwood tree presented a moderate risk: Tree 304 had a dead branch hanging over the parking area which should be removed.

[1] Sugimura, D.W. "DPD Director's Rule 16-2008". Seattle, WA, 2009

[2] The City defines an exceptional grove as eight (8) or more trees each with a diameter measuring twelve (12) inches or greater with continuously overlapping canopies.

We have not yet reviewed construction plans so cannot comment on tree impacts during development.

Assignment and Scope of Work

This report documents the site visits by Holly Iosso, Andrea Starbird, and George White of Tree Solutions Inc. on November 2nd, 2021, and February 9th, 2022, to the above referenced site. Included are observations and data collected at the site located at 4030 NE 109th St in Seattle, WA. Amanda Fulford, Project Manager for Seattle Public Schools, requested these services to acquire information for project planning.

We were asked to evaluate all regulated trees on and near the site, and to identify any exceptional trees. We were provided a preliminary Topographic Survey (Reid Middleton, undated) by Ms. Fulford prior to our first site visit. That survey did not have all trees on it. Prior to our second site visit, she provided us with a revised survey. We were asked to produce an Arborist Report outlining our findings.

Based on the city of Seattle Municipal Code (SMC 25.11), trees measuring 6 inches or greater in diameter at standard height (DSH) are required to be assessed for development projects. We tagged each tree with an aluminum tree tag. Tree identifier corresponds to the number on each tag. In some cases, we were unable to tag trees due to access restrictions including fences and excessive blackberry. Trees not tagged are still assigned a unique identifier and are listed in the attached Table of Trees.

We did not tag trees off-site. All trees on adjacent properties were estimated from the subject site or public property such as the adjacent right-of-way. We used an alphabetical tree identifier for trees off-site for mapping purposes only.

Observations

Site

The 392,475 square foot site fronts NE 109th St in the Meadowbrook neighborhood of Seattle. A school building, parking lot, paved play area, portable classrooms, and ballfields currently exist onsite.

The slopes in the northeast corner of the site are considered steep-slope Environmentally Critical Areas (ECAs). A central stretch of the western property line, and part of the transition between the upper play area and the ballfield are also considered slope ECAs. The southwest corner of the site, adjacent to Thornton creek is classified as a riparian corridor ECA. Thornton creek itself is protected as a wetland ECA (See figure 1). Trees and Vegetation within ECAs are regulated under SMC 25.09.070.

We observed several invasive plant species on site, especially in the slope ECA in the northeast corner of the property. Observed species include Himalayan blackberry (*Rubus bifrons*), English ivy (*Hedera sp.*), and Japanese knotweed (*Reynoutria japonica*). All invasive species should be managed prior to, and after, development (See Photo 1).

Along the access road east of the school building we observed that significant amounts of plant debris have been pushed upslope. In some cases, this debris was piled against the trunks of trees located at the bottom of the slope ECA. These debris piles should be removed. Prolonged contact with tree trunks can introduce decay-causing pathogens which can lead to tree decline (See photo 2).

Proposed Plans

There are no proposed plans available to review at this time.

Trees
There are a variety of trees on site including many native and ornamental species. Specific details about each tree on site, including species, size, health, condition, and single-stem equivalent diameter value (for multi-stem trees) are listed in the attached Table of Trees.

In some cases, our ability to assess the structural condition of a tree was limited due to visual obstructions (including heavy amounts of ivy growing in its canopy). These trees have been identified in the attached Table of Trees.

<u>Tree Risk</u>
Cottonwood trees grow around the east and north of the school on slopes. This species is known for breaking branches and failures. From what we could see, we did not observe defects on trees and trunks. It should be noted, however, that ivy obscured much of the trunks and branches. Our assessment is limited to the parts of the tree we could access or see. Once ivy has been removed from the trees, or girdled and allowed to die in place, we should return to conduct an additional structural and risk assessment.

One cottonwood we looked at presented a moderate risk at the time. Tree 304 is a black cottonwood which has a large broken limb hung up in its canopy that targets the staff parking area east of the school building. <u>This hanger should be removed as soon as is feasible to reduce risk</u> (photo 3).

<u>Exceptional Groves</u>
The site has 6 Exceptional groves present. All trees included within an exceptional grove are regulated as exceptional, therefore planning around exceptional groves must follow the provisions outlined in SMC 25.11.050.

Exceptional grove “A” is primarily comprised of large conifers growing adjacent to Thornton creek and includes trees 602, 606, 607, 609, and 611-615.

Exceptional grove “B” is comprised of black cottonwoods and red alders and is located just east of the school building in the slope ECA and includes trees 298, 299, and 616-621

Exceptional grove “C” is comprised of black cottonwoods and red alders and is located in the slope ECA just north of grove B and includes trees 301-305,622-626,629-633,635-637, and 639 to 644.

Exceptional grove “D” is primarily comprised of black cottonwoods located northeast of the school building, and includes trees 307-309, 663-675, 678, and 679.

Exceptional grove “E” is primarily comprised of black cottonwoods located east of the upper parking lot and includes trees 681, and 685-693.

Exceptional grove “F” is primarily comprised of black cottonwoods located north of the upper parking lot and is comprised of trees 694-700, 196-198, and 313.

See figure 2. “Exceptional Grove Study” for the locations of exceptional groves.

Discussion—Construction Impacts

This report is preliminary as we have not reviewed design or construction plans for this area. However, we included general tree protection recommendations (see Appendix G) for planning purposes.

We also want to point out an infrastructure/tree conflict we observed, as it may need to be addressed. There are surface roots visible breaking up and growing through the asphalt parking area (north and east of the school, see photo 5). These roots are from adjacent cottonwood trees growing on the slope, many of which grow within 10 feet of this parking area.

Repairing asphalt with an overlay of asphalt would temporarily fix paving issues but would not solve the problem long-term. These tree roots are vigorous growers and will continue to create maintenance issues.
Replacing the asphalt would require excavation and root pruning. Pruning structural roots within 15 feet of a tree could create a high-risk situation by potentially destabilizing it. If plans to excavate within the parking area are proposed, I would re-assess the trees for risk (prior to construction) and may recommend tree removal.

Recommendations

- Add tree ID numbers and driplines for all inventoried trees to the base layer for all pertinent plan sheets (use values found in the attached Table of Trees).
- Site planning around exceptional trees should follow the guidelines outlined in SMC 25.11.050. [3]
- Site planning around trees in critical areas should follow the guidelines outlined in SMC 25.09.070.[4]
- All trees intended for retention within the interior of the school's site should be protected using the tree protection specifications listed in Appendix G.
- Provide us with initial design plans so we may comment early in the design process on tree retention feasibility.
- Provide us with final proposed plans so we can revise this report to include comments on development plans.
- When required, all pruning should be conducted by an ISA certified arborist and following current ANSI A300 specifications.[5]

Respectfully submitted,

Holly Iosso,
Consulting Arborist

[3] Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees
[4] Seattle Municipal Code 25.09.070 Standards for Trees and Vegetation in Critical Areas
[5] Accredited Standards Committee A300 (ASC 300). ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Londonderry: Tree Care Industry Association, 2017.

Appendix A **Glossary**

ANSI A300: American National Standards Institute (ANSI) standards for tree care

DBH or DSH: diameter at breast or standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade (Council of Tree and Landscape Appraisers 2019)

ISA: International Society of Arboriculture

Regulated Tree: A tree required by municipal code to be identified in an arborist report.

Visual Tree Assessment (VTA): method of evaluating structural defects and stability in trees by noting the pattern of growth. Developed by Claus Mattheck (Harris, *et al* 1999)

Appendix B **References**

Accredited Standards Committee A300 (ASC 300). ANSI A300 (Part 1) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Londonderry: Tree Care Industry Association, 2017.

Council of Tree and Landscape Appraisers, Guide for Plant Appraisal, 10th Edition, Second Printing. Atlanta, GA: The International Society of Arboriculture (ISA), 2019.

Mattheck, Claus and Helge Breloer, The Body Language of Trees.: A Handbook for Failure Analysis. London: HMSO, 1994.

Seattle Municipal Code 25.09.070. Standards for Trees and Vegetation in Critical Areas.

Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees.

Sugimura, D.W. "DPD Director's Rule 16-2008". Seattle, WA, 2009

Appendix C **Aerial Imagery and Environmentally Critical Areas**

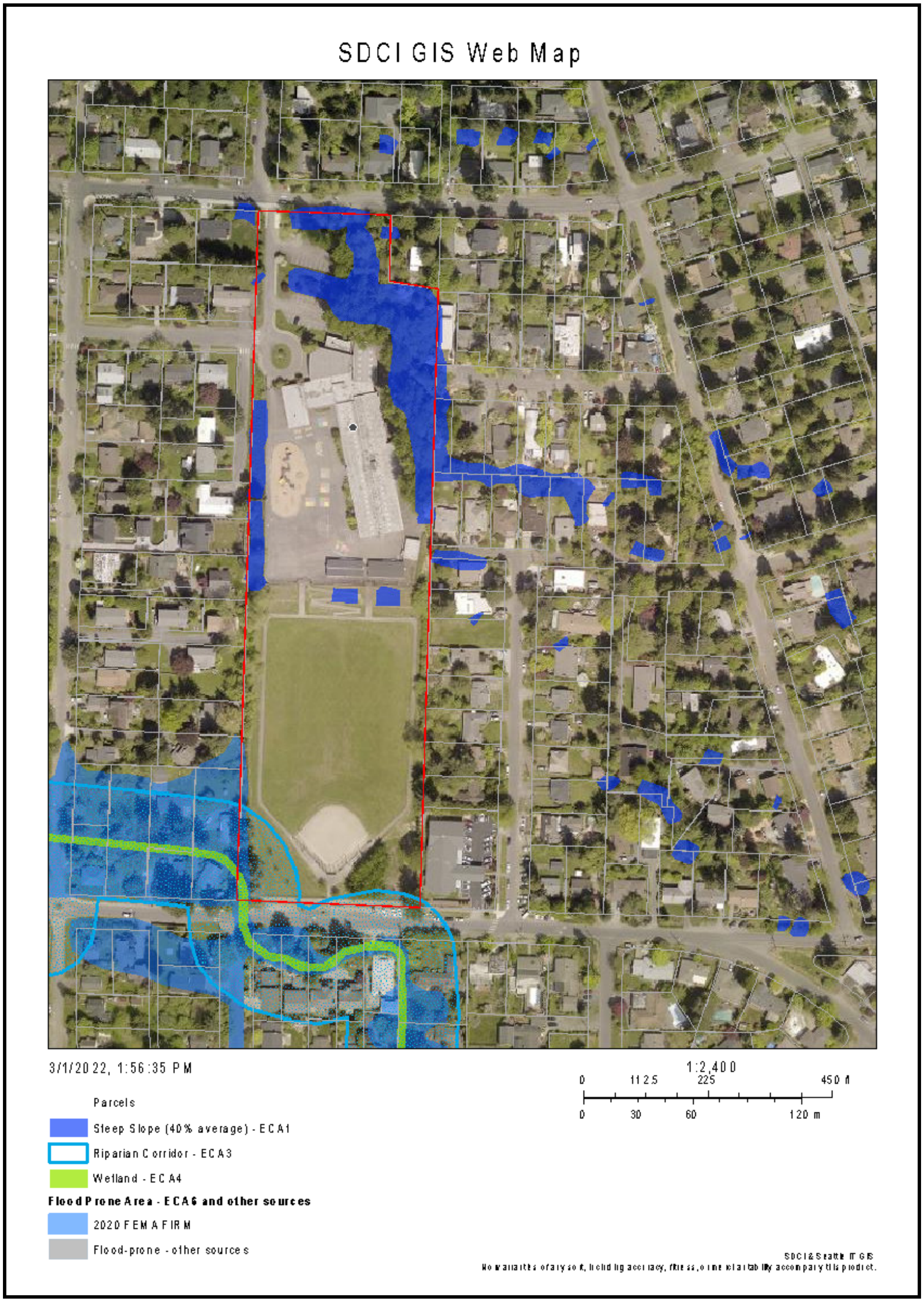


Figure 1. SDCI aerial imagery (accessed 03.01.2022) showing the extent of ECAs across the site. Dark blue denotes Steep Slopes, dotted blue denotes Riparian Corridor, and green shows Wetland (Thornton Creek). Flood prone areas are delineated by solid light blue lines.

SDCI GIS Web Map

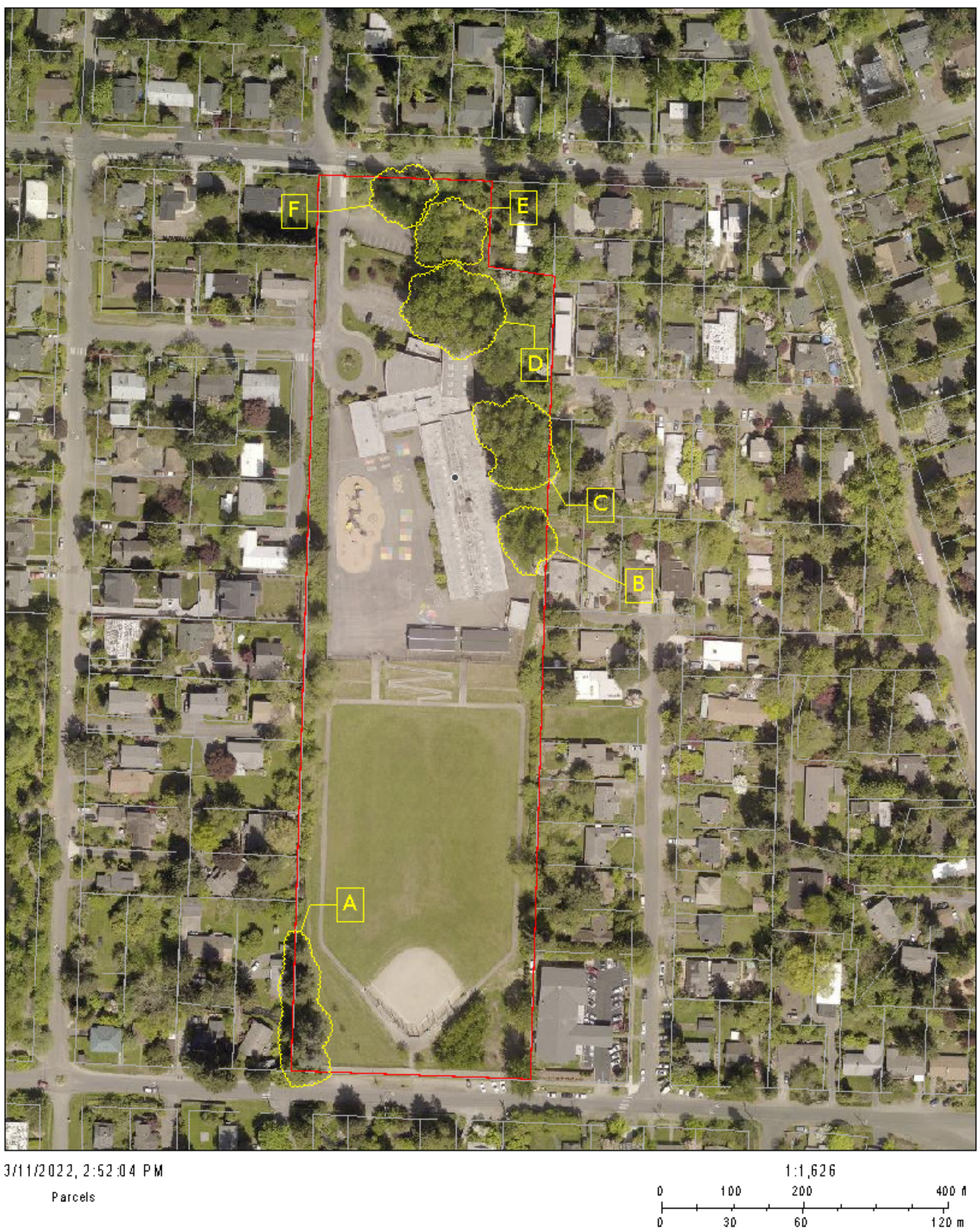
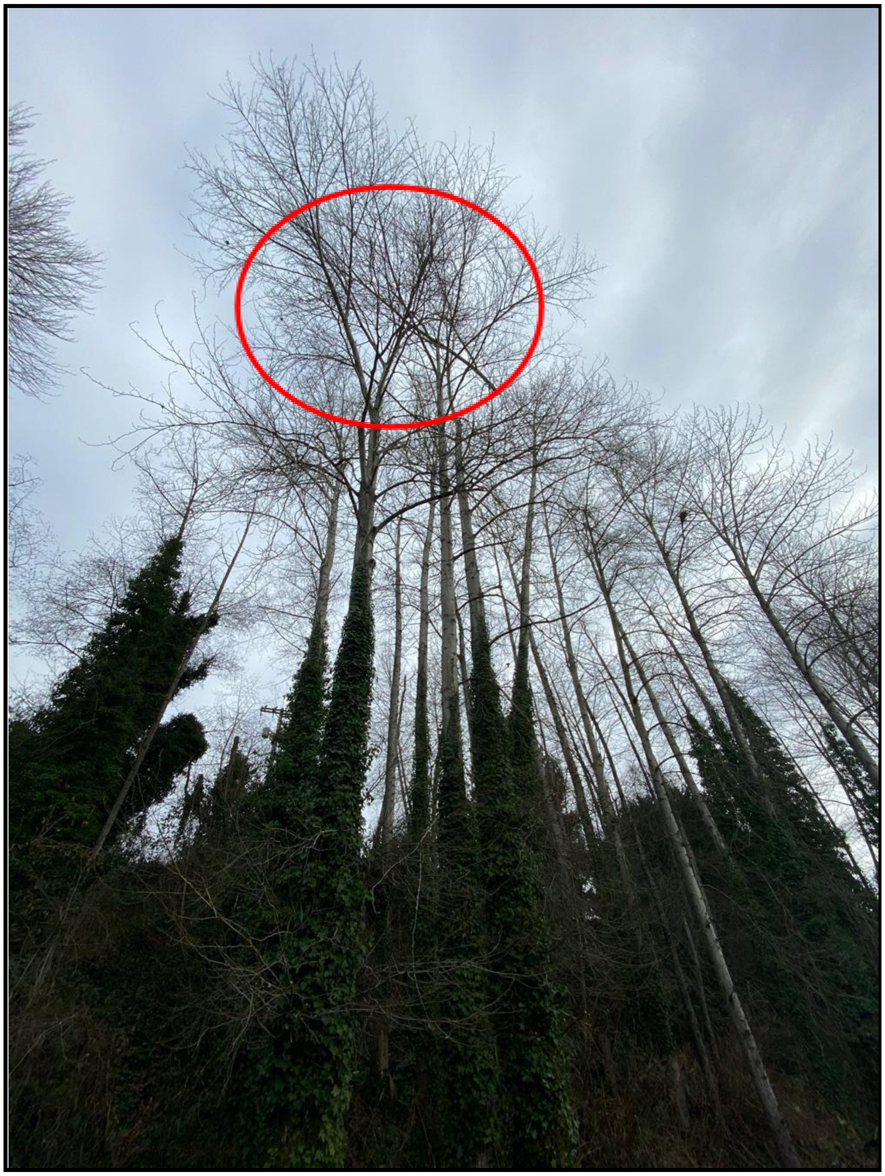


Figure 2. **Exceptional Grove Study** SDCI aerial imagery (accessed 03.11.2022) Showing the approximate locations of the exceptional groves on site. Yellow clouds indicate the approximate extent of the exceptional groves.

Appendix D **Photographs**

Photograph 1. A view of the slope ECA in the northeast part of the site, which is heavily infested with Himalayan blackberry and English ivy. In some cases, the amount of invasive vegetation limited access and our ability to tag trees. It also obscured site lines and limited the thoroughness of our structural assessment. If ivy is removed, or girdled and allowed to die in place, arborists can return for a comprehensive re-assessment of these trees.

Photograph 2. Plant debris and soil pushed up against tree trunks east of the school building. Debris should be removed.



Photograph 3. A large “hanger” in tree 304 (circled in red) that targets vehicles in the parking area east of the school building. This hanger should be removed as soon as possible to reduce risk.

Photo 4. Cottonwood trees overhang access road and parking area along north and east sides of the building. It is common for this species to break and limbs to fall.

Photo 5. Cottonwood surface roots breaking up asphalt.

Appendix E **Assumptions & Limiting Conditions**

1 Consultant assumes that the site and its use do not violate, and is in compliance with, all applicable codes, ordinances, statutes, or regulations.

2 The consultant may provide a report or recommendation based on published municipal regulations. The consultant assumes that the municipal regulations published on the date of the report are current municipal regulations and assumes no obligation related to unpublished city regulation information.

3 Any report by the consultant and any values expressed therein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event, or upon any finding to be reported.

4 All photographs included in this report were taken by Tree Solutions, Inc. during the documented site visit, unless otherwise noted. Sketches, drawings and photographs (included in, and attached to, this report) are intended as visual aids and are not necessarily to scale. They should not be construed as engineering drawings, architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.

5 Unless otherwise agreed, (1) information contained in any report by consultant covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, climbing, or coring.

6 These findings are based on the observations and opinions of the authoring arborist, and do not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described and assessed.

7 Measurements are subject to typical margins of error, considering the oval or asymmetrical cross-section of most trunks and canopies.

8 Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.

9 Our assessments are made in conformity with acceptable evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

Appendix F **Methods**

Measuring

We measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, we measured each stem individually at standard height and determined a single-stem equivalent diameter by using the method outlined in the city of Seattle Director's Rule 16-2008 or the Guide for Plant Appraisal, 10th Edition Second Printing published by the Council of Tree and Landscape Appraisers. A tree is regulated based on this single-stem equivalent diameter value. Because this value is calculated in the office following field work, some trees in our data set may have diameters smaller than 6 inches. These trees are included in the tree table for informational purposes only and not factored into tree totals discussed in this report.

Tagging

I tagged each tree with a circular aluminum tag at eye level. I assigned each tree a numerical identifier on our map and in our tree table, corresponding to this tree tag. I used alphabetical identifiers for trees off-site.

Evaluating

I evaluated tree health and structure utilizing visual tree assessment (VTA) methods. The basis behind VTA is the identification of symptoms, which the tree produces in reaction to a weak spot or area of mechanical stress. A tree reacts to mechanical and physiological stresses by growing more vigorously to re-enforce weak areas, while depriving less stressed parts. An understanding of the uniform stress allows the arborist to make informed judgments about the condition of a tree.

Rating

When rating tree health, I took into consideration crown indicators such as foliar density, size, color, stem and shoot extensions. When rating tree structure, I evaluated the tree for form and structural defects, including past damage and decay. Tree Solutions has adapted our ratings based on the Purdue University Extension formula values for health condition (*Purdue University Extension bulletin FNR-473-W - Tree Appraisal*). These values are a general representation used to assist arborists in assigning ratings.

Health

Excellent - Perfect specimen with excellent form and vigor, well-balanced crown. Normal to exceeding shoot length on new growth. Leaf size and color normal. Trunk is sound and solid. Root zone undisturbed. No apparent pest problems. Long safe useful life expectancy for the species.

Good - Imperfect canopy density in few parts of the tree, up to 10% of the canopy. Normal to less than ¾ typical growth rate of shoots and minor deficiency in typical leaf development. Few pest issues or damage, and if they exist, they are controllable, or tree is reacting appropriately. Normal branch and stem development with healthy growth. Safe useful life expectancy typical for the species.

Fair - Crown decline and dieback up to 30% of the canopy. Leaf color is somewhat chlorotic/necrotic with smaller leaves and "off" coloration. Shoot extensions indicate some stunting and stressed growing conditions. Stress cone crop clearly visible. Obvious signs of pest problems contributing to lesser condition, control might be possible. Some decay areas found in main stem and branches. Below average safe useful life expectancy

Poor - Lacking full crown, more than 50% decline and dieback, especially affecting larger branches. Stunting of shoots is obvious with little evidence of growth on smaller stems. Leaf size and color reveals overall stress in the plant. Insect or disease infestation may be severe and uncontrollable. Extensive decay or hollows in branches and trunk. Short safe useful life expectancy.

Structure

Excellent - Root plate undisturbed and clear of any obstructions. Trunk flare has normal development. No visible trunk defects or cavities. Branch spacing/structure and attachments are free of any defects.

Good - Root plate appears normal, with only minor damage. Possible signs of root dysfunction around trunk flare. Minor trunk defects from previous injury, with good closure and less than 25% of bark section missing. Good branch habit; minor dieback with some signs of previous pruning. Codominant stem formation may be present, requiring minor corrections.

Fair - Root plate reveals previous damage or disturbance. Dysfunctional roots may be visible around the main stem. Evidence of trunk damage or cavities, with decay or defects present and less than 30% of bark sections missing on trunk. Co-dominant stems are present. Branching habit and attachments indicate poor pruning or damage, which requires moderate corrections.

Poor - Root plate disturbance and defects indicate major damage, with girdling roots around the trunk flare. Trunk reveals more than 50% of bark section missing. Branch structure has poor attachments, with several structurally important branches dead or broken. Canopy reveals signs of damage or previous topping or lion-tailing, with major corrective action required.

Appendix G **Tree Protection Specifications**

The following is a list of protection measures that should be included as requirements on construction plans.

1. **Project Arborist:** The project arborists shall at minimum have an International Society of Arboriculture (ISA) Certification and ISA Tree Risk Assessment Qualification.
2. **Tree Protection Area (TPA):** TPA is the area within the dripline of all retained trees. The TPA for non-exceptional trees may be reduced to within the dripline based on the recommendation of the project arborist. The TPA for exceptional trees may be reduced to within the dripline based on the recommendation of the project arborist and approval by the City of Seattle.
3. **Tree Protection Fencing:** Tree protection fencing shall consist of 6-foot tall chain-link fencing installed at the edge of the TPA as approved by the project arborist. Fence posts shall be anchored into the ground or bolted to existing hardscape surfaces.
    a. Where trees are being retained as a group the fencing shall encompass the entire area including all landscape beds or lawn areas associated with the group.
    b. Per arborist approval, TPA fencing may be placed at the edge of existing hardscape within the TPA to allow for staging and traffic.
    c. Where work is planned within the TPA, install fencing at edge of TPA and move to limits of disturbance at the time that the work within the TPA is planned to occur. This ensures that work within the TPA is completed to specification.
    d. Where trees are protected at the edge of the project boundary, construction limits fencing shall be incorporated as the boundary of tree protection fencing.
4. **Access Beyond Tree Protection Fencing:** In areas where work such as installation of utilities is required within the TPA, a locking gate will be installed in the fencing to facilitate access. The project manager or project arborist shall be present when tree protection areas are accessed.
5. **Tree Protection Signage:** Tree protection signage shall be affixed to fencing every 20 feet. Signage shall be fluorescent, at least 2' x 2' in size. Signage must include all information in the PDF located here: http://www.seattle.gov/Documents/Departments/SDCI/Codes/TreeProtectionAreaSign.pdf in addition to the contact information for the project manager and instructions for gaining access to the area.
6. **Filter / Silt Fencing:** Filter / silt fencing within, or at the edge of the TPA of retained trees shall be installed in a manner that does not sever roots. Install so that filter / silt fencing sits on the ground and is weighed in place by sandbags or gravel. Do not trench to insert filter / silt fencing into the ground.
7. **Monitoring:** The project arborist shall monitor all ground disturbance at the edge of or within the TPA.
8. **Soil Protection:** Retain existing paved surfaces within or at the edge of the TPA for as long as possible. No parking, foot traffic, materials storage, or dumping (including excavated soils) are allowed within the TPA. Heavy machinery shall remain outside of the TPA. Access to the tree protection area will be granted under the supervision of the project arborist. If project arborist allows, heavy machinery can enter the area if soils are protected from the load. Acceptable methods of soil protection include placing 3/4-inch plywood over 4 to 6 inches of wood chip mulch or use of AlturnaMats® (or equivalent product approved by the project arborist). Compaction of soils within the TPA must not occur.
9. **Soil Remediation:** Soil compacted within the TPA of retained trees shall be remediated using pneumatic air excavation according to a specification produced by the project arborist.

10. **Canopy Protection**: Where fencing is installed at the limits of disturbance within the TPA, canopy management (pruning or tying back) shall be conducted to ensure that vehicular traffic does not damage canopy parts. Exhaust from machinery shall be located 5 feet outside the dripline of retained trees. No exhaust shall come in contact with foliage for prolonged periods of time.
11. **Duff/Mulch:** Apply 6 inches of arborist wood chip mulch or hog fuel over bare soil within the TPA to prevent compaction and evaporation. TPA shall be free of invasive weeds to facilitate mulch application. Keep mulch 1 foot away from the base of trees and 6 inches from retained understory vegetation. Retain and protect as much of the existing duff and understory vegetation as possible.
12. **Excavation:** Excavation done within the TPA shall use alternative methods such as pneumatic air excavation or hand digging. If heavy machinery is used, use flat front buckets with the project arborist spotting for roots. When roots are encountered, stop excavation and cleanly sever roots. The project arborist shall monitor all excavation done within the TPA.
13. **Fill:** Limit fill to 1 foot of uncompacted well-draining soil, within the TPA of retained trees. In areas where additional fill is required, consult with the project arborist. Fill must be kept at least 1 foot from the trunks of trees.
14. **Root Pruning:** Limit root pruning to the extent possible. All roots shall be pruned with a sharp saw making clean cuts. Do not fracture or break roots with excavation equipment.
15. **Root Moisture:** Root cuts and exposed roots shall be immediately covered with soil, mulch, or clear polyethylene sheeting and kept moist. Water to maintain moist condition until the area is back filled. Do not allow exposed roots to dry out before replacing permanent back fill.
16. **Hardscape Removal:** Retain hardscape surfaces for as long as practical. Remove hardscape in a manner that does not require machinery to traverse newly exposed soil within the TPA. Where equipment must traverse the newly exposed soil, apply soil protection as described in section 8. Replace fencing at edge of TPA if soil exposed by hardscape removal will remain for any period of time.
17. **Tree Removal:** All trees to be removed that are located within the TPA of retained trees shall not be ripped, pulled, or pushed over. The tree should be cut to the base and the stump either left or ground out. A flat front bucket can also be used to sever roots around all sides of the stump, or the roots can be exposed using hydro or air excavation and then cut before removing the stump.
18. **Irrigation:** Retained trees with soil disturbance within the TPA will require supplemental water from June through September. Acceptable methods of irrigation include drip, sprinkler, or watering truck. Trees shall be watered three times per month during this time.
19. **Pruning:** Pruning required for construction and safety clearance shall be done with a pruning specification provided by the project arborist in accordance with American National Standards Institute ANSI-A300 2017 Standard Practices for Pruning. Pruning shall be conducted or monitored by an arborist with an ISA Certification.
20. **Plan Updates:** All plan updates or field modification that result in impacts within the TPA or change the retained status of trees shall be reviewed by the senior project manager and project arborist prior to conducting the work.
21. **Materials:** Contractor shall have the following materials on-site and available for use during work in the TPA:
    - Sharp and clean bypass hand pruners
    - Sharp and clean bypass loppers
    - Sharp hand-held root saw
    - Reciprocating saw with new blades
    - Shovels
    - Trowels
    - Clear polyethylene sheeting
    - Burlap
    - Water

Table of Trees

John Rogers Elementary
4030 NE 109th St, Seattle

Arborist: GW, HI, AS
Date of Inventory: 11/02/2021 and 2/09/2022
Table Prepared: 4/18/2022

DSH (Diameter at Standard Height) is measured 4.5 feet above grade, or as specified in the Guide for Plant Appraisal, 10th Edition, published by the Council of Tree and Landscape Appraisers.
DSH for multi-stem trees are noted as a single stem equivalent, which is calculated using the method defined in the Director's Rule 16-2008.
Letters are used to identify trees on neighboring properties with overhanging canopies.
Dripline is measured from the center of the tree to the outermost extent of the canopy.

							Dripline Radius (feet)							
Tree ID	**Scientific Name**	**Common Name**	**DSH** (inches)	**DSH Multistem**	**Health Condition**	**Structural Condition**	**N**	**E**	**S**	**W**	**Exceptional Threshold**	**Part of Exceptional grove?**	**Exceptional by Size**	**Notes**
196	*Alnus rubra*	Red alder	13.0		Poor	Fair	23.5	23.5	23.5	23.5	*Not Exceptional except in grove*	yes	-	In decline, heavy ivy
197	*Populus trichocarpa*	Black cottonwood	13.3	8,8,7	Poor	Fair	16.6	16.6	16.6	16.6	*Not Exceptional except in grove*	yes	-	Very heavy in ivy
198	*Populus trichocarpa*	Black cottonwood	18.0		Poor	Poor	15.8	15.8	15.8	15.8	*Not Exceptional except in grove*	yes	-	Wisteria in canopy, heavy ivy, low live crown ratio
199	*Tsuga heterophylla*	Western hemlock	13.2		Good	Good	18.6	18.6	18.6	18.6	24.0		-	
263	*Chamaecyparis lawsoniana*	Lawson cypress	15.8	13,9	Good	Good	8.7	14.7	0.7	0.7	*30.0*		-	Codominant at base
264	*Picea abies*	Norway spruce	20.0		Good	Good	12.8	14.8	14.8	16.8	*30.0*		-	Ivy on stem
265	*Pseudotsuga menziesii*	Douglas-fir	26.0				21.1	17.1	17.1	21.1	*30.0*		-	Possibly shared tree, stilted roots on west side, blackberry at base
266	*Prunus emarginata var. mollis*	Bitter cherry	12.9	6.75,11	Good	Fair	16.5	16.5	16.5	16.5	*Not Exceptional except in grove*		-	Shared canopy with trees 266,267, and 268
267	*Prunus emarginata var. mollis*	Bitter cherry	9.3	5.5,7.5	Good	Good	16.4	16.4	16.4	16.4	*Not Exceptional except in grove*		-	

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
268	*Prunus emarginata var. mollis*	Bitter cherry	7.3		Good	Good	16.3	16.3	16.3	16.3	*Not Exceptional except in grove*		-	Knotweed at base, blackberry at base
269	*Cedrus deodara*	Deodar cedar	18.5		Good	Fair	18.8	18.8	18.8	18.8	*30.0*		-	Trunk growing onto school, not suitable for retention
270	*Malus domestica*	Apple	9.8		Good	Good	12.4	12.4	12.4	12.4	*20.0*		-	Measured at narrowest point below base
271	*Prunus cerasifera*	Cherry plum	7.0		Good	Fair	12.3	12.3	12.3	12.3	*21.0*		-	Narrow unions
272	*Malus domestica*	Apple	6.3		Good	Fair to Poor	10.3	10.3	10.3	10.3	*20.0*		-	Many trunk wounds, corrected lean
273	*Malus domestica*	Apple	6.0		Good	Good	3.3	6.3	6.3	6.3	*20.0*		-	
274	*Malus domestica*	Apple	14.9	10,11	Good	Fair to Poor	5.6	12.6	12.6	12.6	*20.0*		-	Canopy phototropic to south
275	*Picea abies*	Norway spruce	7.0		Good	Poor	8.3	8.3	8.3	8.3	*30.0*		-	Crack , not a good long term tree. multiple active horizontal failures, low live crown ratio
276	*Crataegus monogyna*	Common hawthorn	5.2	3,3,3	Good	Fair	9.2	9.2	9.2	9.2	*16.2*		-	Ivy, blackberry at base
277	*Crataegus monogyna*	Common hawthorn	6.0		Fair	Fair	5.3	5.3	5.3	5.3	*16.2*		-	Ivy, blackberry at base, stubs
278	*Acer rubrum*	Red maple	5.0		Good	Good	6.2	6.2	6.2	6.2	*25.0*		-	Sound at base on southeast side
279	*Acer rubrum*	Red maple	4.0		Good	Fair	8.2	8.2	8.2	8.2	*25.0*		-	Basal wounds from mower damage
280	*Acer rubrum*	Red maple	4.0		Good	Good	7.2	7.2	0.2	0.2	*25.0*		-	
281	*Acer rubrum*	Red maple	8.3		Good	Good	13.3	13.3	13.3	13.3	*25.0*		-	Mower damage to surface roots
282	*Acer rubrum*	Red maple	7.0		Good	Fair	12.3	12.3	12.3	12.3	*25.0*		-	Girdling roots, basal trunk damage on south side 1/3rd of circumference of the trunk
283	*Populus trichocarpa*	Black cottonwood	8.5		Fair	Poor	18.4	18.4	18.4	18.4	*Not Exceptional except in grove*		-	
284	*Populus trichocarpa*	Black cottonwood	12.3		Good	Good	18.5	18.5	18.5	18.5	*Not Exceptional except in grove*		-	

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
285	*Populus trichocarpa*	Black cottonwood	6.8		Good	Good	14.3	14.3	14.3	14.3	*Not Exceptional except in grove*		-	
286	*Populus trichocarpa*	Black cottonwood	6.5		Good	Good	8.3	8.3	8.3	8.3	*Not Exceptional except in grove*		-	
287	*Populus trichocarpa*	Black cottonwood	7.0		Good	Good	7.3	7.3	7.3	7.3	*Not Exceptional except in grove*		-	
288	*Populus trichocarpa*	Black cottonwood	7.0		Good	Good	7.3	7.3	7.3	7.3	*Not Exceptional except in grove*		-	
289	*Populus trichocarpa*	Black cottonwood	6.0		Good	Good	7.3	7.3	7.3	7.3	*Not Exceptional except in grove*		-	
290	*Populus trichocarpa*	Black cottonwood	6.5		Good	Good	10.3	10.3	10.3	10.3	*Not Exceptional except in grove*		-	
291	*Populus trichocarpa*	Black cottonwood	11.5	9.8,6	Good	Good	15.5	15.5	15.5	15.5	*Not Exceptional except in grove*		-	Codominant at base
292	*Populus trichocarpa*	Black cottonwood	10.0		Good	Good	10.4	10.4	10.4	10.4	*Not Exceptional except in grove*		-	
293	*Populus trichocarpa*	Black cottonwood	8.0		Good	Good	11.3	11.3	11.3	11.3	*Not Exceptional except in grove*		-	

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
294	*Populus trichocarpa*	Black cottonwood	8.5		Good	Good	19.4	19.4	19.4	19.4	*Not Exceptional except in grove*		-	
295	*Populus trichocarpa*	Black cottonwood	9.0		Good	Good	13.4	13.4	13.4	13.4	*Not Exceptional except in grove*		-	
296	*Populus trichocarpa*	Black cottonwood	7.8	5.25,5.25	Good	Good	11.3	11.3	11.3	11.3	*Not Exceptional except in grove*		-	Phototropic lean to west
297	*Populus trichocarpa*	Black cottonwood	7.5		Good	Unkown	11.3	11.3	11.3	11.3	*Not Exceptional except in grove*		-	
298	*Populus trichocarpa*	Black cottonwood	16.8		Good	Unkown	40.7	40.7	40.7	40.7	*Not Exceptional except in grove*	*yes*	-	
299	*Populus trichocarpa*	Black cottonwood	19.8	14,14	Good	Unkown	30.8	30.8	30.8	30.8	*Not Exceptional except in grove*	*yes*	-	Codominant at base, long seam with included bark
300	*Populus trichocarpa*	Black cottonwood	18.0		Good	Unkown	20.8	20.8	20.8	20.8	*Not Exceptional except in grove*		-	
301	*Populus trichocarpa*	Black cottonwood	15.2		Good	Unkown	20.6	20.6	20.6	20.6	*Not Exceptional except in grove*	*yes*	-	
302	*Populus trichocarpa*	Black cottonwood	22.0		Good	Unkown	18.9	18.9	18.9	18.9	*Not Exceptional except in grove*	*yes*	-	

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
303	*Populus trichocarpa*	Black cottonwood	18.0		Good	Unkown	16.8	16.8	16.8	16.8	*Not Exceptional except in grove*	*yes*	-	
304	*Populus trichocarpa*	Black cottonwood	16.0		Good	Unkown	14.7	14.7	14.7	14.7	*Not Exceptional except in grove*	*yes*	-	
305	*Populus trichocarpa*	Black cottonwood	24.0		Good	Unkown	17.0	17.0	17.0	17.0	*Not Exceptional except in grove*	*yes*	-	
306	*Populus trichocarpa*	Black cottonwood	14.0		Good	Unkown	20.6	20.6	20.6	20.6	*Not Exceptional except in grove*		-	
307	*Populus trichocarpa*	Black cottonwood	14.0		Good	Unkown	24.6	24.6	24.6	24.6	*Not Exceptional except in grove*	*yes*	-	
308	*Populus trichocarpa*	Black cottonwood	14.0		Good	Unkown	40.6	40.6	40.6	40.6	*Not Exceptional except in grove*	*yes*	-	
309	*Populus trichocarpa*	Black cottonwood	14.0		Good	Unkown	30.6	30.6	30.6	30.6	*Not Exceptional except in grove*	*yes*	-	
310	*Populus trichocarpa*	Black cottonwood	10.0		Fair	Unkown	10.4	10.4	10.4	10.4	*Not Exceptional except in grove*		-	Living snag, live canopy all epicormic regrowth
311	*Malus domestica*	Apple	8.3		Good	Fair	9.8	9.8	9.8	9.8	*20.0*		-	
312	*Liquidambar styraciflua*	American sweetgum	24.0		Good	Unkown	26.0	26.0	26.0	26.0	*27.0*		-	Growing in center of hazelnut, possibly topped for utilty line clearance. heavy ivy
313	*Corylus cornuta*	Beaked hazelnut	13.2	7,6,4,4,3,7	Good	Unkown	25.6	25.6	25.6	25.6	*0.0*	yes	Exceptional	Surrounds sweetgum

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
314	*Liquidambar styraciflua*	American sweetgum	24.0		Good	Unkown	26.0	26.0	26.0	26.0	*27.0*		-	DSH estimated due to access restrictions, obscured by ivy
583	*Chamaecyparis lawsoniana*	Lawson cypress	9.0		Good	Good	12.4	12.4	12.4	12.4	*30.0*		-	
584	*Chamaecyparis lawsoniana*	Lawson cypress	12.0		Good	Good	8.5	8.5	8.5	8.5	*30.0*		-	Not tagged
585	*Salix alba*	White willow	21.0	12,10,14	Fair	Fair	30.9	30.9	30.9	30.9	*22.7*		-	Phototropic lean to east, clearance pruning likely required, one large scaffold at 25', 19" diameter, not tagged
586	*Crataegus monogyna*	Common hawthorn	7.7	5,4,3,3	Good	Fair	8.3	8.3	8.3	8.3	*16.2*		-	Base obstructed by fence, 6' overhang, not tagged
587	*Prunus emarginata var. mollis*	Bitter cherry	9.0		Good	Good	10.4	10.4	10.4	10.4	*Not Exceptional except in grove*		-	19' overhang, growing into fence, not tagged
588	*Crataegus monogyna*	Common hawthorn	6.0		Good	Good	5.3	5.3	5.3	5.3	*16.2*		-	Not tagged
589	*Salix alba*	White willow	29.9	11,14,24	Good	Fair to Poor	31.2	31.2	31.2	31.2	*22.7*		Exceptional	30' overhang, very large, two central stems laying on ground, broken through fence, not tagged
590	*Populus trichocarpa*	Black cottonwood	24.0		Good	Poor	11.0	11.0	11.0	11.0	*Not Exceptional except in grove*		-	obscured by ivy, 10' overhang. topped, sprouts, DSH estimated due to access restrictions, not tagged
591	*Salix alba*	White willow	48.0		Fair	Fair	17.0	17.0	17.0	17.0	*22.7*		Exceptional	DSH estimated due to access retrictions, 15' off fence to west, much deadwood, not tagged
592	*Salix babylonica 'Pendula'*	Weeping willow	48.0		Fair	Fair	14.0	14.0	14.0	14.0	*24.0*		Exceptional	Pruned at property line, overhanging canopy completely epicormic, from 12", not tagged
593	*Populus trichocarpa*	Black cottonwood	10.0		Good	Good	10.4	10.4	10.4	10.4	*Not Exceptional except in grove*		-	Not tagged

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
594	*Acer macrophyllum*	Bigleaf maple	15.6	10,12	Fair	Fair	22.7	22.7	22.7	22.7	*30.0*		-	Codominant at base, some small deadwood, overhanging canopy overhangs fence by 18', not tagged
595	*Acer macrophyllum*	Bigleaf maple	9.0		Good	Good	15.4	15.4	15.4	15.4	*30.0*		-	5' overhang, not tagged
596	*Robinia pseudoacacia*	Black locust	28.4	12,16,12,8, 14	Good	Good	26.2	26.2	26.2	26.2	*30.0*		-	12' east of fence, 25' overhang, phototropic lean to southwest, not tagged
597	*Prunus emarginata var. mollis*	Bitter cherry	9.8	4,9	Good	Good	10.4	10.4	10.4	10.4	*Not Exceptional except in grove*		-	Not tagged
598	*Populus trichocarpa*	Black cottonwood	16.0		Good	Fair	20.7	20.7	20.7	20.7	*Not Exceptional except in grove*		-	Suckers growing from base through fence, base obscured by heavy blackberry, not tagged
599	*Populus trichocarpa*	Black cottonwood	18.0		Good	Fair	20.8	20.8	20.8	20.8	*Not Exceptional except in grove*		-	Enveloping fence, asphalt conflicts, not tagged
600	*Populus trichocarpa*	Black cottonwood	16.0		Good	Fair	22.7	22.7	22.7	22.7	*Not Exceptional except in grove*		-	20' overhang, significant incrastructure conflicts, growing into fence
601	*Chamaecyparis pisifera*	Sawara cypress	9.8		Good	Good	3.4	6.4	9.4	3.4	*29.9*		-	
602	*Cedrus deodara*	Deodar cedar	36.1	26,25	Fair	Fair	31.5	31.5	31.5	31.5	*30.0*	yes	Exceptional	Codominant at base, western stem snagged, large crack on south side of south stem s stem, overhangs fence by 20'
603	*Cupressus nootkatensis*	Alaskan Yellow Cedar	8.0		Good	Good	8.3	8.3	8.3	8.3	*13.0*		-	DSH estimated due to access restrictions, not tagged
604	*Malus domestica*	Apple	12.5	9.8,7.8	Good	Fair	14.5	14.5	14.5	14.5	*20.0*		-	Very old tree, form consistent with age
605	*Prunus domestica*	Italian plum	11.3	9.4,6.2	Good	Fair	6.5	6.5	6.5	2.5	*22.9*		-	Very old tree, shared base with tree 606

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
606	*Pseudotsuga menziesii*	Douglas-fir	21.3		Good	Good	15.9	12.9	17.9	20.9	*30.0*	yes	-	Corrected lean, growing below base of plum
607	*Pseudotsuga menziesii*	Douglas-fir	28.6		Good	Good	26.2	19.2	21.2	19.2	*30.0*	yes	-	Ivy at base and growing up trunk
608	*Prunus domestica*	Italian plum	6.5		Good	Fair	8.3	12.3	0.3	0.3	*22.9*		-	Ivy at base, corrected lean
609	*Pseudotsuga menziesii*	Douglas-fir	26.2		Good	Good	17.1	21.1	18.1	20.1	*30.0*	yes	-	Ivy at base, growing up trunk
610	*Malus domestica*	Apple	10.2		Fair	Fair	6.4	9.4	9.4	8.4	*20.0*		-	Corrected lean
611	*Malus domestica*	Apple	12.0	7.5,9.4	Good	Good	10.5	0.5	0.5	0.5	*20.0*	yes	-	Old tree form consistent with age
612	*Cryptomeria japonica*	Japanese cedar	18.4	13,13	Good	Good	24.8	24.8	24.8	24.8	*27.5*	yes	-	Phototropic to north, codominant at base, ivy
613	*Pseudotsuga menziesii*	Douglas-fir	42.0		Good	Poor	29.8	26.8	21.8	25.8	*30.0*	yes	Exceptional	Dead top, cutting branches, dead bark on east side of trunk, heavy ivy
614	*Pseudotsuga menziesii*	Douglas-fir	27.0		Fair	Fair	17.1	17.1	17.1	17.1	*30.0*	yes	-	Obscured by ivy
615	*Cedrus deodara*	Deodar cedar	25.0		Poor	Fair	19.0	19.0	19.0	19.0	*30.0*	yes	-	Few live branches, assymetric canopy
616	*Populus trichocarpa*	Black cottonwood	17.0		Fair	Fair	30.7	30.7	30.7	30.7	*Not Exceptional except in grove*	*yes*	-	Heavy ivy, significant lean, DSH estimated due to access restrictions, overgrown slope
617	*Populus trichocarpa*	Black cottonwood	15.5		Fair	Fair	22.6	22.6	22.6	22.6	*Not Exceptional except in grove*	*yes*	-	Debris at base, obscured by ivy, phototropic lean
618	*Populus trichocarpa*	Black cottonwood	27.0		Fair	Fair	25.1	25.1	25.1	25.1	*Not Exceptional except in grove*	*yes*	-	Gandoderma conks at base, young conks (1-2 years old),canopy phototropic to south southeast
619	*Populus trichocarpa*	Black cottonwood	19.8	13,15	Fair	Fair	16.8	16.8	16.8	16.8	*Not Exceptional except in grove*	*yes*	-	Codominant at 3.5', narrow union, obscured by heavy ivy

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
620	*Populus trichocarpa*	Black cottonwood	13.0		Fair	Fair	14.5	14.5	14.5	14.5	*Not Exceptional except in grove*	*yes*	-	Heavy ivy, structure obscured
621	*Populus trichocarpa*	Black cottonwood	16.0		Fair	Fair	17.7	17.7	17.7	17.7	*Not Exceptional except in grove*	*yes*	-	Heavy ivy, structure obscured. small diameter deadwood throughout canopy, not tagged due to access resctrictions
622	*Populus trichocarpa*	Black cottonwood	17.0		Fair	Fair	12.7	12.7	12.7	12.7	*Not Exceptional except in grove*	*yes*	-	Heavy ivy, structure obscured
623	*Populus trichocarpa*	Black cottonwood	12.0	8,9	Fair	Fair	16.5	16.5	16.5	16.5	*Not Exceptional except in grove*	*yes*	-	Codominant at base
624	*Populus trichocarpa*	Black cottonwood	13.0		Fair	Fair	18.5	18.5	18.5	18.5	*Not Exceptional except in grove*	*yes*	-	Heavy ivy
625	*Crataegus monogyna*	Common hawthorn	13.0	7,11	Fair	Fair	15.5	15.5	15.5	15.5	*16.2*	*yes*	-	Codominant at base
626	*Acer macrophyllum*	Bigleaf maple	20.3		Fair	Fair	22.8	22.8	22.8	22.8	*30.0*	*yes*	-	Swept base
627	*Alnus rubra*	Red alder	8.0		Fair	Fair	11.3	11.3	11.3	11.3	*Not Exceptional unless in grove*		-	
628	*Alnus rubra*	Red alder	8.0		Fair	Unkown	8.3	8.3	8.3	8.3	*Not Exceptional unless in grove*		-	Lean to south, heavy ivy
629	*Populus trichocarpa*	Black cottonwood	16.0		Fair	Fair	12.7	12.7	12.7	12.7	*Not Exceptional except in grove*	*yes*	-	Phototropic lean to east

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
630	*Populus trichocarpa*	Black cottonwood	15.0		Fair	Unkown	14.6	14.6	14.6	14.6	*Not Exceptional except in grove*	*yes*	-	Phototropic lean to east south eas, heavy ivy, base obscured
631	*Populus trichocarpa*	Black cottonwood	21.0		Fair	Unkown	20.9	20.9	20.9	20.9	*Not Exceptional except in grove*	*yes*	-	Phototropic lean to west toward school. Signifcan recent disturbance at base, many root conflicts with asphalt, heavy ivy
632	*Populus trichocarpa*	Black cottonwood	20.0		Fair	Unkown	14.8	14.8	14.8	14.8	*Not Exceptional except in grove*	*yes*	-	Heavy ivy
633	*Alnus rubra*	Red alder	12.0		Fair	Fair	9.5	9.5	9.5	9.5	*Not Exceptional unless in grove*	*yes*	-	Corrected lean, phototropic lean to west
634	*Alnus rubra*	Red alder	9.8		Fair	Fair	8.4	8.4	8.4	8.4	*Not Exceptional unless in grove*		-	Base obscured
635	*Populus trichocarpa*	Black cottonwood	20.5	14,15	Fair	Fair	20.9	20.9	20.9	20.9	*Not Exceptional except in grove*	*yes*	-	Codominant at base with narrow union, heavy ivy, debris at base upslope of trunk
636	*Alnus rubra*	Red alder	14.0		Fair	Fair	8.6	8.6	8.6	8.6	*Not Exceptional unless in grove*	*yes*	-	Suppressed, very low live crown ratio, heavy ivy
637	*Populus trichocarpa*	Black cottonwood	17.0		Fair	Fair	16.7	16.7	16.7	16.7	*Not Exceptional except in grove*	*yes*	-	DSH estimated, not tagged due to access
638	*Alnus rubra*	Red alder	10.0		Fair	Fair	14.4	14.4	14.4	14.4	*Not Exceptional unless in grove*		-	DSH estimated, not tagged due to access

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
639	*Populus trichocarpa*	Black cottonwood	13.7		Fair	Fair	20.6	20.6	20.6	20.6	*Not Exceptional except in grove*	*yes*	-	Recent disturbance at base
640	*Populus trichocarpa*	Black cottonwood	22.0		Fair	Fair	16.9	16.9	16.9	16.9	*Not Exceptional except in grove*	*yes*	-	Phototropic lean to south southeast, heavy ivy
641	*Populus trichocarpa*	Black cottonwood	19.0		Fair	Fair	14.8	14.8	14.8	14.8	*Not Exceptional except in grove*	*yes*	-	Heavy ivy
642	*Populus trichocarpa*	Black cottonwood	14.0		Fair	Fair	13.6	13.6	13.6	13.6	*Not Exceptional except in grove*	*yes*	-	Lost codominant stem at base, decay at base
643	*Alnus rubra*	Red alder	13.0		Fair	Unkown	16.5	16.5	16.5	16.5	*Not Exceptional unless in grove*	*yes*	-	Phototropic lean to west, heavy ivy, structure obscured
644	*Populus trichocarpa*	Black cottonwood	25.0		Fair	Fair	24.0	24.0	24.0	24.0	*Not Exceptional except in grove*	*yes*	-	Heavy ivy, phototropic canopy to north northeast
645	*Alnus rubra*	Red alder	8.0		Fair	Unkown	12.3	12.3	12.3	12.3	*Not Exceptional unless in grove*		-	Covered with ivy, structure obscured
646	*Alnus rubra*	Red alder	10.8	10,4	Fair	Unkown	15.4	15.4	15.4	15.4	*Not Exceptional unless in grove*		-	Heavy ivy, structure obscured, not on survey
647	*Alnus rubra*	Red alder	24.1	16,15,10	Fair	Unkown	21.0	21.0	21.0	21.0	*Not Exceptional unless in grove*		-	Heavy ivy, structure obscured, not on survey. Significant pile of landscape debris at base, likely due to dumping from adjacent property

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
648	*Alnus rubra*	Red alder	10.0		Poor	Poor	10.4	10.4	10.4	10.4	*Not Exceptional unless in grove*		-	Topped, heavy ivy obscured, recent failure adjacent
649	*Populus trichocarpa*	Black cottonwood	32.8	20,26			31.4	31.4	31.4	31.4	*Not Exceptional except in grove*		-	Codominant at base, heavy ivy
650	*Alnus rubra*	Red alder	12.0		Poor	Poor	12.5	12.5	12.5	12.5	dead top at 20'		-	
651	*Alnus rubra*	Red alder	6.0		Poor	Poor	10.3	10.3	10.3	10.3	*Not Exceptional unless in grove*		-	DSH estimated due to access restrictions, heavy ivy, not on survey
652	*Alnus rubra*	Red alder	7.0		Poor	Poor	10.3	10.3	10.3	10.3	*Not Exceptional unless in grove*		-	DSH estimated due to access restrictions, heavy ivy, not on survey
653	*Alnus rubra*	Red alder	6.0		Poor	Poor	10.3	10.3	10.3	10.3	*Not Exceptional unless in grove*		-	DSH estimated due to access restrictions, heavy ivy, not on survey
654	*Alnus rubra*	Red alder	6.0		Poor	Poor	10.3	10.3	10.3	10.3	*Not Exceptional unless in grove*		-	DSH estimated due to access restrictions, heavy ivy, not on survey
655	*Alnus rubra*	Red alder	6.5		Fair	Poor	9.3	9.3	9.3	9.3	*Not Exceptional unless in grove*		-	Not tagged, DSH estimated due to access restrictions, heavy ivy, not on survey
656	*Alnus rubra*	Red alder	10.0		Fair	Fair	14.4	14.4	14.4	14.4	*Not Exceptional unless in grove*		-	Heavy ivy
657	*Populus trichocarpa*	Black cottonwood	14.0		Fair	Fair	14.6	14.6	14.6	14.6	*Not Exceptional except in grove*		-	Heavy ivy

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
658	*Alnus rubra*	Red alder	10.0		Fair	Good	14.4	14.4	14.4	14.4	*Not Exceptional unless in grove*		-	Heavy ivy
659	*Alnus rubra*	Red alder	8.0		Fair	Fair	14.3	14.3	14.3	14.3	*Not Exceptional unless in grove*		-	Heavy ivy
660	*Alnus rubra*	Red alder	8.0		Fair	Fair	14.3	14.3	14.3	14.3	*Not Exceptional unless in grove*		-	Heavy ivy, subdominant, lean to north
661	*Alnus rubra*	Red alder	11.0		Fair	Fair	14.5	14.5	14.5	14.5	*Not Exceptional unless in grove*		-	Structure obscured, ivy into canopy, DSH estimated, not tagged due to access restrictions
662	*Populus trichocarpa*	Black cottonwood	26.0		Good	Good	15.1	15.1	15.1	15.1	*Not Exceptional unless in grove*		-	
663	*Populus trichocarpa*	Black cottonwood	17.0		Good	Fair	14.7	14.7	14.7	14.7	*Not Exceptional unless in grove*	*yes*	-	Heavy ivy, low live crown ratio
664	*Populus trichocarpa*	Black cottonwood	15.5		Fair	Fair	14.6	14.6	14.6	14.6	*Not Exceptional unless in grove*	*yes*	-	Heavy ivy, low live crown ratio
665	*Populus trichocarpa*	Black cottonwood	17.0		Fair	Fair	14.7	14.7	14.7	14.7	*Not Exceptional unless in grove*	*yes*	-	Heavy ivy
666	*Populus trichocarpa*	Black cottonwood	23.6	19,14	Fair	Fair	15.0	15.0	15.0	15.0	*Not Exceptional unless in grove*	*yes*	-	Codominant at base, DSH estimated due to access restrcitions

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
667	*Populus trichocarpa*	Black cottonwood	19.0		Fair	Fair	14.8	14.8	14.8	14.8	*Not Exceptional unless in grove*	*yes*	-	Phototropic canopy to west, DSH estimated due to access restrictions
668	*Populus trichocarpa*	Black cottonwood	18.0		Fair	Fair	14.8	14.8	14.8	14.8	*Not Exceptional unless in grove*	*yes*	-	
669	*Populus trichocarpa*	Black cottonwood	19.0		Fair	Poor	14.8	14.8	14.8	14.8	*Not Exceptional unless in grove*	*yes*	-	
670	*Populus trichocarpa*	Black cottonwood	18.7	13,12,6	Fair	Fair	14.8	14.8	14.8	14.8	*Not Exceptional unless in grove*	*yes*	-	Cluster of trunks, strucutre obscured, access difficult, lean to northwest, asymmetric canopy
671	*Populus trichocarpa*	Black cottonwood	18.0		Good	Fair	14.8	14.8	14.8	14.8	*Not Exceptional unless in grove*	*yes*	-	Significant lean to west
672	*Populus trichocarpa*	Black cottonwood	20.0		Good	Fair	14.8	14.8	14.8	14.8	*Not Exceptional unless in grove*	*yes*	-	Heavy ivy
673	*Populus trichocarpa*	Black cottonwood	24.8	19,16	Fair	Fair	15.0	15.0	15.0	15.0	*Not Exceptional unless in grove*	*yes*	-	Codominant at 4', included bark at union
674	*Quercus robur*	English oak	14.8		Good	Good	14.6	14.6	14.6	14.6	30.0	*yes*	-	Top of slope, ivy
675	*Populus trichocarpa*	Black cottonwood	14.0		Fair	Good	14.6	14.6	14.6	14.6	*Not Exceptional except in grove*	*yes*	-	Heavy ivy
676	*Corylus cornuta*	Beaked hazelnut	8.5	3,3,3,3,3,3,3	Fair	Fair	14.4	14.4	14.4	14.4	30.0		-	Old, declining

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
677	*Populus trichocarpa*	Black cottonwood	7.0		Good	Good	14.3	14.3	14.3	14.3	*Not Exceptional except in grove*		-	Asymmetric canopy, phototropic lean to west
678	*Populus trichocarpa*	Black cottonwood	18.0		Good	Fair	14.8	14.8	14.8	14.8	*Not Exceptional except in grove*	*yes*	-	Asymmetric canopy, phototropic lean to west
679	*Populus trichocarpa*	Black cottonwood	17.7	17,5	Fair	Fair	14.7	14.7	14.7	14.7	*Not Exceptional except in grove*	*yes*	-	Asymmetric canopy, phototropic lean to west
680	*Corylus cornuta*	Beaked hazelnut	10.9	4,4,3.5,3.5,3,3	Good	Good	14.5	14.5	14.5	14.5	30.0		-	
681	*Liquidambar styraciflua*	American sweetgum	17.0		Fair too Poor	Fair to Poor	14.7	14.7	14.7	14.7	27.0	yes	-	Several cavities, previously lost top, dieback through out canopy
682	*Populus trichocarpa*	Black cottonwood	6.0		Good	Fair	14.3	14.3	14.3	14.3	*Not Exceptional except in grove*		-	Previously topped, growing against shed
683	*Juglans regia*	English walnut	10.0		Fair	Fair	17.4	17.4	17.4	17.4	28.8		-	Very little response growth on old pruning
684	*Liquidambar styraciflua*	American sweetgum	9.3		Fair	Fair	12.4	12.4	12.4	12.4	27.0		-	Some deadwood in canopy
685	*Liquidambar styraciflua*	American sweetgum	22.5		Fair	Fair	35.9	35.9	35.9	35.9	27.0	yes	-	Few old tear outs and large limb failures
686	*Alnus rubra*	Red alder	15.6	12,10	Fair	Fair to Poor	18.7	18.7	18.7	18.7	*Not Exceptional except in grove*	yes	-	Tridominant at base, one stem dead, lots of wisteria in canopy.
687	*Populus trichocarpa*	Black cottonwood	36.0		Good	Good	38.5	38.5	38.5	38.5	*Not Exceptional except in grove*	yes	-	Phototropic lean west, heavy ivy

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
688	*Populus trichocarpa*	Black cottonwood	17.8	14,11	Fair	Fair to Poor	35.7	35.7	35.7	35.7	*Not Exceptional except in grove*	yes	-	Phototropic lean west, heavy ivy
689	*Populus trichocarpa*	Black cottonwood	18.0		Fair	Fair	27.8	27.8	27.8	27.8	*Not Exceptional except in grove*	yes	-	Heavy ivy, corrected lean
690	*Populus trichocarpa*	Black cottonwood	22.0		Good	Good	32.9	32.9	32.9	32.9	*Not Exceptional except in grove*	yes	-	Heavy ivy, phototropic lean
691	*Populus trichocarpa*	Black cottonwood	7.0		Fair	Good	16.3	16.3	16.3	16.3	*Not Exceptional except in grove*		-	Phototropic lean to west, heavy ivy
692	*Populus trichocarpa*	Black cottonwood	12.0	8,9	Fair	Fair	18.5	18.5	18.5	18.5	*Not Exceptional except in grove*	*yes*	-	Phototropic lean to west
693	*Populus trichocarpa*	Black cottonwood	14.0		Good	Fair	18.6	18.6	18.6	18.6	*Not Exceptional except in grove*	*yes*	-	Phototropic lean to west
694	*Populus trichocarpa*	Black cottonwood	17.0		Fair	Fair	16.7	16.7	16.7	16.7	*Not Exceptional except in grove*	yes	-	Heavy ivy
695	*Populus trichocarpa*	Black cottonwood	21.0		Fair	Fair	16.9	16.9	16.9	16.9	*Not Exceptional except in grove*	yes	-	Heavy ivy
696	*Populus trichocarpa*	Black cottonwood	17.0		Fair	Fair	12.7	12.7	12.7	12.7	*Not Exceptional except in grove*	yes	-	Heavy ivy, low live crown ratio

Table of Trees

John Rogers Elementary
4030 NE 109th St, Seattle

Arborist: GW, HI, AS
Date of Inventory: 11/02/2021 and 2/09/2022
Table Prepared: 4/18/2022

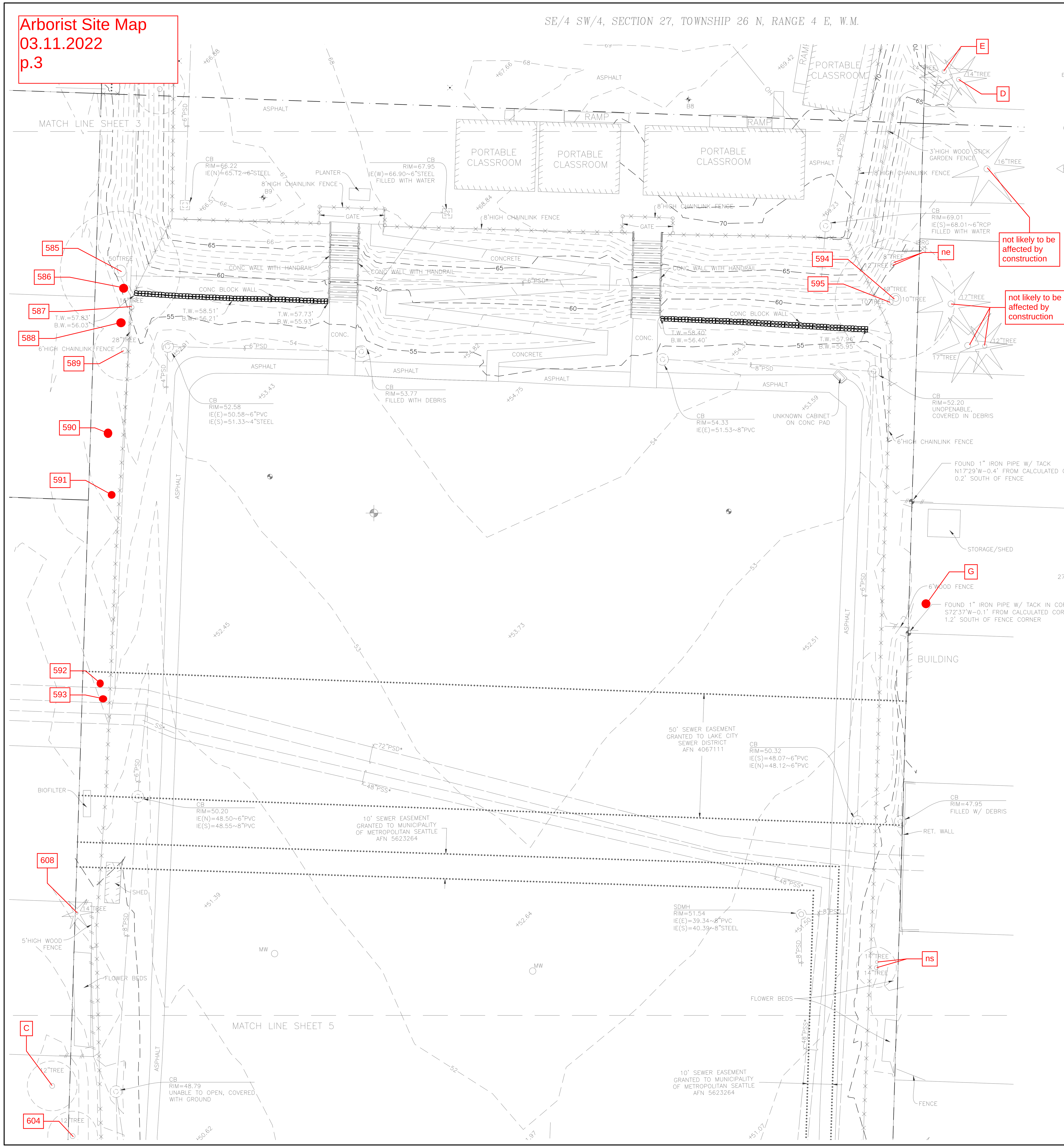
Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Part of Exceptional grove?	Exceptional by Size	Notes
697	*Alnus rubra*	Red alder	12.0		Poor	Fair	10.5	10.5	10.5	10.5	*Not Exceptional except in grove*	yes	-	Large buttress roots
698	*Populus trichocarpa*	Black cottonwood	16.0		Fair	Fair	16.7	16.7	16.7	16.7	*Not Exceptional except in grove*	yes	-	In decline
699	*Populus trichocarpa*	Black cottonwood	36.0		Good	Good	25.5	25.5	25.5	25.5	*Not Exceptional except in grove*	yes	-	Heavy ivy
700	*Alnus rubra*	Red alder	20.1	8,4,15,8,6	Good	Fair	22.8	22.8	22.8	22.8	*Not Exceptional except in grove*	yes	-	Cluster sharing root zone, heavy ivy
A	*Chamaecyparis lawsoniana*	Lawson cypress	17.0	8,8,7,7,8	Good	Good	10.7	10.7	10.7	10.7	*30.0*		-	
B	*Chamaecyparis lawsoniana*	Lawson cypress	11.0		Good	Good	12.5	12.5	12.5	12.5	*30.0*		-	
C	*Malus domestica*	Apple	14.0		Good	Fair	17.6	17.6	17.6	17.6	*20.0*		-	
D	*Crataegus monogyna*	Common hawthorn	7.9	3,3,3.5,4,4	Fair	Fair	8.3	8.3	8.3	8.3	*16.2*		-	Heavy ivy
E	*Crataegus monogyna*	Common hawthorn	16.4	10,13	Fair	Fair	18.7	0.7	0.7	0.7	*16.2*		Exceptional	Heavy ivy, decay at base
F	*Populus alba c. nivea*	White poplar	7.0	6,2,3	Good	Good	12.3	12.3	12.3	12.3	*26.8*		-	Codominant at base
G	*Malus domestica*	Apple	15.6	10,12			20.7	20.7	20.7	20.7	*20.0*		-	Suported by fence, 12' overhang, not tagged


Arborist Site Map
03.11.2022
p.1
SE/4 SW/4, SECTION 27, TOWNSHIP 26 N, RANGE 4 E, W.M.
Tree Solutions
Tree Inventory
Arborists: HI, GW, AS
This map documents the visits by GW, HI, and AS of Tree Solutions Inc. to the above site on 11/2/2021 and 2/9/2022 to 4030 NE 109th St. On-site trees were tagged and assigned a numerical identifier. Some on-site trees were not tagged due to access restrictions. Off-site trees were assigned an alphabetical identifier. Off site trees were not tagged. The approximate location of significant trees not found on the provided survey are indicated with red circles. Trees listed on the provided survey that could not be located are labeled "ne" for non-existent. Trees listed on the provided survey that were less than 6" in DSH are labeled "ns" for not significant.
ne: non-existent
ns: not significant (tree less than 6" DSH)
LEGEND
CONIFER TREE
DECIDUOUS TREE
TELEPHONE/COMM. MANHOLE
ELECTRIC HANDHOLE
POWER VAULT
POWER MANHOLE
POWER POLE
GUIDE POLE
POWER POLE WITH LIGHT
LUMINAIRE
GUY
TRAFFIC SIGNAL VAULT
TRAFFIC SIGNAL POLE
TRAFFIC SIGNAL CONTROL CABINET
TRAFFIC SIGNAL HANDHOLE
PEDESTRIAN SIGNAL PUSH BUTTON
PEDESTRIAN CROSSING SIGNAL
STORM DRAIN MANHOLE
CATCH BASIN
INLET
WATER VAULT
FIRE HYDRANT
WATER VALVE
WATER METER
FIRE DEPARTMENT CONNECTION
GAS VALVE
SANITARY SEWER MANHOLE
SANITARY SEWER CLEAN OUT
BOLLARD
SIGN
FOUND MONUMENT IN CASE
REBAR SURVEY CONTROL POINT/SET CORNER
MAG NAIL AND WASHER SURVEY MARK
BUILDING LINE
BUILDING EAVE
WOOD FENCE
CHAINLINK FENCE
HANDRAIL
EDGE OF GRAVEL
UNDERGROUND POWER LINE
OVERHEAD POWER LINE
GAS LINE
STORM DRAIN LINE
STORM DRAIN LINE FROM CITY RECORDS
SANITARY SEWER LINE
SANITARY SEWER LINE FROM CITY RECORDS
WATER LINE
UNDERGROUND COMMUNICATIONS LINE
OVERHEAD COMMUNICATIONS LINE
FIBER OPTICS LINE
OVERHEAD TROLLEYBUS WIRES
BOUNDARY OF SURVEYED
PROPERTY
LOT LINE
RIGHT-OF-WAY CENTERLINE
CONCRETE BLOCK WALL
UTILITY NOTES:
1. THE UTILITIES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS OF SURFACE FEATURES, RECORD UTILITY MAPS/CITY GIS AND BY PAINT MARKS SET BY A UTILITY LOCATING COMPANY. FIELD LOCATIONS MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.
2. ALL UTILITIES MAY NOT BE SHOWN AND ACTUAL LOCATIONS MAY VARY.
NE 110TH STREET
NE 109TH STREET
ns-flowering plums
SCALE IN FEET
CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555
NOTE: IF "L" DOES NOT MEASURE 1" ADJUST SCALES ACCORDINGLY.
MATCH LINE SHEET 3
ReidMiddleton
728 134th Street SW · Suite 200
Everett, Washington 98204
Ph: 425 741-3800
TOPOGRAPHIC SURVEY
SEATTLE SCHOOL DISTRICT
JOHN ROGERS ELEMENTARY SCHOOL
CITY OF SEATTLE, KING COUNTY, WA
1"=20'
2
222021.005

Arborist Site Map
03.11.2022
p.2
SE/4 SW/4, SECTION 27, TOWNSHIP 26 N, RANGE 4 E, W.M.
MATCH LINE SHEET 2
MATCH LINE SHEET 4
JOHN ROGERS ELEMENTARY SCHOOL
PORTABLE CLASSROOM
BUILDING
shrubs:arbutus and camelia
HAZARD large hung-up top targeting parking lot
unlikely to be affected by construction
dead
ns
ne
FOUND 5/8" REBAR & CAP "LS 30581" N85°38'W-0.1' FROM CALCULATED CORNER 0.6' WEST OF FENCE
8' SEWER EASEMENT GRANTED TO LAKE CITY SEWER DISTRICT AFN 4255517
4' SEWER EASEMENT GRANTED TO LAKE CITY SEWER DISTRICT AFN 4255517
LEGEND
CONIFER TREE
DECIDUOUS TREE
TELEPHONE/COMM. MANHOLE
ELECTRIC HANDHOLE
POWER VAULT
POWER MANHOLE
POWER POLE
GUIDE POLE
POWER POLE WITH LIGHT
LUMINAIRE
GUY
TRAFFIC SIGNAL VAULT
TRAFFIC SIGNAL POLE
TRAFFIC SIGNAL CONTROL CABINET
TRAFFIC SIGNAL HANDHOLE
PEDESTRIAN SIGNAL PUSH BUTTON
PEDESTRIAN CROSSING SIGNAL
STORM DRAIN MANHOLE
CATCH BASIN
INLET
WATER VAULT
FIRE HYDRANT
WATER VALVE
WATER METER
FIRE DEPARTMENT CONNECTION
GAS VALVE
SANITARY SEWER MANHOLE
SANITARY SEWER CLEAN OUT
BOLLARD
SIGN
FOUND MONUMENT IN CASE
REBAR SURVEY CONTROL POINT/SET CORNER
MAG NAIL AND WASHER SURVEY MARK
BUILDING LINE
BUILDING EAVE
WOOD FENCE
CHAINLINK FENCE
HANDRAIL
EDGE OF GRAVEL
UNDERGROUND POWER LINE
OVERHEAD POWER LINE
GAS LINE
STORM DRAIN LINE
STORM DRAIN LINE FROM CITY RECORDS
SANITARY SEWER LINE
SANITARY SEWER LINE FROM CITY RECORDS
WATER LINE
UNDERGROUND COMMUNICATIONS LINE
OVERHEAD COMMUNICATIONS LINE
FIBER OPTICS LINE
OVERHEAD TROLLEYBUS WIRES
BOUNDARY OF SURVEYED PROPERTY
LOT LINE
RIGHT-OF-WAY CENTERLINE
CONCRETE BLOCK WALL
UTILITY NOTES:
1. THE UTILITIES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS OF SURFACE FEATURES, RECORD UTILITY MAPS/CITY GIS AND BY PAINT MARKS SET BY A UTILITY LOCATING COMPANY. FIELD LOCATIONS MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.
2. ALL UTILITIES MAY NOT BE SHOWN AND ACTUAL LOCATIONS MAY VARY.
SCALE IN FEET
CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555
NOTE: IF "L" DOES NOT MEASURE 1" ADJUST SCALES ACCORDINGLY.
728 134th Street SW · Suite 200
Everett, Washington 98204
Ph: 425 741-3800
ReidMiddleton
TOPOGRAPHIC SURVEY
SEATTLE SCHOOL DISTRICT
JOHN ROGERS ELEMENTARY SCHOOL
CITY OF SEATTLE, KING COUNTY, WA
SCALE 1"=20'
SHEET NO. 3
OF 5 SHEETS

Arborist Site Map
03.11.2022
p.3

SE/4 SW/4, SECTION 27, TOWNSHIP 26 N, RANGE 4 E, W.M.



LEGEND

	CONIFER TREE		BUILDING LINE
	DECIDUOUS TREE		BUILDING EAVE
	TELEPHONE/COMM. MANHOLE		WOOD FENCE
ELEC HH	ELECTRIC HANDHOLE		CHAINLINK FENCE
PVLT	POWER VAULT		HANDRAIL
PMH	POWER MANHOLE		EDGE OF GRAVEL
PP	POWER POLE	UGP	UNDERGROUND POWER LINE
GP	GUIDE POLE	OHP	OVERHEAD POWER LINE
	POWER POLE WITH LIGHT	G	GAS LINE
LUM	LUMINAIRE	PSD	STORM DRAIN LINE
	GUY	PSD	STORM DRAIN LINE FROM CITY RECORDS
TSVT	TRAFFIC SIGNAL VAULT	PSS	SANITARY SEWER LINE
	TRAFFIC SIGNAL POLE	PSS	SANITARY SEWER LINE FROM CITY RECORDS
TS BOX	TRAFFIC SIGNAL CONTROL CABINET	W	WATER LINE
TRHH	TRAFFIC SIGNAL HANDHOLE	C	UNDERGROUND COMMUNICATIONS LINE
	PEDESTRIAN SIGNAL PUSH BUTTON	OHC	OVERHEAD COMMUNICATIONS LINE
	PEDESTRIAN CROSSING SIGNAL	FO	FIBER OPTICS LINE
	STORM DRAIN MANHOLE	OH	OVERHEAD TROLLEYBUS WIRES
	CATCH BASIN		BOUNDARY OF SURVEYED
	INLET		PROPERTY
WVLT	WATER VAULT		LOT LINE
HYD	FIRE HYDRANT		RIGHT-OF-WAY CENTERLINE
WV	WATER VALVE		
	WATER METER		CONCRETE BLOCK WALL
FDC	FIRE DEPARTMENT CONNECTION		
GV	GAS VALVE		
	SANITARY SEWER MANHOLE		
SSCO	SANITARY SEWER CLEAN OUT		
BLRD	BOLLARD		
	SIGN		
	FOUND MONUMENT IN CASE		
	REBAR SURVEY CONTROL POINT/SET CORNER		
	MAG NAIL AND WASHER SURVEY MARK		

UTILITY NOTES:

1. THE UTILITIES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS OF SURFACE FEATURES, RECORD UTILITY MAPS/CITY GIS AND BY PAINT MARKS SET BY A UTILITY LOCATING COMPANY. FIELD LOCATIONS MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.
2. ALL UTILITIES MAY NOT BE SHOWN AND ACTUAL LOCATIONS MAY VARY.

PRELIMINARY

CALL 48 HOURS
BEFORE YOU DIG
1-800-424-5555

NOTE:
IF "L" DOES NOT MEASURE 1"
ADJUST SCALES ACCORDINGLY.

ReidMiddleton
728 134th Street SW · Suite 200
Everett, Washington 98204
Ph: 425 741-3800

TOPOGRAPHIC SURVEY
SEATTLE SCHOOL DISTRICT
JOHN ROGERS ELEMENTARY SCHOOL
CITY OF SEATTLE, KING COUNTY, WA

SCALE 1"=20'
DR. IW
CH. RM
SHEET NO. 4 OF 5 SHEETS
FILE 222021.005

Arborist Site Map
03.11.2022
p.4

Tree Solutions Inc
Consulting Arborists

Project No. TS -8051

Addendum: Arborist Report

To:	Seattle Public Schools c/o Amanda Fulford
Site:	John Rodgers Elementary- 4030 NE 109th St, Seattle, WA
Re:	Tree Inventory
Date:	September 13, 2022
Project Arborist:	Holly Iosso, Registered Consulting Arborist # 567 ISA Certified Arborist #PN-6298A ISA Qualified Tree Risk Assessor
Referenced Documents:	Arborist Report (Tree Solutions Inc. / March 30, 2022) Table of Trees (February 10, 2022) Tree Site Map (March 11, 2022) Tree Protection and Removal Plan (August 08, 2022 and August 16, 2022)

I was recently provided with the 50% design plans for this project, and I am now able to comment on proposed tree retention. In summary, I recommend that in addition to the 31 trees proposed for removal, 7 additional trees be removed due to potential risk. Total tree removals would be 38.

Development Plans – East Slope

On the east portion of the site, 10 cottonwood trees are proposed for removal (298, 299, 616 are in Grove B and 300, 301, 302, 303, 304, 305, 622 are in Grove C). These trees are part of exceptional groves, and therefore are "Exceptional". They grow along the toe of the slope within 5 feet of the current road. Most of them lean out over the access road and have surface roots breaking through the asphalt.

Design plans include demolishing the existing school building, outdoor covered areas, asphalt access road, and parking areas. A new building will be constructed, as will outdoor classroom spaces and play areas east of the new building. This will require removing asphalt, regrading, and excavating which will involve root loss and large root cuts close to trees.

Cottonwood trees, as a species, do not respond well to root cuts. They are not able to compartmentalize the wounds as readily as other species, which can cause long-term root and butt decay and eventually entire tree failure. Even without disturbance, they regularly drop branches, which present a danger to people and high-value targets within the dripline of cottonwood trees.

The school, both indoor and outdoor spaces, is occupied regularly through the year regardless of high winds or winter storms. I consider the school, playgrounds, and courtyards to be a high value target with regards to risk assessment.

I agree that the 10 trees need to be removed. Additionally, 7 more should be removed.

Table 1. Additional Tree Removals

Tree ID	Common Name	Botanical Name	DSH *	Exceptional	Notes
308	Black cottonwood	*Populus trichocarpa*	14	Grove D (Exceptional)	Substantial lean to the south. Uncorrected. Large surface roots through asphalt have visible damage
309	Black cottonwood	*Populus trichocarpa*	14	Grove D (Exceptional)	Substantial lean to the south. Uncorrected. Large surface roots through asphalt have visible damage
310	Black cottonwood	*Populus trichocarpa*	10	--	Living snag at 15 feet with sprouts. Not good retention tree so close to edge of activity.
632	Black cottonwood	*Populus trichocarpa*	20	Grove C (Exceptional)	Within 15 feet of asphalt. Heavy ivy. Anticipate substantial roots impact with demolition and re-grading.
639	Black cottonwood	*Populus trichocarpa*	13	Grove C (Exceptional)	Within 15 feet of root disturbance. Anticipate substantial roots impact with demolition and re-grading.
640	Black cottonwood	*Populus trichocarpa*	22	Grove C (Exceptional)	Substantial lean towards the SW. Within striking range of new access path and outdoor classrooms. Structural roots are within 15 feet of root disturbance. Anticipate substantial roots impact with demolition and re-grading.
650	Black cottonwood	*Populus trichocarpa*	12	--	Poor condition, within 15 feet of root disturbance.

** DSH is Diameter at standard height (inches)*

I also recommend removing any dead or near-dead trees within 15 feet of the asphalt. The safest way to remove these trees is by felling them at the base or reducing them to wildlife snags not taller than 12 feet. These trees should be girdled at the base to prevent re-sprouting.

Exceptional Grove Impacts

I revisited the site on August 15, 2022 to assess tree risk, potential damage to existing and future targets, and the likelihood of tree survival after construction. As part of this process, I took into consideration Seattle Public Schools' past management of the slope as an indicator of the district's resources to be able to activity manage the slope and tree risk in the future. Assuming these plans (or similar) are approved and constructed, it is my professional opinion that all 17 trees will present a high risk using a 10-year timeframe[1].

Regardless of this proposed project and related construction, some of these trees pose a moderate risk currently, and all of the cottonwood trees along the toe of this slope should be monitored for future risk going forward.

I believe that the potential negative impacts these removals would have on adjacent trees within their groves is minimal and would not jeopardize their health.

[1] "High Risk" as defined in the ISA Tree Risk Assessment Qualification method.

Note that Seattle's Director's Rule 16-2008 specifically notes that black cottonwood trees cannot be exceptional on size alone and are only exceptional if they are part of an exceptional grove and not considered high risk.

Recommendations:

- When preparing the Vegetation Management Plan, call out that aerial ivy vines should be removed, or girdled (these can die in place and be left).
- Remove ivy within 4 feet of each trunk as a "ring of life". This will allow the school district to manage the slope for risk in the future and identify and address any issues of concern at the base of trees that are within striking distance of the school.
- Install a thick root or bamboo barrier at the edge of slope (at least 3 feet deep) to minimize the number of new roots growing under the asphalt and sprouting from surface roots.
- Plant native conifers as a replacement for removed trees: specifically western redcedar (thuja plicata) should be planted at and near the toe of the slope, and shore pine (*Pinus contorta*), grand fir (*Abies grandis*) and Douglas-fir (*Pseudotsuga menziesii*) can be planted mid-slope.

Respectfully submitted,

Holly Iosso,
Consulting Arborist

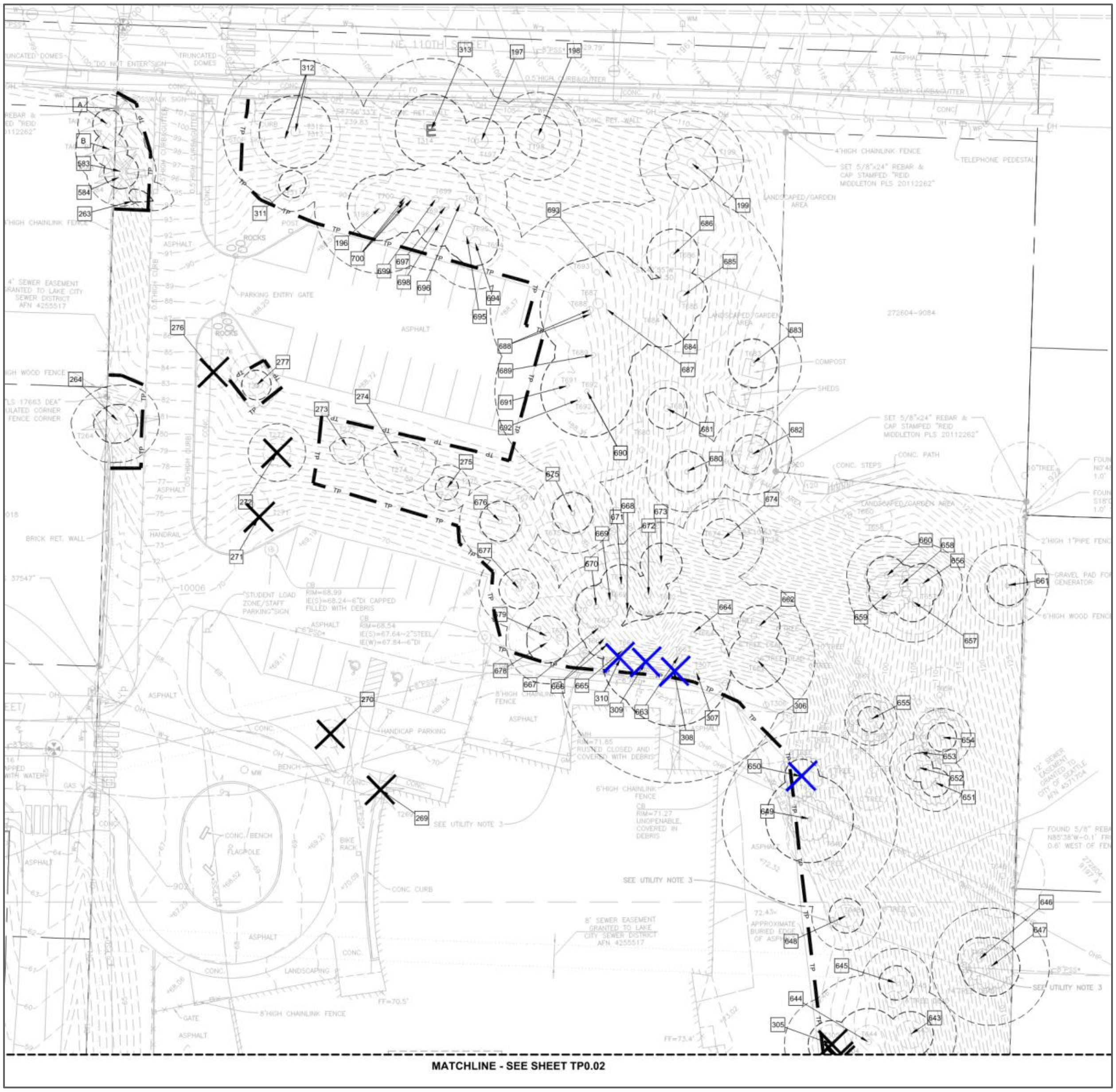


Figure 1. Portion of plan sheet TP 0.01 dated 8.16.2022. Blue 'X' indicates additional recommended removals.

Figure 2. Portion of plan sheet TP 0.02 dated 8.16.2022. Blue 'X' indicates additional recommended removals.

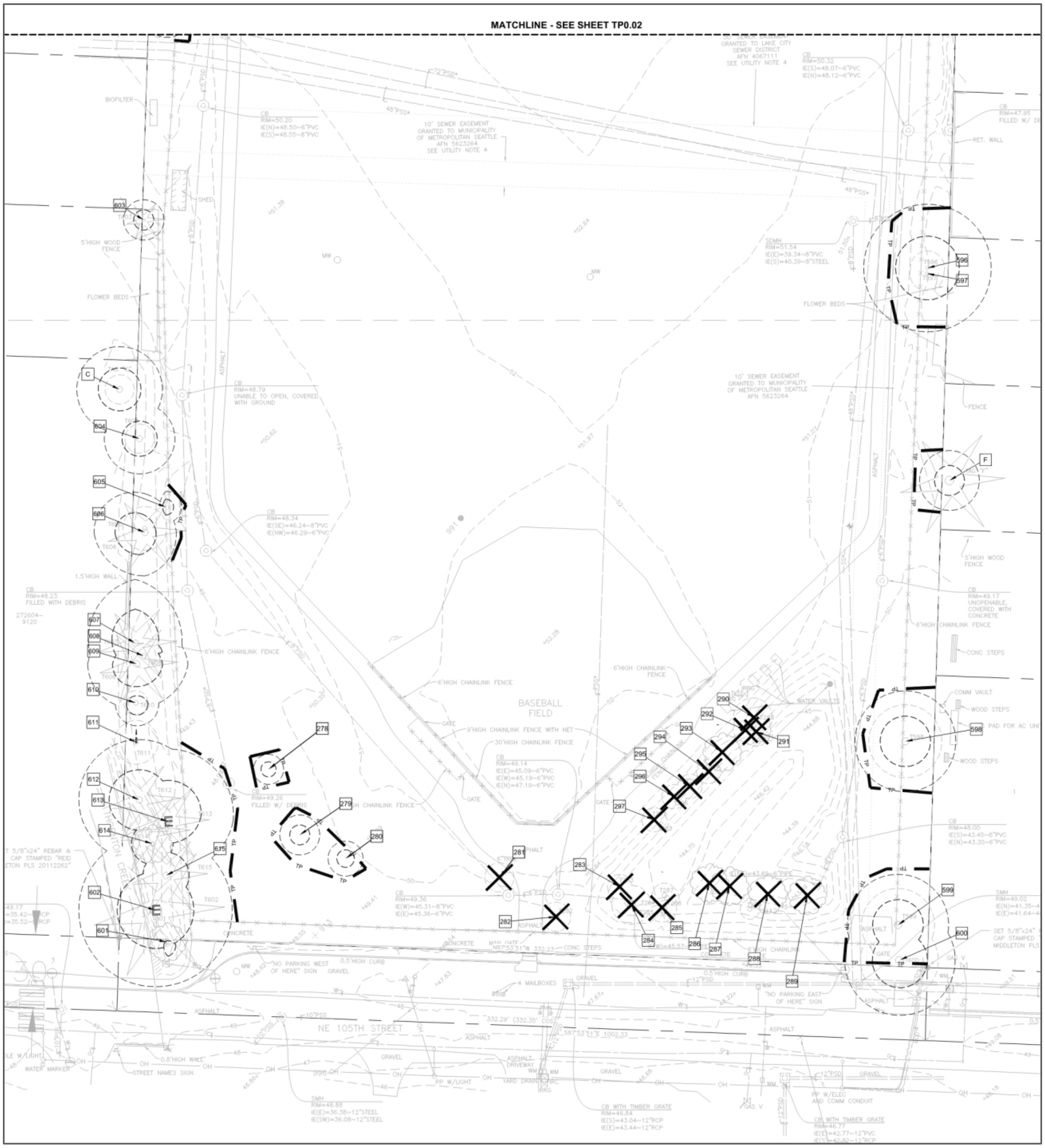


Figure 3. Portion of plan sheet TP 0.03 dated 8.16.2022.

Photo 1. Lean of tree 640 indicated with arrow.

Appendix A **Assumptions & Limiting Conditions**

1 Consultant assumes that the site and its use do not violate, and is in compliance with, all applicable codes, ordinances, statutes, or regulations.

2 The consultant may provide a report or recommendation based on published municipal regulations. The consultant assumes that the municipal regulations published on the date of the report are current municipal regulations and assumes no obligation related to unpublished city regulation information.

3 Any report by the consultant and any values expressed therein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event, or upon any finding to be reported.

4 All photographs included in this report were taken by Tree Solutions, Inc. during the documented site visit, unless otherwise noted. Sketches, drawings, and photographs (included in, and attached to, this report) are intended as visual aids and are not necessarily to scale. They should not be construed as engineering drawings, architectural reports, or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.

5 Unless otherwise agreed, (1) information contained in any report by consultant covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, climbing, or coring.

6 These findings are based on the observations and opinions of the authoring arborist, and do not provide guarantees regarding the future performance, health, vigor, structural stability, or safety of the plants described and assessed.

7 Measurements are subject to typical margins of error, considering the oval or asymmetrical cross-section of most trunks and canopies.

8 Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.

9 Our assessments are made in conformity with acceptable evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

Appendix F

WILDLIFE HABITAT ASSESSMENT REPORT

Raedeke Associates, Inc.

Wetland & Aquatic Sciences
Wildlife Ecology
Landscape Architecture

TECHNICAL MEMORANDUM

October 13, 2022

To:	Jeff Ding EA Engineering, Science, & Technology 2200 Sixth Ave, Suite 707 Seattle, WA 98121
From:	Andrew J. Rossi, B.S. Wildlife Biologist Raedeke Associates, Inc. Will Russack, B.S. Wetland Biologist Raedeke Associates, Inc
RE:	John Rogers Elementary School – Wildlife Habitat Assessment (RAI Project No. 2022-107-001)

This report documents the results of our field investigation at the John Rogers Elementary School playfield in Seattle, Washington. The purpose of this investigation is to evaluate current wildlife use and habitat conditions on and in the immediate vicinity of the project site, particularly as it pertains to a previously observed turtle.

Raedeke Associates, Inc. staff visited the project site and surrounding area on September 6, 2022. During our field investigation, we documented wildlife presence, sign, and habitat, and we also described plant communities. We recorded information regarding reproduction, habitat use, and activities of all wildlife species observed. In addition, we noted special habitat features such as large, downed logs.

STUDY AREA LOCATION

John Rogers Elementary School consists of an approximately 9-acre parcel located at 4030 NE 109th St in the city of Seattle, Washington (Figure 1). The playfield encompasses the southern half of the project parcel. The site is identified as King County Tax Parcel no. 2726049114, which places the project in a portion of Section 27, Township 26 North, Range 4 east, W.M. Parcel maps retrieved online from King County (2022) iMap depict the property boundaries (Figure 2).

The project site is bordered by NE 110th St to the north, NE 105th St to the south, and by single-family neighborhoods to the east and west. Thornton Creek crosses under NE 105th St, approximately 10-15 feet west of the southwest corner of the project site. Meadowbrook Pond is located approximately 300-400 feet west of the project site.

PROJECT DESCRIPTION

The proposed project seeks to replace the current John Rogers Elementary School. The preferred project plan will demolish the current school building in the northern portion of the site and replace it with an 88,000-square-foot multi-story structure. The southern playfield will be updated with a synthetic turf or natural grass field, a paved walking path, a bioretention area, and areas of natural landscaping. As part of the SEPA process, a public comment period was provided. Shortly after the public comment period closed, several comments were received by the project team from concerned members of the public who had observed a turtle laying eggs in the northern portion of the playfield. A few photographs of the turtle accompanied the comment submissions, along with anecdotal evidence of past use of the field by turtles.

REVIEW OF BACKGROUND INFORMATION

WDFW PHS Database

The current Washington Department of Fish and Wildlife (WDFW 2022a) online Priority Habitats and Species (PHS) database map does not identify any priority species or habitats on the project site. There are no entries on the PHS database that indicate the presence of any turtle species on the project site or within 1000 feet.

The PHS map does depict the presence of several salmonids within Thornton Creek including Chinook (*Oncorhynchus tshawytscha*), Sockeye (*O. nerka*), Steelhead (*O. mykiss*), and Coho (*Oncorhynchus kisutch*) salmon, and resident coastal cutthroat trout (*Oncorhyncus clarki*). Freshwater wetland habitat associated with Meadowbrook Pond is identified as a priority habitat, and the presence of Little Brown Bat (*Myotis lucifugus*) is mapped at a Township scale. The proposed project avoids impacts to Thornton Creek. Therefore, no impacts to these species are expected as a result of proposed project activities.

Washington State Herp Atlas

Both the Washington State Herp Atlas (2009) and WDFW (2022b) identify two native turtle species in western Washington: the painted turtle (*Chrysemys picta*), and the western pond turtle (*Actinemys marmorata*). The painted turtle is fairly common, while the western pond turtle is a state endangered species and a federal species of concern (WDFW 2019). In addition, the Herp Atlas identifies several non-native turtle species that have been observed in Washington, including red-eared sliders (*Trachemys scripta*), box turtles, and snapping turtles. The Herp Atlas (WDFW 2009) provides detailed information on the identification, range, and habitat of the two native turtle species in addition to red-eared sliders, as sliders are the most common non-native turtle species. Both painted turtles and red-eared sliders are documented to be well-distributed throughout the Puget Sound region. In contrast, western pond turtles had disappeared from Puget lowlands by the 1980s. Currently there are only six known populations of Western pond turtles in Washington, including two sites in the Puget Sound region where head-started turtle hatchlings were released back into the wild (WDFW 2022b).

EXISTING CONDITIONS

Vegetation and Habitat Description

The majority of the project site is a level open playfield with a developed baseball diamond in the southern portion and a stormwater retention swale in the southeastern corner. The vegetation in the playfield is dominated by Kentucky bluegrass (*Poa pratensis*), common dandelion (*Taraxacum officinale*), and English plantain (*Plantago lanceolata*) with patches of exposed soil. The playfield is heavily used by multiple user groups including recreationalists and dog-owners. Scrub-shrub and forested vegetation growing along the perimeter of the site consisted of mainly non-native species including Himalayan blackberry (*Rubus armeniacus*), weeping willow (*Salix bablyonica*), black locust (*Robinia pseudoacacia*), and black hawthorn (*Crataegus douglasii*). Some Douglas fir (*Pseudotsuga menziesii*) is present along the southern portion of the western boundary, in the vicinity of Thornton Creek. The stormwater swale in the southeast corner is dominated by black cottonwood (*Populus trichocarpa*) with birch saplings (*Betula sp.*) and areas of mannagrass (*Glyceria sp*).

To the west of the project site, Thornton Creek flows approximately 300 feet east/southeast from Meadowbrook pond, under 39th Ave NE through residential backyards, then turns south for approximately 100 feet adjacent to the southwestern edge of the project site before entering a culvert under 105th St (Figure 2). The portion of the creek adjacent to the project site is characterized by steep armored banks approximately three feet high. Vegetation along the bank in this stretch varies but is primarily dominated by an overstory of Douglas fir with an understory of Himalayan blackberry, English holly (*Ilex aquifolium*), English ivy (*Hedera helix*), and some salmonberry (*Rubus spectabilis*). The stream bed consisted of gravel and cobbles and measured 12-15 feet wide at top-of-bank.

We also assessed Meadowbrook Pond, a freshwater wetland complex associated with Thornton Creek approximately 300-400 feet to the west of the project site. Meadowbrook pond is characterized by large areas of open ponded water with patches of algae, areas of aquatic vegetation, dense native scrub-shrub vegetation along the banks, and many half-submerged downed logs. Shoreline vegetation included red alder (*Alnus rubra*), black twinberry (*Lonicera involucrata*), salmonberry, red-osier dogwood (*Cornus alba*), willow species (*Salix spp.*), and Himalayan blackberry, among other species. Several boardwalks provide vantage points from which to observe wildlife. Overall, Meadowbrook Pond provides sufficient habitat features for native and non-native turtle species.

Photographic Identification

Using diagnostic identification descriptions provided by WDFW (2009, 2022b), we assessed the photographs provided by neighborhood community members during the public comment period to make an identification of the turtle observed on the project site (Photo Plate 1). The turtle in the photograph has several markings on its head, including yellow stripes near its chin and mouth, and a red blotch behind its eye. The red-eared slider is the only turtle species in western Washington with a red blotch behind its eye. Neither the western pond turtle nor the painted turtle is known to display a red blotch on the head. In addition, the subject turtle has serrated marginals in the posterior of the carapace, another identifying characteristic of the red-eared slider that is lacking in painted turtles and western pond turtles.

Typical identifying characteristics of western pond turtles, such as a white or speckled neck, or painted turtles, such as a bright red plastron and red undersides of the marginals, are notably absent in the subject turtle. Given the presence of several positive identifying characteristics of red-eared sliders, in addition to the absence of identifying characteristics of other known freshwater turtle species, we believe the subject turtle previously observed using the project site is a red-eared slider, a non-native species. WDFW biologists provided with the same photographs confirmed the subject turtle as a red-eared slider (L. Hallock, personal communication, September 13, 2022).

Wildlife Observations

During our field investigation we did not observe any turtle species or obvious nesting sites on the project site, within Thornton Creek, or in the Meadowbrook Pond wetland complex. Due to the high use and disturbed nature of the project site, we were unable to identify any turtle nesting sites. Several areas throughout the site were sparsely vegetated or contained loosely packed soils. However, due to the high use by dogs and humans, we were unable to determine if any of these areas were potential nesting sites. We observed several bird species on the project site including spotted towhees, American crows, and stellar jays. Meadowbrook pond is well-documented as providing habitat for a variety of native terrestrial and aquatic wildlife species and will not be covered in depth in this memo.

EVALUATION OF IMPACTS OF THE PROPOSED PROJECT

As noted above, the WDFW (2022a) PHS entries do not indicate the presence of a native turtle species on the project site nor within 1,000 feet of the project site. During our September 6, 2022 field visit we did not observe the presence of any turtles nor any obvious nesting sites. The subject turtle that has been photographed using the project site is very likely a red-eared slider, a non-native species with no local, state, or federal listing status. As mentioned above, this identification was confirmed by WDFW (L. Hallock, personal communication, September 13, 2022).

The red-eared slider is a non-native freshwater turtle species. It is native to the eastern United States and was previously sold in pet stores throughout the U.S. Most pond sliders seen in Washington are escaped or released pets, or possibly descendants of pets (WDFW 2009).

The proposed project would have no adverse impacts on known native turtle populations. The current playfield is heavily used for recreational activity, as well as being a popular area for off-leash dogs. This use likely deters most species from utilizing the playfield. Although it provides some of the characteristics suited to turtle nesting sites, Meadowbrook Pond, which is accessible via Thornton Creek, provides superior habitat for native turtle species.

The proposed site plan includes areas of native landscaping in areas that are currently occupied by open, poorly vegetated playfield. We would expect a modest increase in overall wildlife species diversity utilizing the project site as a result of an increased plant community diversity and removal of non-native species in these areas.

RECOMMENDED MITIGATION MEASURES

Mitigation includes measures to avoid or minimize potential impacts to any turtles that may utilize the project site or habitats in the vicinity of the project site. For the proposed project, measures to avoid or minimize the potential impacts to turtles and other wildlife species include the following:

> To the extent feasible, schedule all clearing and grading to take place outside of the nesting season, or late May through early September (WDFW 2009, 2022a, 2022b).
>
> Include moderately open, sunny areas with native grasses as part of the proposed landscaping adjacent to the playfield, particularly in proximity to Thornton Creek.
>
> Focus on planting Pacific Northwest native plant varieties and reserve non-native cultivars for areas nearest to the school buildings as much as possible.

Any removal of invasive plants should take place in the early spring before turtles are actively nesting and should be conducted without the use of power tools or heavy equipment wherever possible to avoid any disturbance to potential nesting species on or near the project site.

Inspect western site boundary and fence for any potential access points for turtles or other wildlife. Block or repair any holes or other potential access points to the site before construction activities begin. Erect temporary fencing if currently existing fence is scheduled to be removed prior to construction.

LIMITATIONS

We have prepared this report for the exclusive use of EA Engineering, Science, & Technology, the Seattle School District, and their consultants. No other person or agency may rely on the information, analysis, or conclusions contained herein without permission from EA EST or the Seattle School District.

We warrant that the work performed conforms to standards generally accepted in our field, and has been prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis of the information provided by EA Engineering, Science, & Technology and their consultants, together with information gathered in the course of this study. No other warranty, expressed or implied, is made.

Thank you for the opportunity to prepare this information. If you have any questions, comments, or need additional information, we are available at 206-525-8122 or via email at wrussack@raedeke.com

LITERATURE CITED

King County. 2022. iMAP GIS Interactive map center, King County, Washington. https://gismaps.kingcounty.gov/iMap/. Accessed September 2022.

Washington Department of Fish and Wildlife. 2019. State Listed Species & State Candidate Species. Revised June 2019. Available at: https://wdfw.wa.gov/sites/default/files/201906/threatened%20and%20endangered%20species%20list.pdf. Last Accessed September 12, 2022

Washington Department of Fish and Wildlife. 2022a. PHS on the web. Available at: https://geodataservices.wdfw.wa.gov/hp/phs/. Last accessed September 12, 2022.

Washington Department of Fish and Wildlife. 2022b. Northwestern pond turtle description and range. https://wdfw.wa.gov/specieshabitats/species/actinemys-marmorata#desc-range. Last accessed September 16, 2022.

Washington Herp Atlas. 2009. A cooperative effort of Washington Natural Heritage Program, Washington Department of Fish and Wildlife, U.S.D.I. Bureau of Land Management, and U.S. Forest Service. Map products updated March 2017. Provisional PDF version of the website (2005-2019) created July 2019. 250 pp.

FIGURES

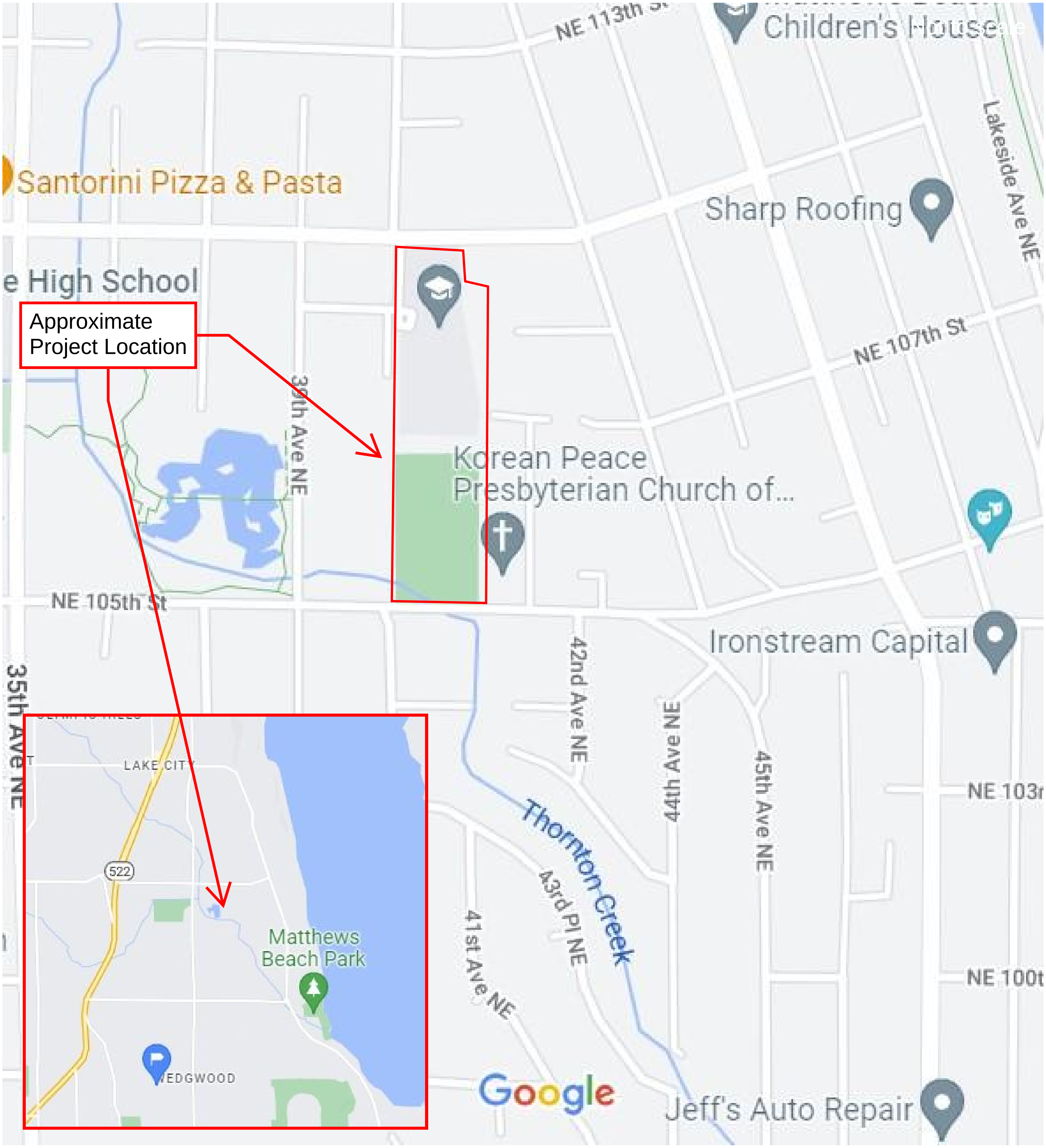


FIGURE 1 - Regional & Vicinity Map

John Rogers Elementary School

4030 NE 109th St, Seattle, WA

RAI PROJECT: 2022-107-001

PREPARED: 9/19/2022
BY: WR

Source information; Google Maps google.com/maps

N

Raedeke
Associates, Inc.
2111 N. Northgate Way,
Suite 219 Seattle, WA 98133

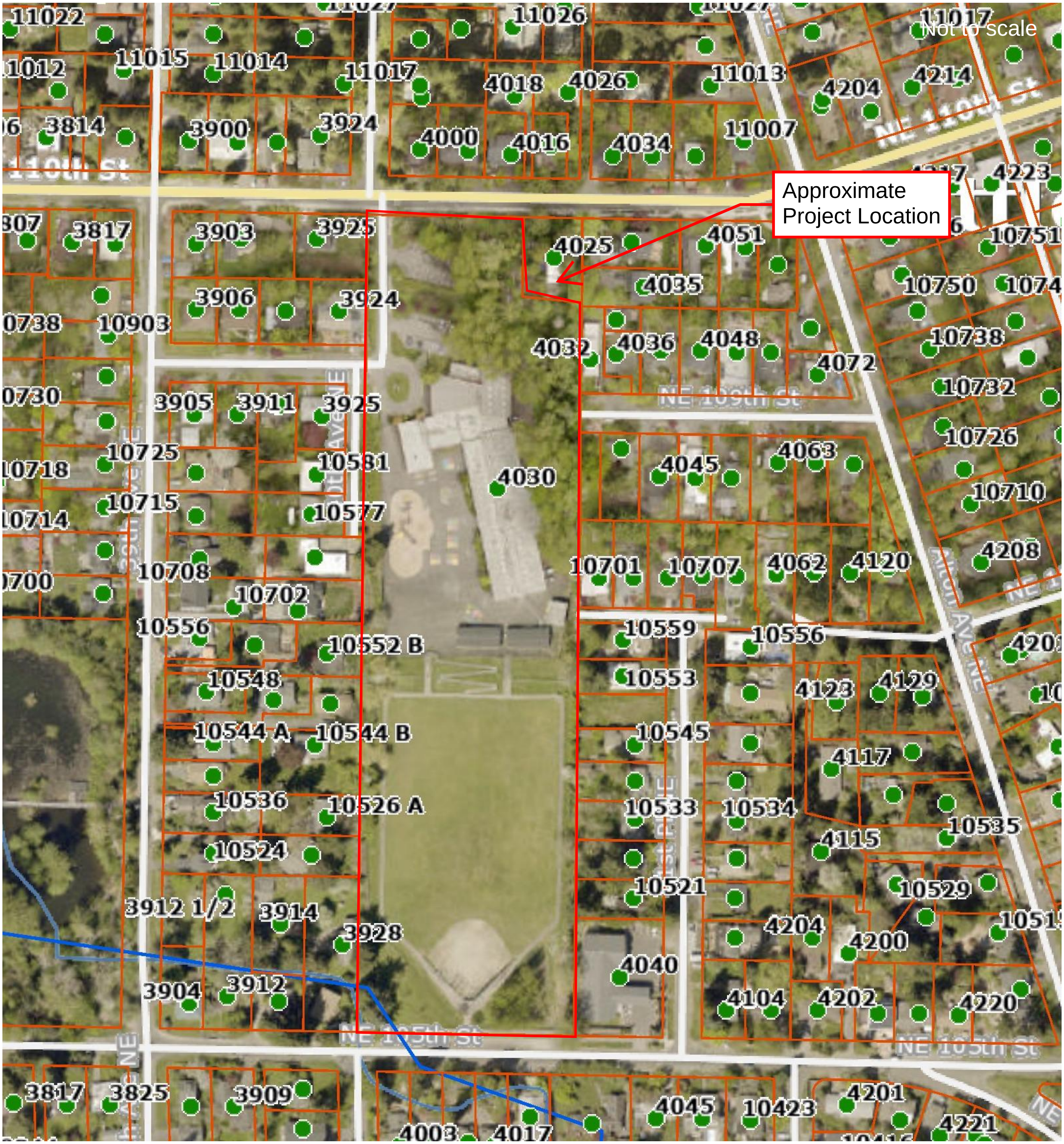


FIGURE 2 - King County iMap

John Rogers Elementary School

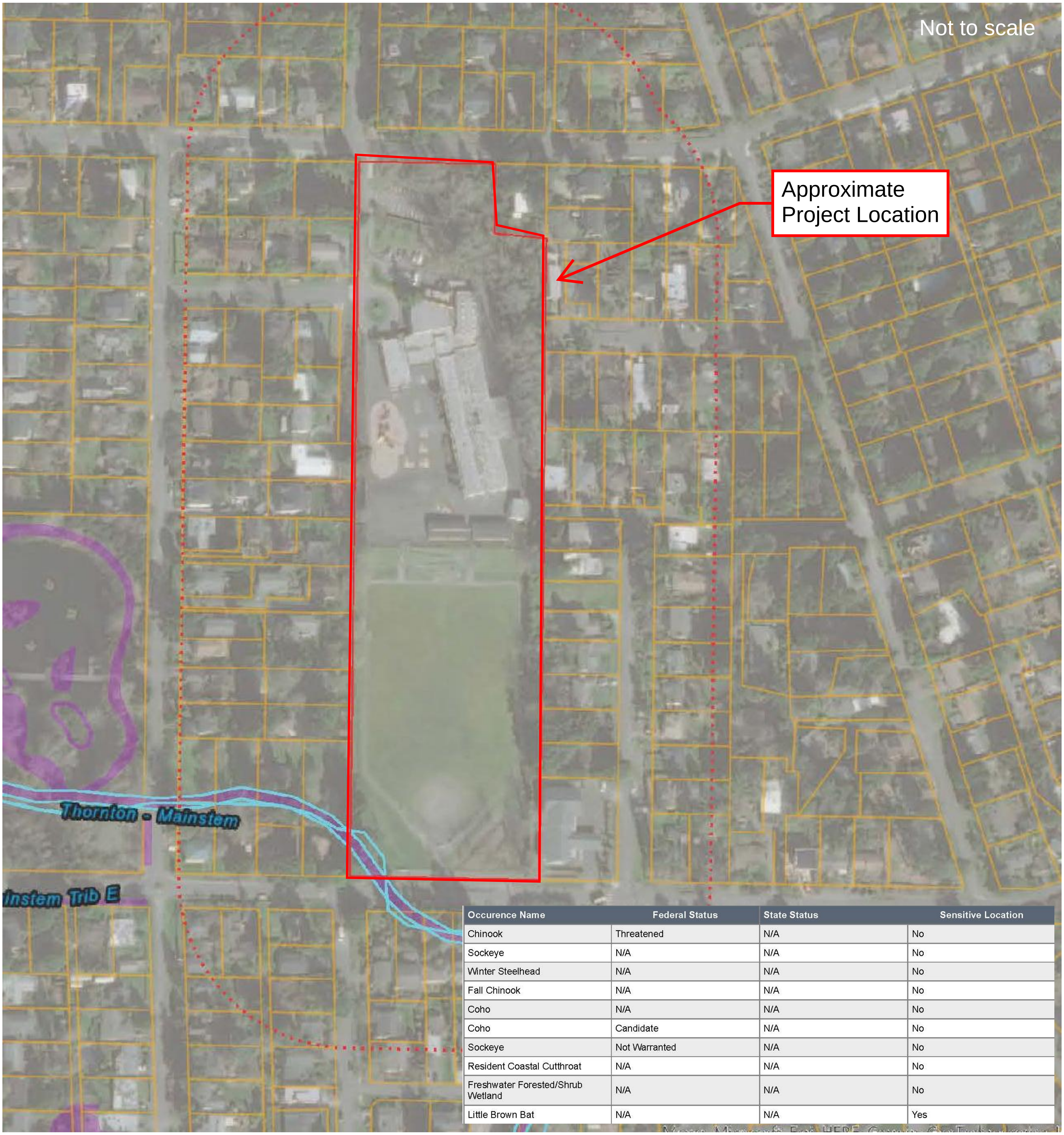
4030 NE 109th St, Seattle, WA

RAI PROJECT: 2022-107-001

PREPARED: 9/19/2022
BY: WR

Source information:https://gismaps.kingcounty.gov/iMap/

Raedeke Associates, Inc.
2111 N. Northgate Way,
Suite 219 Seattle, WA 98133



Occurence Name	Federal Status	State Status	Sensitive Location
Chinook	Threatened	N/A	No
Sockeye	N/A	N/A	No
Winter Steelhead	N/A	N/A	No
Fall Chinook	N/A	N/A	No
Coho	N/A	N/A	No
Coho	Candidate	N/A	No
Sockeye	Not Warranted	N/A	No
Resident Coastal Cutthroat	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Little Brown Bat	N/A	N/A	Yes

FIGURE 3 - WDFW Priority Habitat & Species

John Rogers Elementary School

4030 NE 109th St, Seattle, WA

RAI PROJECT: 2022-107-001

PREPARED: 9/19/2022
BY: WR

Legend:

- - - - - 300 ft Buffer

- Mapped Species or Habitat

SOURCE INFORMATION: Washington Fish and Wildlife Priority Habitat & Species Online Mapping tool - http://apps.wdfw.wa.gov/phsontheweb/

Raedeke Associates, Inc.
2111 N. Northgate Way, Suite 219 Seattle, WA 98133

Subject turtle observed at John Rogers E.S

red 'blotch' behind eye

serrated posterior marginals

Red-eared slider

Photo Plate 1

John Rogers Elementary School

4030 NE 109th St, Seattle, WA

RAI PROJECT: 2022-107-001

PREPARED: 9/19/2022
BY: WR

Raedeke Associates, Inc.
2111 N. Northgate Way, Suite 219 Seattle, WA 98133

Will Russack

From: Hallock, Lisa (DFW) <Lisa.Hallock@dfw.wa.gov>
Sent: Tuesday, September 13, 2022 4:40 PM
To: Will Russack
Subject: RE: Turtle ID - 2022-107

Hi Will,

I agree that it is a red-eared slider.

Best,
Lisa

Lisa Hallock | Herpetologist | Wildlife Program | Washington Department of Fish and Wildlife | **Mailing address:** PO Box 43141, Olympia, WA 98504-3200 | **Address for visitors, UPS and Fed Ex**: 1111 Washington Street, Olympia, WA 98504|Phone: 360.902.2389 | E-mail: Lisa.Hallock@dfw.wa.gov

---

From: Will Russack <wrussack@raedeke.com>
Sent: Tuesday, September 13, 2022 10:33 AM
To: Hallock, Lisa (DFW) <Lisa.Hallock@dfw.wa.gov>
Subject: Turtle ID - 2022-107

External Email

Hello Lisa,

I am a wetland biologist working on a project in Seattle adjacent to Meadowbrook Pond, a wetland complex associated with Thornton Creek. I am wondering if you could help us confirm a turtle ID. We only have two photographs (attached) submitted by a neighbor of what we believe is a red-eared slider. Some neighbors observed it digging and laying eggs in a ballfield behind a school. Any assistance you can provide would be greatly appreciated.

Best,

Will Russack, BS
Wetland Biologist
wrussack@raedeke.com
Ph. (206)-888-5924

Raedeke Associates, Inc.

Raedeke Associates, Inc.
2111 N. Northgate Way, Ste. 219
Seattle, WA 98133
www.raedeke.com

Appendix G

LANDMARK NOMINATION DETERMINATION, DAHP GOVERNOR'S EXECUTIVE ORDER 21-02 DETERMINATION, AND CULTURAL RESOURCES ASSESSMENT (On-File with SPS)

The City of Seattle

Landmarks Preservation Board

Mailing Address: PO Box 94649, Seattle WA 98124-4649
Street Address: 600 4th Avenue, 4th Floor

LPB 378/21

Ms. Rebecca Acensio
Seattle Public Schools
Mail Stop: 22-336
P.O. Box 34165
Seattle, WA 98124-1165

Re: Denial of Nomination of John Rogers Elementary School – 4030 NE 109th Street

Dear Ms. Acensio:

At the August 18, 2021, meeting of the City's Landmarks Preservation Board, a motion was made to deny the nomination of John Rogers Elementary School at 4030 NE 109th Street in Seattle. The vote to deny was 8 in favor and 1 recusal. Therefore, the nomination was denied.

Termination of Proceedings

SMC 25.12.850A states:
"In any case where a site, improvement or object is nominated for designation as a landmark site or landmark and thereafter the Board fails to approve such nomination or to adopt a report approving designation of such site, improvement or object, such proceeding shall terminate and no new proceeding under this ordinance may be commenced with respect to such site, improvement or object within five (5) years from the date of such termination without the written agreement of the owner, except that when the site or improvement nominated is Seattle School District property and is in use as a public school facility, no new proceeding may be commenced within ten (10) years from the date of such termination."

This provision is applicable to these nomination proceedings.

Issued: August 19, 2021

Erin Doherty

Erin Doherty
Landmarks Preservation Board Coordinator

cc: Tingyu Wang, Seattle Public Schools
David Peterson, Historic Resource Consulting
Susan Boyle, BOLA Architecture + Planning
Nathan Torgelson, SDCI
Katrina Nygaard, SDCI
Kristen Johnson, Acting Chair, LPB

DAHP USE ONLY
Date Received: 5/6/2022
DAHP Log #: 2022-05-03046
Reviewer(s): HB & RW
■ ARCHY ■ BEU

dahp
protect the past, shape the future
DEPT OF ARCHAEOLOGY + HISTORIC PRESERVATION

EZ-1 FORM

GEO 21-02

Request to initiate consultation for Governor's Executive Order 21 02 (GEO 21 02) projects

New Consultation? ☐ YES ☐ NO ☐ ADDITIONAL INFORMATION PROVIDED PER REQUEST

Questions? *Contact DAHP at 2102@dahp.wa.gov or (360) 586-3065. You may also find answers to your questions online at www.dahp.wa.gov/2102.*

Please be aware that this form may only initiate consultation. For some projects, DAHP may require additional information to complete our review. A historic property inventory form or archaeological survey may need to be completed by a qualified cultural resource professional.

NOTE: To save this fillable form you must fill it out in Adobe Acrobat or use the PRINT to PDF function in Acrobat Reader. In Reader choose File > Print and choose Adobe PDF as the printer. The file will save to your computer.
NOTE: The form will automatically adjust to fit all your information.

SECTION 1: PROJECT INFORMATION

Project Title: John Rogers Elementary Replacement Project

Property Name: *if applicable* John Rogers Elementary School

Project Address: 4030 NE 109th Street

Provide 1-2 sentence summary of the project.
The project includes demolition of the existing school, construction of a new 82,000 square foot building and the renovation of the playfield that is located to the south of the existing building.

City / State / Zip: seattle wa   County: King   Township / Range / Section: *leave blank if unsure*

SECTION 2: PROJECT DESCRIPTION

Project includes (check all that apply): ☑ NEW CONSTRUCTION ☑ DEMOLITION ☑ GROUND DISTURBANCE ☐ REHABILITATION / RENOVATION ☐ ACQUISITION

Are any buildings 45 years or older going to be impacted in any of the above ways by this project? ◉ YES ○ NO ○ NOT SURE

☐ Check here if the project involves multiple resources. If so, attach a table including all information in Sections 1 and 2 for each resource.

If you do not know the age of the building(s) this is usually available through the county assessor web parcel search. To find this page put in the name of the county, Washington assessor property search into your web search engine of choice. I.e.. Adams county Washington assessor property search.

Are there any Federal funds, lands, permits, or licenses involved in/required by this project? ○ YES ◉ NO ○ NOT SURE If Yes, what Federal Agency?

Have you already received a grant? ○ YES ◉ NO, WE ARE APPLYING NOW ○ NO, WE HAVE NOT APPLIED YET ○ NOT SURE

SECTION 3: STATE AGENCY INFORMATION

Leave blank if unknown

State Agency: Office of Superintendent of Public Instruction (OSPI)   Grant / Loan Program Name: School Construction Assista   Direct Appropriation? ☐

Contact Person: Heidi Burkart   Phone: 360.742.8032   e-mail: heidi.burkart@k12.wa.us

Funding biennium? 2021-2023   Requested grant / loan amount: 1,635,842.00   Total project amount: n/a

SECTION 4: CONTACT INFORMATION

If different from State Agency contact person.

Submitter Name: Richard Best   Submitter Organization: Seattle School District No.1

Submitter Address: 2445 3rd Ave S - MS 22-332   City / State / Zip: Seattle, WA 98124-1165

Submitter Phone: 206-252-0647   Submitter e-mail: rlbest@seattleschools.org

DAHP DETERMINATION (DAHP USE ONLY)

☐ **EXEMPT** from GEO 21-02 review.

■ There are **NO HISTORIC PROPERTIES IMPACTED** by the proposed project.

☐ The project will have **NO ADVERSE IMPACT** on historic properties.

☐ The project will have an **ADVERSE IMPACT** on historic properties.

☐ DAHP requires **ADDITIONAL INFORMATION** in order to complete review (see attached).

☐ SURVEY REQUIRED

☐ MONITORING REQUIRED

☐ INADVERTENT DISCOVERY PLAN REQUIRED

Holly Borth
DAHP REVIEWER

5/11/2022
DATE

DEPT OF ARCHAEOLOGY + HISTORIC PRESERVATION

Instructions: Please describe the type of work to be completed. Be as detailed as possible to avoid a request for additional information. Be sure to describe all ground disturbing activities in the appropriate box below and provide photos of areas of work.

SECTION 5: ATTACHMENTS

Please email completed form and all attachments to:
2102@dahp.wa.gov

- ☑ MAP - Be sure to show the project boundary and location of property(ies). *See Section 7 on Page 3 for optional template. May also submit online through WISAARD using eAPE.*
- ☑ DESCRIPTION / SCOPE OF WORK - Describe the project, including any ground disturbance. *See Section 6 for an optional template.*
- ☑ SITE PLAN / DRAWINGS - Indicate location and dates of resources, proposed improvements and ground disturbance, etc.
- ☐ PHOTOGRAPHS - Attach digital photographs showing the project site, including images of all resources. *Photos submitted through WISAARD may suffice.*

SECTION 6: ADD'L PROJECT INFORMATION

Provide a detailed description of the proposed project:

The proposed project includes the development of a new building for John Rogers Elementary School on the existing site. The proposal would construct a new two and three-story school building on the north portion of the site with approximately 87,000 gross square feet of building space. During construction, the existing school would move with operations for students and staff to an interim site (John Marshall Elementary). The proposed new building would include 24 classrooms; a music room; an art/project lab; a gymnasium; a dining commons area; learning commons areas; offices; and other support and building infrastructure spaces. The project would increase student capacity from approximately 342 students (includes existing portables) to approximately 500 students, including up to 40 preschoolers. Bus loading/unloading would remain in its current location, accessing the site from NE 109th. Parent vehicle loading/unloading would now enter the site from NE 105th and head north along a new drive aisle. The existing parking lot adjacent to NE 110th would be replaced with a new parking lot with 20 parking stalls; an additional 15 parking stalls would be located along the parent drop off drive. The new playfield would be in the south portion of the site and surrounded by a perimeter trail. Additional recreation space would include

Describe the existing project site conditions (include building age, if applicable):

The existing single-story John Rogers Elementary School building was constructed in 1956 and is located in the north portion of the site. The building contains approximately 41,000 gross square feet (gsf) of building space including 14 classrooms, a gymnasium, a cafeteria, a library, and other offices and common space. Five portable classroom buildings are also located on the campus, all located south of the existing building. A playground, hard surface play area is tucked in on the west side of the building and the playfield is south with an approx. 12' change in grade between the two areas. Two parking lots with approximately 28 parking stalls are located north of the existing building, adjacent to NE 110th, accessed by a steep one-way. As part of the project, the existing building was nominated for consideration as a City of Seattle Landmark; however, the City's Landmarks Preservation Board denied that nomination on August 18, 2021. A Cultural Resources Assessment was also prepared for the project by Perteet (May 4, 2022). Based on research and onsite field investigations conducted for the assessment, it was determined that there would be a low potential for encountering archaeological materials on the project site and no further

If there are ground disturbing activities proposed, describe them *including the approximate depth of ground disturbance*:

Approximately 6,000 cubic yards of material will be excavated from the site during construction activities and approximately 39,000 cubic yards of structural fill will be needed. The specific source of fill material is not known at this time but will be obtained from a source approved by the City of Seattle. Additionally, it has not been determined whether excavated material from the site can be re-used as structural fill material.

The largest fill depths on site are located within the proposed hard surface play and parking areas south of the proposed building. The fill depth in this area is anticipated to be approximately 13'. Much of the southern half of the site will also be filled to create the new playfield and proposed access drive from NE 105th Street, fill depths in this portion of the site will be up to 7'. The majority of structural footings will consist of shallow reinforced concrete spread foundations approximately 2'-0" to 4'-0" below grade.

DEPT OF ARCHAEOLOGY + HISTORIC PRESERVATION

protect the past, shape the future

Instructions: **Please attach a MAP clearly showing the project area. Please click here for tutorial on creating a map if you don't have one clearly showing the project area.**

SECTION 7: MAP / Area of Potential Effect

CLICK IN THE BOX ABOVE TO ADD A MAP
MAP MUST BE IN JPG FORMAT

Appendix H

TRANSPORTATION TECHNICAL REPORT AND PARKING ANALYSIS ADDENDUM

TRANSPORTATION TECHNICAL REPORT

for the

John Rogers Elementary School Replacement

PREPARED FOR:

Seattle Public Schools

PREPARED BY:

heffron transportation inc

6544 NE 61st Street, Seattle, WA 98115
ph: (206) 523-3939 ◆ www.hefftrans.com

June 2, 2022

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

This report presents the transportation impact analyses for the Seattle Public Schools' (SPS) proposed John Rogers Elementary School Replacement project. The scope of analysis and approach were based on extensive past experience performing transportation impact analyses for projects throughout the City of Seattle, including numerous analyses prepared for Seattle Public Schools projects. This report documents the existing conditions in the site vicinity, presents estimates of project-related traffic, and evaluates the anticipated impacts to the surrounding transportation system including transit, parking, safety, and non-motorized facilities. These analyses were prepared to support the SEPA Checklist for this project.

At the time of data collection for this analysis in March 2022, Seattle Schools had returned to five-day, in-person learning after the disruption and school closures caused by the COVID-19 pandemic in 2020-21, which affected traffic volumes and travel patterns throughout Seattle and near the site. Some transportation patterns in the City overall, at the school, and within the local site vicinity have not returned to pre-pandemic conditions. Therefore, the analyses were prepared using a combination of traffic data collected for this project in February 2022 and other data collected in 2019, before the pandemic. The volumes were adjusted to reflect representative normalized (non-pandemic) conditions according to standards and practices recommended by the Institute of Transportation Engineers (ITE)[1] and other industry professionals.[2]

1.1. Project Description

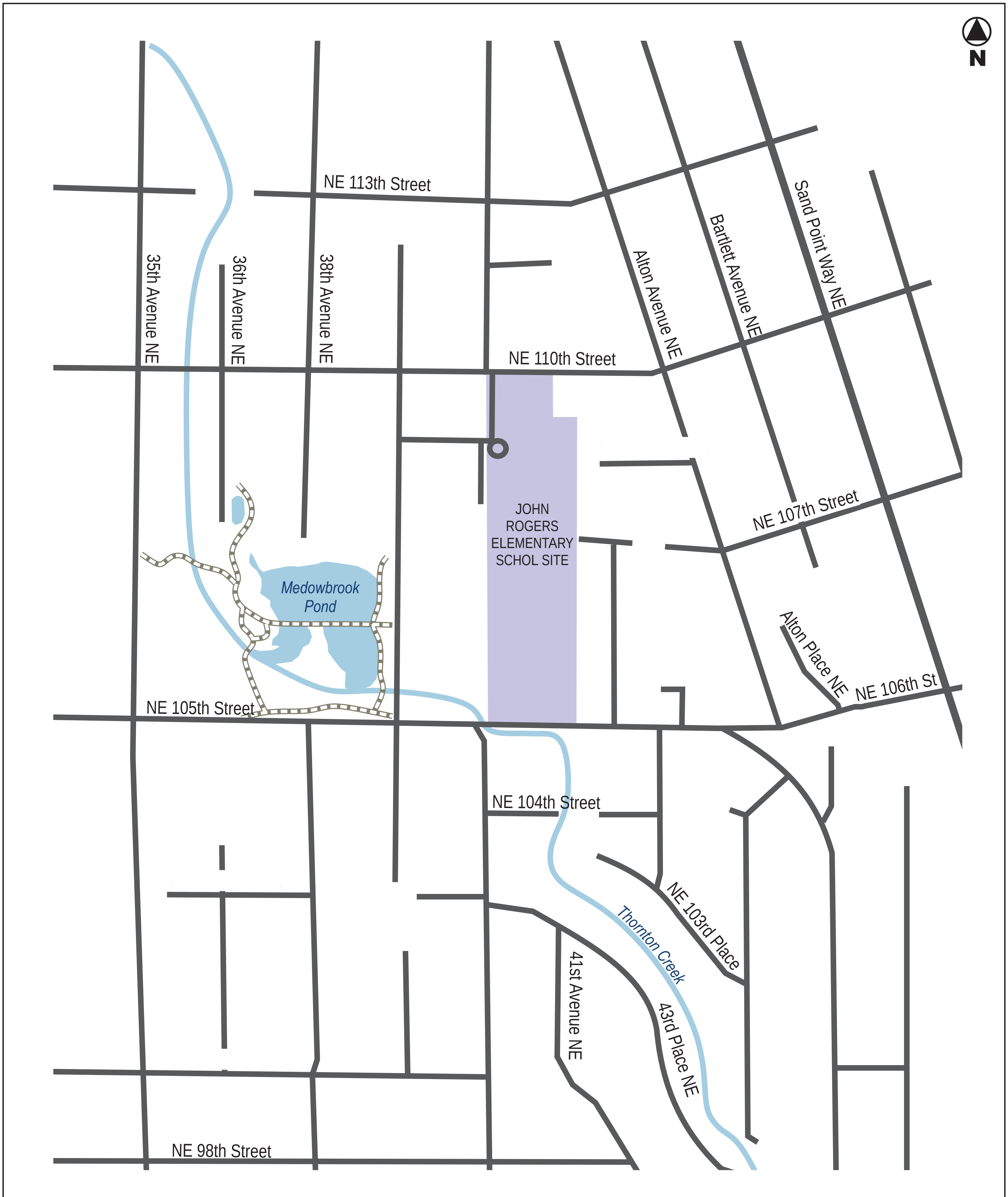
Seattle Public Schools is proposing to construct a new multi-story replacement school on the same site located at 4030 NE 109th Street in Seattle. The following sections describe the existing school site and the proposed project.

1.1.1. Existing School Site

The 9-acre school site is bounded by NE 110th Street on the north, residential parcels and a small segment of 40th Avenue NE on the west, NE 105th Street on the south, and private property (residential parcels and a church) on the east. The main school building is located on the north-central portion of the site with parking to the north, a load/unload loop to the west, and hard surface play areas to the south. The existing main school building has about 40,350 square feet (sf) of floor area.[3] There are three portable buildings (two doubles and one single) with five classrooms located south of the main building on the southern part of the paved surface. A large grassy playfield, known as John Rogers Playfield Park, occupies the south end of the site, which sits at a lower elevation and has public access and parking along NE 105th Street. The playfield is used by several sports teams at Nathan Hale High School for practices and competitions.

There are two separate staff and visitor parking lots with a total of 35 stalls north of the building. The northern lot has 20 striped stalls; the lot closest to the building has 15 stalls. Parking also occurs along the eastern side of the school building on asphalt areas that are not striped for parking. Gated access to these areas occurs from the east end of the staff parking lot. The site has two primary access driveways—one opposite NE 109th Street just east of 40th Avenue NE and an exit-only driveway on NE 110th Street slightly off-set to the east of 40th Avenue NE. The on-site parking is accessed from a one-way northbound drive that extends north from the on-site drop-off loop to the exit-only driveway on NE 110th Street. A portion of the curb-side on the south side of NE 109th Street west of 40th Avenue NE is signed for School Bus Only (7-10 A.M. and 1-4 P.M.). The gravel parking area along the north side of NE 105th Street at the south end of the site has no striping, but accommodates angled parking for about 25 vehicles in the street right-of-way. There is a gated access at the southeast corner of the site on NE 105th Street that can be used for field maintenance. The project site location and vicinity are shown in Figure 1.

1 ITE, *What a Transportation Professional Needs to Know About Counts and Studies during a Pandemic*, July 2020.
2 Kittelson & Associates, *Estimating Traffic Volumes Under COVID-19 Pandemic Conditions*, April 2, 2020.
3 Source: King County Assessor, online property information, accessed February 2022.



SEATTLE PUBLIC SCHOOLS
John Rogers Elementary Replacement

Figure 1

Site Location and Vicinity

heffron transportation inc

According to information published in *Building for Learning, Seattle Public Schools Histories, 1862-2000*,[4] Matthews School opened on the southern part of the site in 1953 as an all-portables facility (10 total with 8 used as classrooms) for 260 students in order to relieve overcrowding at Maple Leaf School. It was renamed John Rogers School in 1954. When a larger, permanent building was needed, the district built a facility to the north that was opened in 1956 and was "designed for future expansion." Enrollment increased to 689 in 1961, which necessitated the addition of five portable classrooms. Enrollment peaked at 779 students during the 1963-64 school year and then began to decline.

In March 2022, at the time traffic data were collected for this analysis, enrollment was 262 students,[5] below the school's current capacity of 342 students[6] (including portables) and below its recent peak enrollment of 389 students in 2015.[7] The school currently has 45 employees (full-time and part-time).[8]

1.1.2. Proposed Site Changes

The proposed project would reconfigure the existing site and construct a new multi-story school with approximately 88,000 sf and permanent capacity for up to 500 students in grades K through 5. The project would also include two classrooms that could be used as either two 30-student licensable childcare classrooms for before and after-school care for students enrolled at the school or as two 20-student pre-school classrooms. If the two classrooms are used as pre-school classrooms, the total student capacity could be up to about 540 students in grades Pre-K through 5. The replacement school would result in a net increase in capacity of 201 students and an increase of 278 students compared to the enrollment in spring 2022. SPS estimates that total staffing at the school could increase to between 50 and 55 employees[9]—an increase of up to 10 compared to current conditions.

The new school building would house classrooms, a gymnasium, kitchen and dining areas, and other support and building infrastructure space. There would be a hard surface outdoor play area to the south of the building and the project would replace the existing playfield in about the same location. The existing northernmost 20-stall staff parking lot would be retained with its access widened to allow entry and exit from the existing location on NE 110th Street just east of 40th Avenue NE. An on-site school-bus load/unload loop, a small visitor parking lot (with four stalls), and service/delivery access would be located at the northwest corner of the new building opposite NE 109th Street. Vehicular access to and from the bus loop, small lot, and service/delivery area would occur from NE 109th Street east of 40th Avenue NE. Additional employee/visitor parking (four stalls) and a new on-site passenger-vehicle load/unload loop (with room for 11 vehicles) would be constructed along the southeastern edge of the site with access from a new driveway on NE 105th Street.

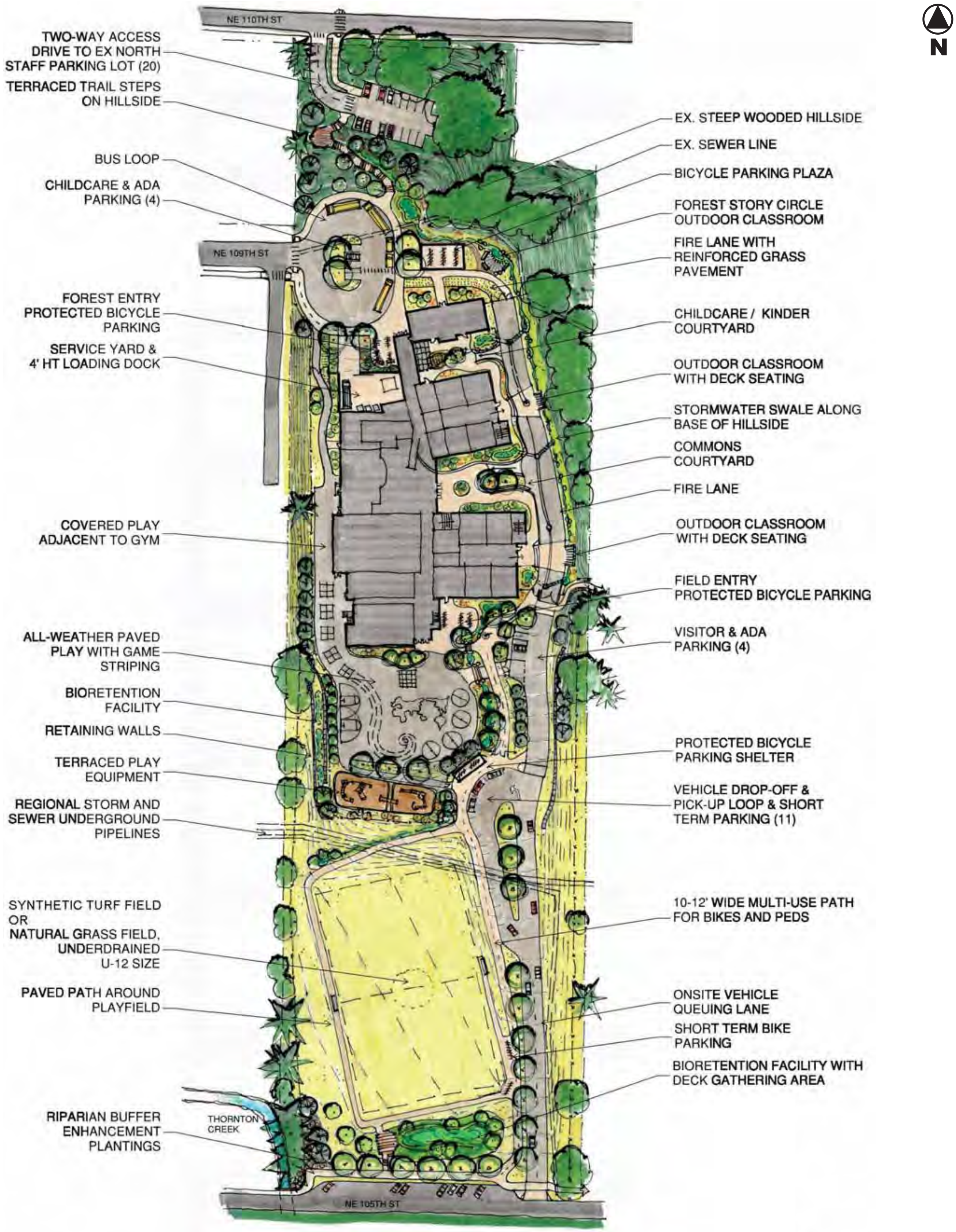
Automobile parking for 28 vehicles would be provided on site for regular all-day use; the on-site family-vehicle load/unload area (11 spaces) could be used for visitor parking during the school day. Both the family-vehicle and school-bus load/unload areas could be used for parking on evenings and weekends for events. In total, the site would have 51 parking spaces for event conditions (20 spaces in the north staff lot, 4 spaces in the visitor lot, 4 spaces in the eastern lot, 11 spaces in the passenger-vehicle load/unload loop, and 12 spaces in the school-bus load/unload area). The proposed replacement school would also have 100 bicycle parking spaces (73 long-term spaces and 27 short-term spaces). The existing school-bus load zone on the south side of NE 109th Street west of 40th Avenue NE would be removed.

---

4 Nile Thompson and Carolyn J. Marr; *Building for Learning, Seattle Public Schools Histories, 1862-2000;* 2002.
5 Seattle Public Schools, P223 Enrollment Report, February 2022.
6 Seattle Public Schools, T. Wang, March 8, 2022.
7 Seattle Public Schools, P223 Enrollment Report, October 2015.
8 Seattle Public Schools, Email communication, B. Ostbye – Principal, John Rogers Elementary, March 2, 2022.
9 Email communication from T. Wang, Seattle Public Schools, February 23, 2022.

Existing angle parking on the north side of NE 105th Street is planned to be retained and improved with the site frontage improvements along NE 105th Street, which are anticipated to consist of new curb and gutter. At the NE 109th Street / 40th Avenue NE intersection, new curb ramps would be added on the southwest and southeast corners with an associated crosswalk. The site access on NE 109th Street would be reconfigured to accommodate the proposed site layout. Additional improvements along the frontages of NE 105th Street, 40th Avenue NE, and 41st Place NE may also be required and would be coordinated with Seattle Department of Transportation (SDOT) through the Street Improvement Permit (SIP) process. The proposed site plan is shown in Figure 2.

Construction is planned to begin in summer 2023 with the new school opening in fall 2025. During construction; the students and staff would be temporarily housed at the John Marshall site. Future analyses (without and with the project) presented in this report reflect year 2025 conditions.



Source: DLR Group, May 4, 2022.

SEATTLE PUBLIC SCHOOLS
John Rogers Elementary Replacement

Figure 2

Proposed Site Plan

heffron transportation inc

2. BACKGROUND CONDITIONS

This section presents the existing and future conditions without the proposed project. The impacts of the proposed project were evaluated against these base conditions. For comparison, and to provide an analysis of potential new traffic and parking impacts, year 2025 without-project conditions assume the existing John Rogers Elementary School would continue to operate at its existing enrollment level. The following sections describe the existing roadway network, traffic volumes, traffic operations (in terms of levels of service), traffic safety, transit facilities, non-motorized facilities, and parking (both on- and off-street).

Eight intersections were selected for study based on the site location, attendance area, and travel routes typically used by family drivers, buses, and staff to access and egress the site area. The following study area intersections, listed by type of traffic control, were identified for analysis for both the morning and afternoon peak hours.

Signalized Intersection

- NE 110th Street / 35th Avenue NE

Uncontrolled Intersection

- NE 109th Street / 39th Avenue NE
- NE 109th Street / 40th Avenue NE / John Rogers Access

Traffic Circle Controlled Intersection

- NE 105th Street / 39th Avenue NE

Stop Controlled Intersections

- NE 110th Street / 39th Avenue NE
- NE 110th St / 40th Ave NE / John Rogers Access
- NE 106th Street / Sand Point Way NE
- NE 105th Street / 35th Avenue NE

2.1. Roadway Network

The following describes key roadways in the site vicinity. Roadway classifications are based on the City's Street Classification Map.[10] Speed limits are 25 miles per hour (mph) on arterials (unless otherwise signed) and 20 mph on local access streets.

35th Avenue NE is a north-south Minor Arterial that extends from Lake City Way on the north (via a short segment known as Erickson Place NE) to NE 45th Place on the south. Within the site vicinity, it is also classified as a Minor Transit Route. The street has two travel lanes—one in each direction—both marked with sharrows.[11] Auxiliary turn lanes exist at some major intersections, including NE 110th Street. There are curbs, gutters, sidewalks, and parallel parking on both sides. Its intersection at NE 110th Street is signalized. A school zone speed limit of 20 miles per hour (mph) exists north and south of the NE 110th Street intersection (near Nathan Hale High School and Jane Addams Middle School) and is in effect when the speed zone beacon is flashing. There is a marked and signed crosswalk with a rectangular rapid flashing beacon (RRFB) located at about NE 107th Street that connects the Meadowbrook Community Center to the Meadowbrook Pond walking trails.

NE 110th Street is an east-west Collector Arterial that extends from Lake City Way NE on the west to Sand Point Way NE on the east. Near the school, the two-lane roadway has curb (a mix of vertical concrete and rolled asphalt), gutter, and sidewalk on the south side for its entire length; there is sidewalk on the north side west of 38th Avenue NE. Its intersection with 35th Avenue NE is signalized; its approach to Sand Point Way NE is stop-sign controlled. There is a crosswalk with a RRFB on the south side of NE 110th Street to cross Sand Point Way. There are school zone speed limits of 20 mph near John Rogers Elementary (in effect when speed zone beacon is flashing). There are three sets of speed cushions (raised,

10 Seattle Department of Transportation (SDOT), Interactive Street Classification Maps, accessed November 2021.
11 A "sharrow" is a shared-lane pavement marking that is placed in the roadway lane to highlight the shared space; however, unlike a bicycle lane it does not delineate a particular part of the roadway that a bicyclist should use.

rectangular humps that can be straddled by larger vehicles) between 38th Avenue NE and Alton Avenue NE near the John Rogers Elementary School site, with an advisory speed limit of 15 mph.

NE 105th Street is an east-west non-arterial local access street that extends from just past Fischer Place NE on the west to about Alton Place NE on the east where it bends northward as NE 106th Street. Near the school site, the two-lane, 25-foot-wide roadway has intermittent segments with gravel and/or grass shoulders on both sides. There is also curb and sidewalk along the north side between 39th and 41st Avenues NE. Adjacent to the school site along the south edge of the John Rogers Baseball Field, there is a gravel shoulder pull-out area that is signed for angle parking. Its approaches to 35th Avenue NE are stop-sign controlled; there are traffic circles as its intersections with 39th Avenue NE, Alton Avenue NE, and Alton Place NE. There is a school zone speed limit of 20 mph (in effect when children are present). There are three sets of speed cushions located between 38th Avenue NE and 42nd Avenue NE near the John Rogers Playfield Park.

39th Avenue NE is a north-south local access street that extends from a dead end about 500 feet north NE 110th Street on the north to a dead end about 600 feet south of NE 105th Street. This unstriped roadway accommodates two-way travel with parallel parking that occurs in the intermittent gravel shoulders. There is a school zone speed limit of 20 mph (in effect when children are present) and speed bumps near John Rogers Elementary.

40th Avenue NE is a short north-south local access street (pavement width about 16-feet wide) that extends about 270 feet south of NE 109th Street to a dead end. It is located along the west edge of the John Rogers School site and provides access to three single family homes. Another segment of 40th Avenue NE extends north from NE 110th Street and extends to Sand Point Way NE on the north.

NE 109th Street is a short east-west local access street that connects from 35th Avenue NE to NE 110th Street along the west edge of the John Rogers School site. It provides access to three single family homes. The small on-site vehicular loop on the west side of the schools is accessed from this street. Another segment of NE 109th Street exists between the east edge of the school site and Alton Avenue NE and provides access to about 15 single-family homes.

Several documents were reviewed to determine if any planned transportation improvements could affect the roadways and intersections near John Rogers Elementary School by 2025 when the school replacement would be completed and occupied. These documents are listed below.

City of Seattle's Adopted 2021-2026 and Proposed 2022-2027 Capital Improvement Programs (CIP) [12] – The plans list 35th Avenue NE among the Vision Zero projects, but has no specific improvements that would change the roadway channelization, traffic control, or capacity of the study area intersections.

City of Seattle's Pedestrian Master Plan Update [13] ***and Pedestrian Master Plan 5-Year Implementation Plan and Progress Report***[14] – The plans include the area around the school as part of the East Sector's Priority Investment Network identifying missing sidewalks along the roadways surrounding John Rogers Elementary. The implementation plan notes the recent "cost-effective" walkway installed along NE 110th Street between 35th and 36th Avenues NE.

Adopted Seattle Bicycle Master Plan (BMP)[15] – The plan proposed improvements along roadways within the site vicinity. Neighborhood greenways were recommended as part of the Citywide

12 City of Seattle, online access April 2020. https://www.seattle.gov/city-budget-office/capital-improvement-program-archives
13 City of Seattle June 2017.
14 City of Seattle, December 2019.
15. City of Seattle, April 2014.

Network as well as the Local Connector network along NE 105th Street, Alton Avenue NE, 40th Avenue NE (south of the site), and 45th Avenue NE (south of the site). An in-street local connector was recommended along NE 110th Street and protected bicycle lanes were recommended along 35th Avenue NE. It also lists recommended neighborhood greenways along several other roadways beyond the local study area. The ***Seattle Bicycle Master Plan – 2021-2024 Proposed Implementation Plan***,[16] which defines the BMP priorities, was also reviewed. No projects were identified for implementation within the study area.

The ***Neighborhood Greenways***[17] website (updated February 25, 2021) does not identify any new or upcoming greenway projects near the school site.

Levy to Move Seattle – Annual Reports[18] – These documents outline SDOT's workplan delivery for citywide transportation projects and services funded in part or in full by the *Levy to Move Seattle* (approved by voters in 2015). The nine-year workplan (2016-2024) reports document achievements and sets the plan for future years. The Workplan Reports list sidewalk improvements completed in segments along NE 110th Street in 2017, 2018, and 2019.

After review of the above documents, no projects were identified that are expected to change the roadway channelization, traffic control, or capacity within the study area. Therefore, the intersection configurations were assumed to remain unchanged for the 2025 analysis in this report.

2.2. Traffic Volumes

2.2.1. Existing Conditions

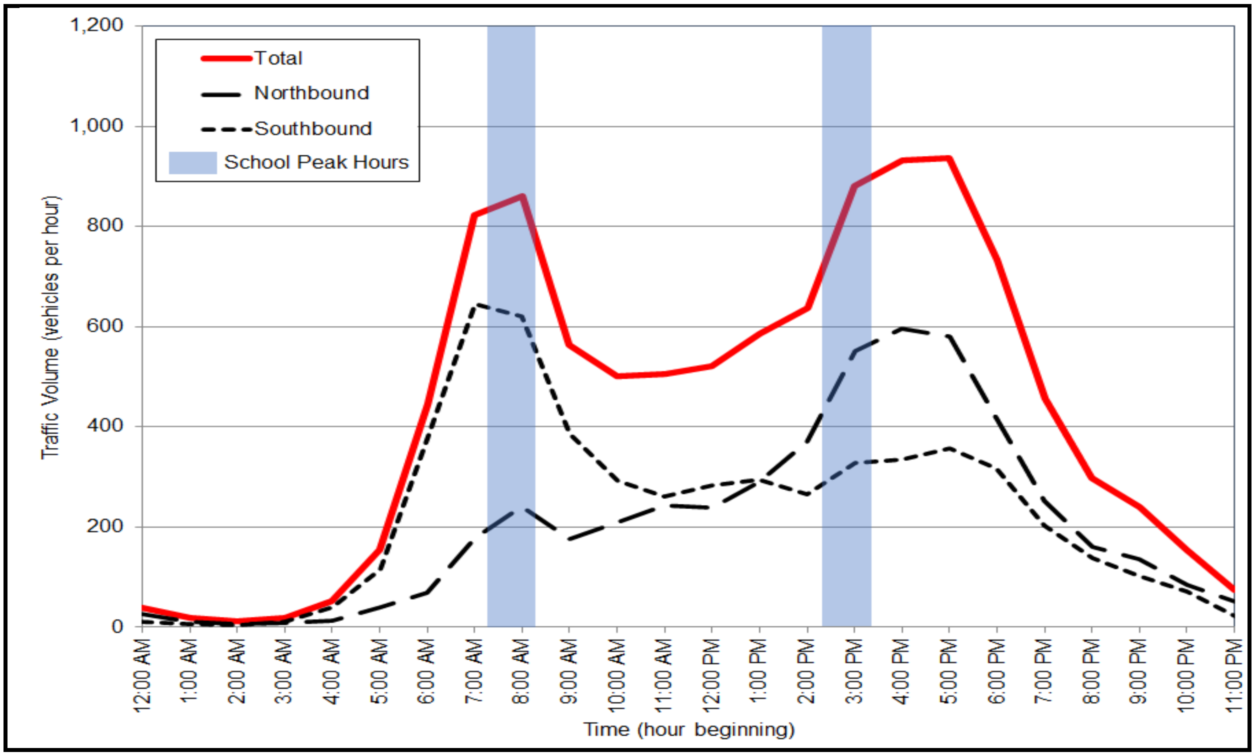
In March 2022 when data were collected for this analysis, the school day at John Rogers Elementary School started at 7:55 A.M. and ended at 2:25 P.M. To capture the existing traffic conditions during the current arrival and dismissal peak periods, traffic counts were performed from 7:00 to 9:00 A.M. and from 1:30 to 3:30 P.M. on Tuesday, March 1, 2022 at six of the eight study intersections. Volumes for the NE 110th Street / 39th Avenue NE intersections were derived from adjacent counts and volumes at the NE 106th Street / Sand Point Way NE intersection were obtained from a count conducted by SDOT April 16, 2019. The counts indicated that the morning and afternoon peak hours for school traffic occurred from 7:15 to 8:15 A.M. and from 2:15 to 3:15 P.M., respectively.

Data from the 2019 seven-day machine count were compiled to show how volumes in the site vicinity change by time of day. Figure 3, Figure 4, and Figure 5 show the average weekday volumes by hour of the day for Sand Point Way NE, 35th Avenue NE, and NE 105th Street, respectively, All three have the same y-axis scale to show relative volumes on each roadway. The school peak hours are also highlighted for reference and comparison.

---

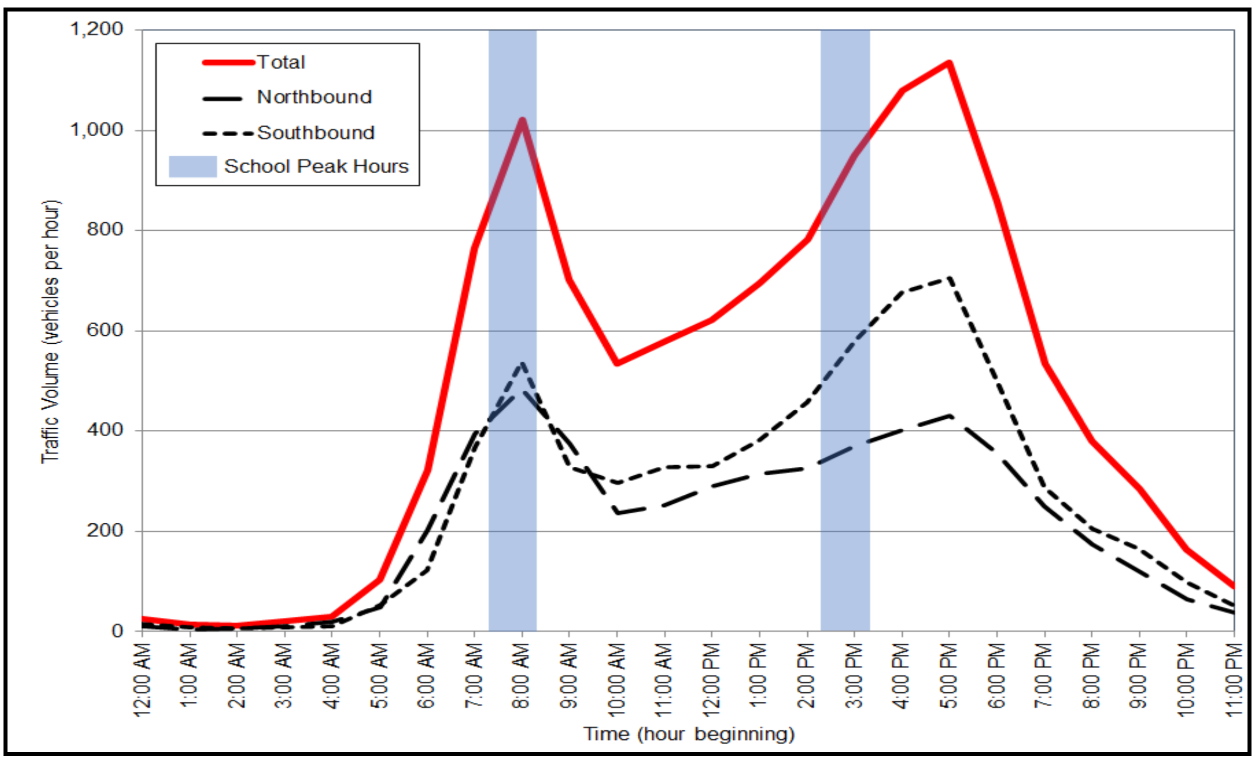
16 SDOT, June 13, 2019.
17 https://www.seattle.gov/transportation/projects-and-programs/programs/greenways-program, Updated February 25, 2021.
18 SDOT, https://www.seattle.gov/transportation/about-us/funding/levy-to-move-seattle/materials, accessed Feb. 23, 2022.

Figure 3. Hourly Traffic Volumes on Sand Point Way NE – October 2019



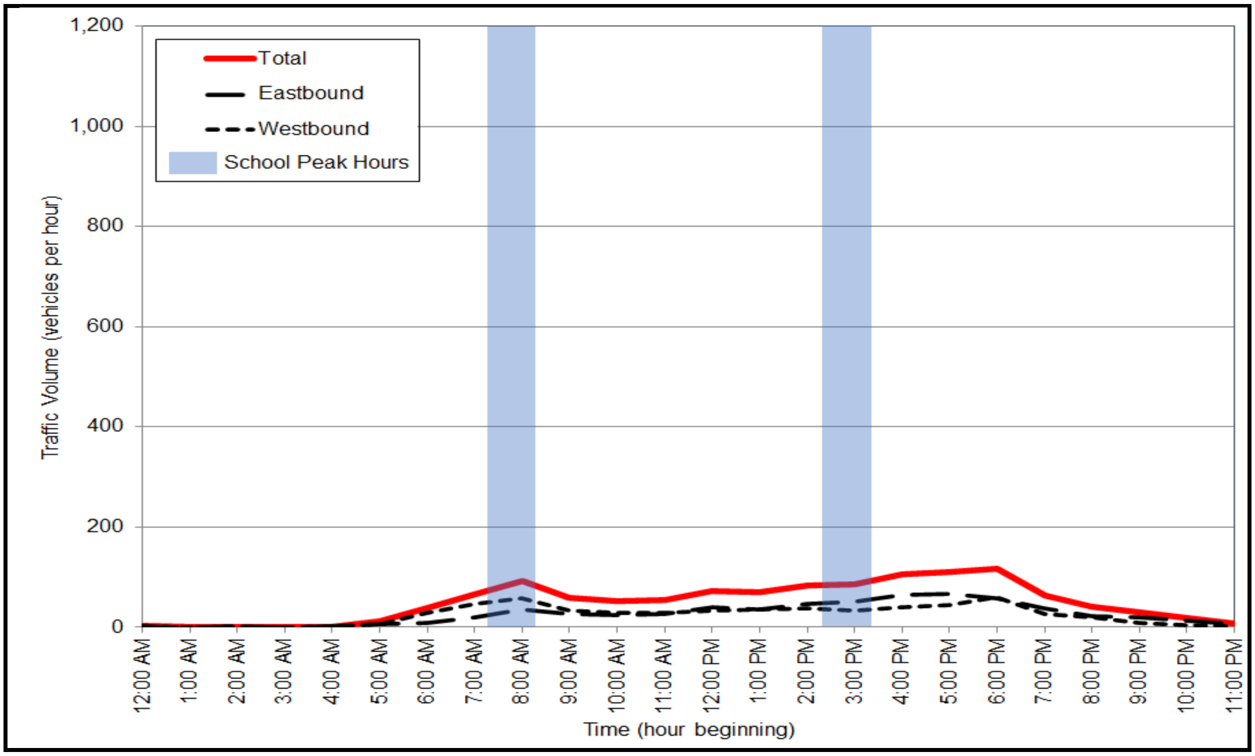
Source: *Average weekday volumes from machine counts performed by Idax Data Solutions on Sand Point Way NE between NE 107th and NE 110th Streets, Tuesday, October 1 through Thursday, October 3, 2019.*

Figure 4. Hourly Traffic Volumes on 35th Avenue NE – March 2019



Source: *Average weekday volumes from machine counts performed by SDOT on 35th Avenue NE between NE 110th and NE 113th Streets, Tuesday, March 5 through Thursday, March 7, 2019.*

Figure 5. Hourly Traffic Volumes on NE 105th Street – October 2019



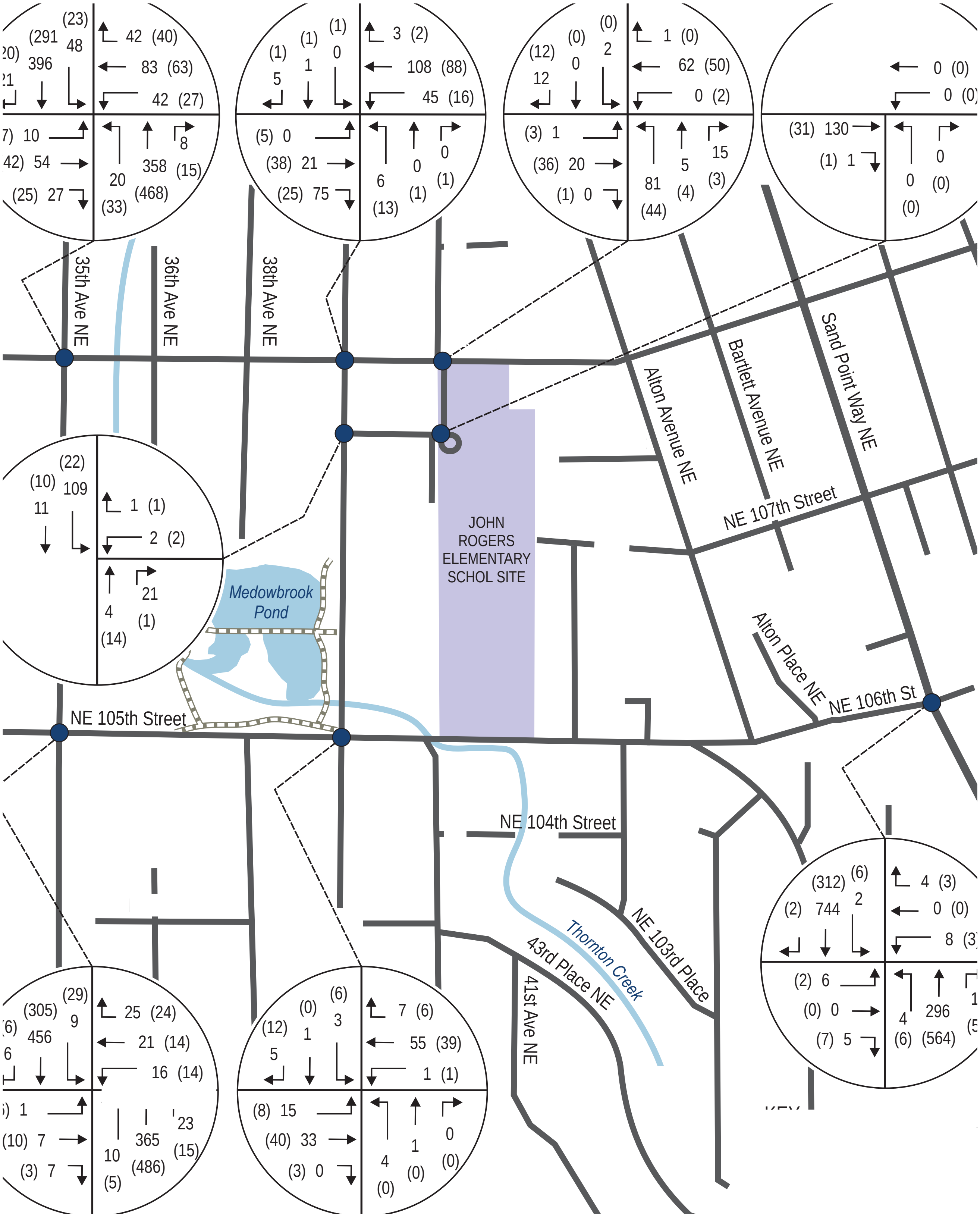
Source: Average weekday volumes from machine counts performed by Idax on NE 105th St just east of 40th Ave NE, Oct. 1-3, 2019.

2.2.2. Historical Traffic Volumes

Historic traffic data from the SDOT and from Idax Data Solutions were obtained and compiled to document traffic volume patterns prior to the COVID-19 pandemic. Multi-day machine counts performed on 35th Avenue NE (at or near NE 110th Street) from 2005 to 2019 were examined. Counts from 2019 on Sand Point Way NE (between NE 107th and NE 110th Street) and NE 105th Street (between 39th and 43rd Avenues NE) we also compiled for review. The counts performed in March 2022 for this analysis reflected declines in volume with morning and afternoon peak hour volumes down by 10% compared to the pre-pandemic 2019 data. Therefore, to reflect normalized (pre-pandemic) existing 2022 conditions, volumes were balanced to the higher levels along 35th Avenue NE, Sand Point Way NE, and NE 105th Street documented prior to the pandemic. These normalization adjustments result in a conservatively-high baseline of peak hour traffic volumes for year 2022. Figure 6 shows the normalized existing (2022) traffic volumes for the school's morning arrival and afternoon dismissal peak hours.

2.2.3. Future Without-Project Conditions

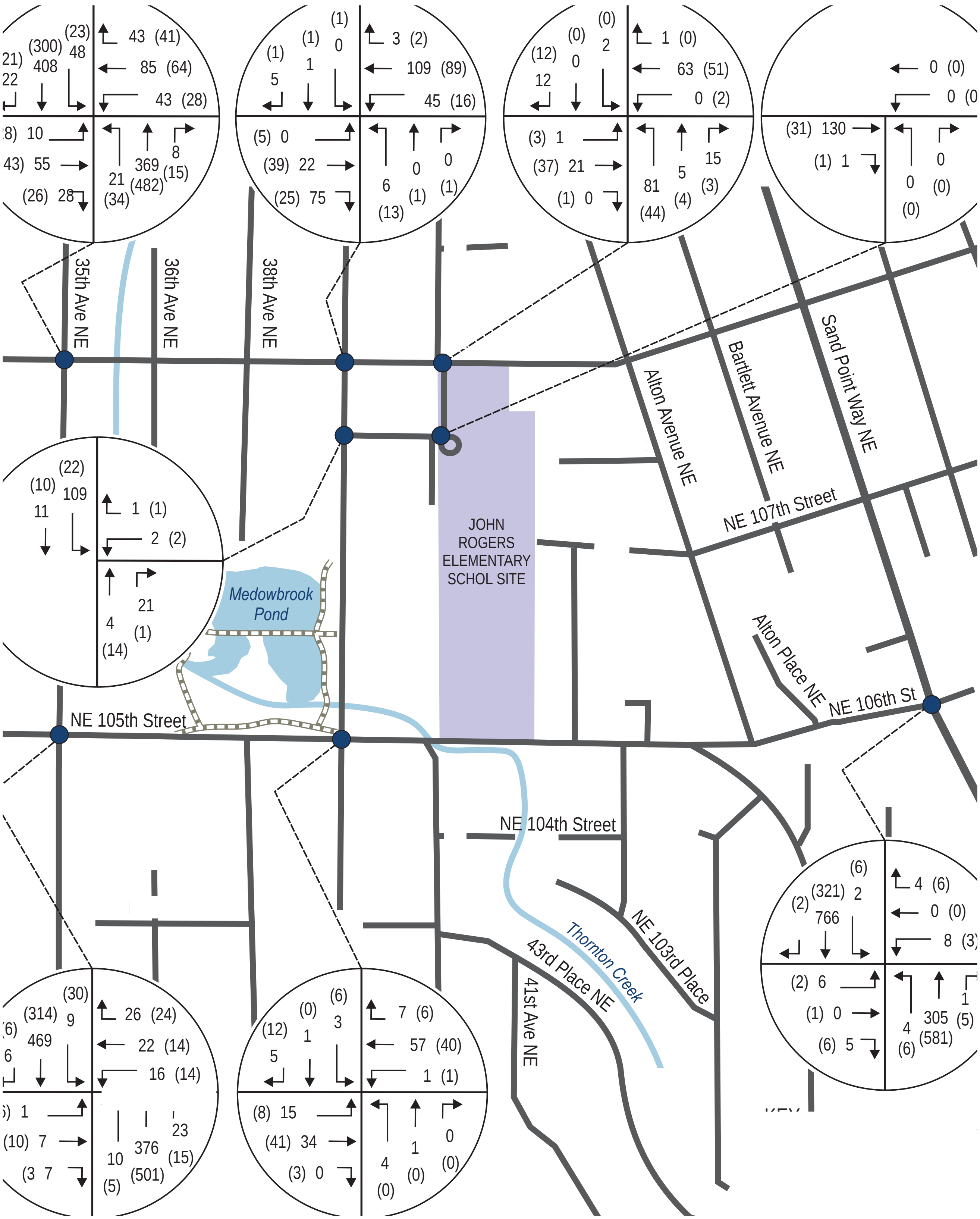
Traffic volume forecasts for 2025 conditions without the project were developed using a compound annual growth rate. Historical traffic count data along Sand Point Way NE and 35th Avenue NE indicate volumes decreased over the years between about 2016 and 2019 (prior to the COVID-19 pandemic). Year 2022 counts indicate that trend has continued. Although volumes have declined, to reflect the possibility of traffic growth in non-school traffic that could occur by 2025, a 1.0% compound annual growth rate was applied to the existing traffic volumes. This rate is within the range of rates used for traffic analyses of other developments in the vicinity and throughout Seattle. Based on a review of Seattle Department of Construction & Inspection's (SDCI's) Property and Building Activity permit map, no development projects permitted in the area that are estimated to contribute noticeable increases in traffic at study intersections by year 2025. Figure 7 shows the 2025-without-project morning and afternoon peak hour traffic volumes.



SEATTLE PUBLIC SCHOOLS
John Rogers Elementary Replacement

Figure 6
Normalized Existing (2022) Traffic Volumes
Morning and Afternoon Peak Hours

heffron transportation inc



SEATTLE PUBLIC SCHOOLS
John Rogers Elementary Replacement

Figure 7
Forecast 2025-Without-Project Traffic Volumes
Morning and Afternoon Peak Hours

heffron transportation inc

2.4. Traffic Operations

2.4.1. Off-Site Study Area Intersections

Traffic operations are evaluated based on level-of-service (LOS), which is a qualitative measure used to characterize intersection operating conditions. Six letter designations, "A" through "F," are used to define level of service. LOS A is the best and represents good traffic operations with little or no delay to motorists. LOS F is the worst and indicates poor traffic operations with long delays. The City of Seattle does not have adopted intersection level of service standards; however, project-related intersection delay that causes a signalized intersection to operate at LOS E or F, or increases delay at a signalized intersection that is projected to operate at LOS E or F without the project, may be considered a significant adverse impact, if increases are greater than 5 seconds. The City may tolerate LOS E/F conditions at unsignalized locations where traffic control measures (such as conversion to all-way-stop-control or signalization) are not warranted or desirable.

Levels of service for the study area intersections were determined using methodologies established in the *Highway Capacity Manual (HCM), 6th Edition.*[19] Appendix A summarizes HCM level of service thresholds and definitions for signalized and unsignalized intersections. The modeling assumptions for existing conditions, including signal timing and phase splits for the signalized intersection, were provided by SDOT.[20] The modeling assumptions for 2025-without-project conditions were modified to ensure compliance with SDOT's new policy for signal timing, which codifies support for mobility while minimizing delay to pedestrians[21] and recent/ongoing implementation of Leading Pedestrian Intervals (LPIs). Levels of service for the study area intersections were determined using the *Synchro 10.3* analysis software. The models reflect existing intersection geometries and channelization; these characteristics were assumed to remain unchanged for future 2025 conditions.

Table 1 summarizes existing and forecast 2025 levels of service without the proposed project for both the morning and afternoon peak hour conditions. These analyses account for school bus trips and pedestrian activity at intersections, as well as the peaking characteristics of school traffic (school drop-off and pick-up primarily occurs during about 20 minutes in the peak hour). As shown, all study-area intersections currently operate at LOS B or better overall. All movements at the unsignalized intersections currently operate at LOS D or better. The assumed growth in background traffic is estimated to add negligible amounts of delay (less than two seconds per vehicle) to four of the unsignalized intersections by 2025. Because existing volumes are very low at the remaining two intersections, the assumed growth rate did not result in noticeable changes to volume forecasts nor any increases in delay by 2025 without the project. The anticipated changes to signal timing to implement LPIs and increased pedestrian crossing times are forecast to result in small increases in vehicular delay (6 seconds in the morning and 4.5 seconds in the afternoon) at the NE 110th Street / 35th Avenue NE intersection. All study-area intersections are forecast to remain operating at LOS B overall and all movements at the unsignalized intersections would remain operating at LOS D or better during both peak hours.

19 Transportation Research Board 2016.
20 L. Wojcicki, SDOT, March 21, 2022.
21 SDOT, *Policy for Traffic Signal Cycle Time, and Pedestrian Signal Timing and Actuation*, January 27, 2021. The policy reduces walk speed calculations, and establishes criteria for pedestrian recall phases.

Table 1. Level of Service Summary – Existing and 2025-Without-Project Conditions

Control Type / Intersections	Morning Peak Hour				Afternoon Peak Hour			
	Existing		Without-Project		Existing		Without-Project	
Signalized	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
NE 110th Street / 35th Avenue NE	B	11.9	B	17.9	B	11.5	B	16.0
Uncontrolled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 109th St / 40th Ave NE / Dwy [3]	A	8.8	A	8.8	A	7.5	A	7.5
Stop Controlled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 110th St / 39th Ave NE (overall)	A	2.0	A	2.0	A	1.9	A	1.9
Eastbound Left-Turn Movement	A	0.0	A	0.0	A	7.5	A	7.5
Westbound Left-Turn Movement	A	7.8	A	7.8	A	7.4	A	7.4
Northbound Approach	B	13.5	B	13.6	B	10.3	B	10.4
Southbound Approach	B	10.2	B	10.2	B	10.0	B	10.0
NE 110th St / 40th Ave NE / Dwy (overall)	A	7.8	A	7.7	A	5.5	A	5.4
Eastbound Left-Turn Movement	A	7.4	A	7.4	A	7.3	A	7.4
Westbound Left-Turn Movement	A	0.0	A	0.0	A	7.3	A	7.3
Northbound Approach	B	11.5	B	11.5	B	10.4	B	10.4
Southbound Approach	A	9.1	A	9.1	A	8.7	A	8.7
NE 109th St / 39th Ave NE (overall)	A	6.4	A	6.4	A	4.0	A	4.0
Southbound Left-Turn Movement	A	7.8	A	7.8	A	7.4	A	7.4
Westbound Approach	B	13.6	B	13.6	A	9.6	A	9.6
NE 105th St / 35th Ave NE (overall)	A	2.2	A	2.3	A	2.8	A	2.8
Northbound Left-Turn Movement	A	8.6	A	8.6	A	8.3	A	8.3
Southbound Left-Turn Movement	A	8.6	A	8.6	A	9.2	A	9.3
Eastbound Approach	C	19.3	C	19.9	D	27.0	D	28.3
Westbound Approach	C	24.1	D	25.2	D	26.1	D	27.3
NE 106th St / Sand Point Wy NE (overall)	A	0.7	A	0.7	A	0.5	A	0.5
Northbound Left-Turn Movement	A	9.5	A	9.6	A	8.0	A	8.0
Southbound Left-Turn Movement	A	8.1	A	8.2	A	9.2	A	9.3
Eastbound Approach	C	24.0	D	25.2	C	15.1	C	15.5
Westbound Approach	C	24.1	D	25.3	C	17.7	C	18.2
Traffic-Circle Controlled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 105th St / 39th Ave NE	A	3.2	A	3.2	A	3.1	A	3.1

Source: Heffron Transportation, Inc., April 2022.

1. *LOS = Level of service.*
2. *Delay = Average seconds of delay per vehicle.*
3. *Uncontrolled intersection evaluated as all-way-stop.*

2.4.2. Site Access

The site has two vehicular access driveways—one opposite NE 109th Street just east of 40th Avenue NE and an exit only driveway on NE 110th Street just east of 40th Avenue NE. These driveways provide access and egress for the on-site load/unload loop (although the loop is generally not used during peak periods due to its small size) as well as the on-site parking. School buses that load/unload on the south side of NE 109th Street west of 40th Avenue NE also egress the school using the exit onto NE 110th Street.

2.5. Parking Supply and Occupancy

On-street parking at and around the John Rogers Elementary School site was surveyed to determine the existing parking supply and parking occupancy. The results of those surveys were used to estimate how parking occupancy could be affected by the school replacement project (which is presented later in Section 3.4). The following sections describe the parking supply as well as the current parking occupancy and utilization rates.

2.5.1. Methodology and Study Area

Detailed on-street parking studies were performed and supply was documented according to the methodology outlined in the City's Tip #117. Although Tip #117 was created for another purpose, it outlines the City's preferred methodology to determine the number and type of on-street parking spaces that may exist within a defined study area, and how much of that supply is currently utilized at different times of the day.

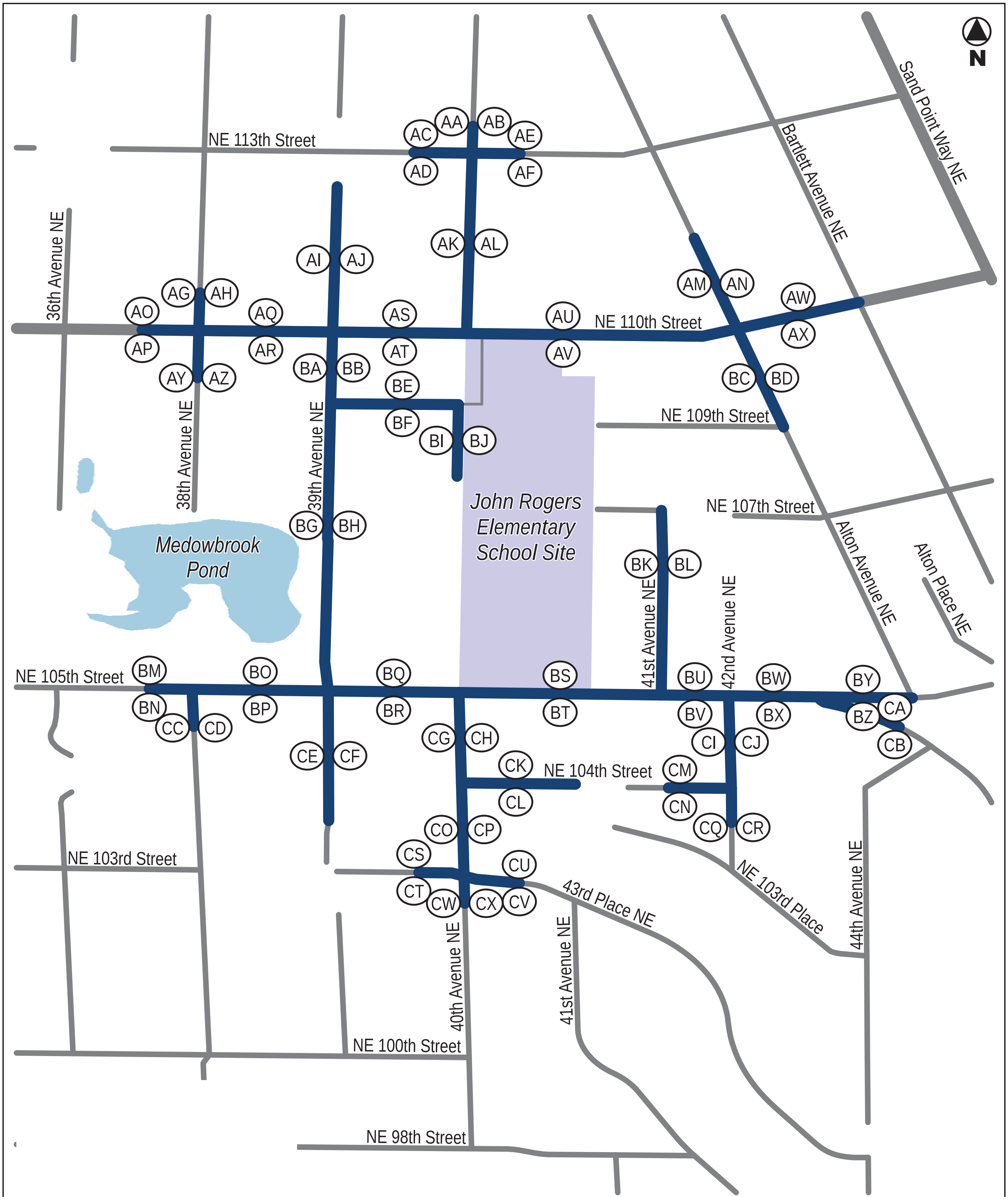
The study area for the on-street parking analysis included all roadways within an 800-foot *walking* distance from the school site, as is typically required by the City of Seattle. The 800-foot walking distance results in a study area that extends just east of 38th Avenue NE, just north of NE 113th Street, east to Bartlett Avenue NE and just south of 43rd Place NE. The study area consists primarily of single-family houses, the majority of which have garages, driveways and/or off-street parking accessed via alleys; however, some residents use on-street parking. Details about parking supply and occupancy are provided in the following sections.

2.5.2. Existing On-Street Parking Supply

The study area was separated into individual block faces. A block face consists of one side of a street between two cross-streets. For example, the north side of NE 110th Street between 39th Avenue NE and 40th Avenue NE is one block face (identified as block face 'AS' for this study). The study area and block face designations are shown on Figure 8.

Each block face was measured and analyzed to determine the number of on-street parking spaces. First, common street features—such as driveways, fire hydrants, and special parking zones—were noted. No on-street parking capacity was assumed within 30 feet of a signalized or marked intersection, within 20 feet of an uncontrolled intersection, within 15 feet on either side of a fire hydrant, or within 5 feet on either side of a driveway or alley. The remaining unobstructed lengths between street features were converted to legal on-street parking spaces using values in the City's Tip #117. Based on extensive past experience of Heffron Transportation preparing on-street parking utilization studies, a trend has been observed that the increased popularity of smaller cars and the tendency for drivers to park closer together in areas with higher utilization can result in more available supply than would be suggested by the Tip #117 guidance. Detailed parking supply by block face is provided in Appendix B.

The parking supply survey determined that there are 386 on-street parking spaces within the existing study area and 382 have no signed restrictions. After accounting for school bus and school load restrictions along NE 109th Street (totaling 4 spaces), the total available on-street parking supply is 382 spaces in the early morning survey period and 386 space across the other time periods.



SEATTLE PUBLIC SCHOOLS
John Rogers Elementary Replacement

Figure 8
Study Area for On-Street
Parking Utilization Surveys

heffron transportation inc

2.5.3. On-Street Parking Occupancy

At the time of this study, Seattle Public Schools had returned to in-person learning despite the lingering effects of the COVID-19 pandemic. While some employees were beginning to return to offices in the greater Seattle region, many were still working from home, which likely resulted in higher levels of resident-generated parking demand at and near homes during weekdays.

Parking occupancy counts were performed in late February 2022 to reflect study area conditions at a time when school was not in session (during mid-winter break); counts were performed in March 2022 to reflect conditions with school in session. Occupancy counts were performed at three times each day—during early morning (between 7:00 and 7:45 A.M.) to reflect the time when staff would typically begin to arrive at the school, mid-morning between 10:30 and 11:15 A.M.) when school-day parking demand is typically highest and evening (between 7:30 and 8:15 P.M.) when some school events would typically occur. The mid-winter-break counts were performed Wednesday, February 23, 2022; the school-day counts were performed Tuesday, March 1 and Thursday, March 3, 2022. The counts for each day were compiled and averaged for each school day and time period. The results of the parking occupancy surveys are summarized in Table 2. On-street parking utilization was calculated using the methodology described in Tip #117 and is the number of vehicles parked on-street divided by the number of legal on-street parking spaces within the study area or on a specific block face. The study area utilization totals are also summarized in Table 2. For the purpose of evaluating the potential on-street parking impacts associated with the new developments, the City considers utilization rates of 85% or higher to be effectively full.

Table 2. Parking Occupancy Survey Results – February and March 2022

Time Period Surveyed	Parking Supply	Total Vehicles Parked	% Utilization
Weekday Early Morning (7:00 to 7:45 A.M.)			
Tuesday, March 1, 2022	382 [a]	59	15%
Thursday, March 3, 2022	382 [a]	68	18%
Average	*382 [a]*	*64*	*17%*
Mid-Winter Break, Wednesday, February 23, 2022	382 [a]	62	16%
Weekdays Mid-Morning (10:30 to 11:15 A.M.)			
Tuesday, March 1, 2022	386	65	17%
Thursday, March 3, 2022	386	65	17%
Average	*386*	*65*	*17%*
Mid-Winter Break, Wednesday, February 23, 2022	386	57	15%
Weekday Evenings (7:30 to 8:15 P.M.)			
Tuesday, March 1, 2022	386	71	18%
Thursday, March 3, 2022	386	66	17%
Average	*386*	*69*	*18%*
Mid-Winter Break, Wednesday, February 23, 2022	386	68	18%

Source: Heffron Transportation, Inc., March 2022.

a. *Parking supply excludes, 4 spaces signed for School Bus Only (7–10 am, 1–4 pm) on south side of NE 109th St west of 40th Ave NE.*

As shown, the surveys determined that parking utilization and ranged between 15% and 18% (well below 85%) during all time periods, including over mid-winter break. Average occupancy was higher mid-morning on school days compared to mid-winter break conditions (8 added vehicles); however, based on the occupancy of block faces closest to the school, only about three of these vehicles are estimated to be related to John Rogers Elementary School. Within the study area, unused parking ranged between 314 and 323 spaces on school days across the three observation periods. Detailed summaries of the on-street parking occupancy by block face for all counts are provided in Appendix B.

2.5.4. On-Site Parking

There are two striped on-site parking lots located on the north side of the school with a total parking supply of 35 spaces. The northernmost lot has 20 stalls, the southern lot is reserved for staff and has 15 spaces including 2 stalls that require a disabled permit placard. Parking also occurs along the eastern side of the school building on asphalt areas that are not striped for parking. Gated access to these areas occurs from the east end of the staff parking lot.

Counts of on-site parking were conducted midday when school was in session. The counts indicated 13 vehicles typically park in the staff lot, 3 to 7 vehicles park in the northernmost lot, and 23 to 26 vehicles park along the eastern side of the building. In total on-site school-day parking demand is estimated to range from about 38 vehicles to 46 vehicles.

2.5.5. Combined School-Day Parking Demand

As noted, it is possible that some school-related parking demand may occur on-street (estimated at 3 vehicles). Therefore, rates that consider on-site and on-street demand were derived. The combined (on- and off-site) parking demand rates for the school are estimated to range from 0.91- to 1.09-vehicles-per-employee. The range of rates, derived specifically for John Rogers Elementary School are within the range of rates on which ITE's *Parking Generation*[22] rates and equations are based. The rates derived for John Rogers Elementary School account for parking demand generated by all users, including employees and visitors.

2.6. Traffic Safety

Collision data for the study area intersections and roadway segments were obtained from SDOT's Open Data Portal for the period between January 1, 2018 and the most recent records available as of February 25, 2022 (4.15 years). The data, summarized in Table 3, were examined to determine if there are any unusual traffic safety conditions that could impact or be impacted by the proposed project. Unsignalized intersections with five or more collisions per year and signalized intersections with 10 or more collisions per year are considered high collision locations by the City.

As shown, all of the study area intersections had fewer than two collisions per year. The most common type of collision involved vehicles at right angles. There was one reported collision for the study area during this period that involved a moving vehicle and a pedestrian (in May of 2018 at the NE 110th Street intersection with 35th Avenue NE). None of the studied intersections meet the criteria for a high-collision location, and none of the reported collisions resulted in fatalities. Overall, these data do not indicate any unusual traffic safety conditions.

---

22 ITE, 5th Edition, 2010.

Table 3. Collision Summary (January 1, 2018 through February 25, 2022)

Intersection	Rear-End	Side-Swipe	Left Turn	Right Angle	Ped / Cycle	Other	Total for 4 Years	Average/ Year
NE 110th Street / 35th Avenue NE	1	0	0	0	1	1	3	0.7
NE 110th Street / 39th Avenue NE	0	0	0	0	0	0	0	0.0
NE 110th St / 40th Ave NE / School Dwy	0	0	0	0	0	1	1	0.2
NE 110th Street / Sand Point Way NE	1	0	1	2	0	1	5	1.2
NE 109th Street / 39th Avenue NE	0	0	0	0	0	0	0	0.0
NE 109th St / 40th Ave NE / School Dwy	0	0	0	0	0	0	0	0.0
NE 105th Street / 35th Avenue NE	0	0	0	1	0	0	1	0.2
NE 105th Street / 39th Avenue NE	0	0	0	0	0	1	1	0.2
Roadway Segment	**Rear-End**	**Side-Swipe**	**Left Turn**	**Right Angle**	**Ped / Cycle**	**Other**	**Total for 4 Years**	**Average/ Year**
NE 105th Street, between 40th Avenue NE and 41st Place NE	0	0	0	0	0	0	0	0.0
NE 109th Street, between 39th Avenue NE and 41st Place NE	0	0	0	0	0	0	0	0.0

Source: SDOT, https://data-seattlecitygis.opendata.arcgis.com/datasets/collisions, February 2022.

a. *'Other' collisions included two vehicles striking fixed and one with insufficient information to determine type.*

2.7. Transit Facilities and Service

King County Metro Transit (Metro) provides bus service in the area. The closest bus stops are located along 35th Avenue NE at NE 105th and NE 110th Streets about ¼-mile to the west and along Sand Point Way NE at NE 106th and NE 110th Streets about ¼-mile to the east. The stops on 35th Avenue NE are served by Metro Routes 64 and 65; the stops on Sand Point Way NE are served by Route 75. All three routes are described below.

Route 64 provides peak period weekday service to and from Lake City, Wedgwood, Ravenna, Roosevelt, and Downtown Seattle. There are six trips into Downtown Seattle in the morning (between 6:00 and 9:45 A.M.) and six trips to Lake City in the afternoon (between 4:15 and 8:00 P.M.).

Route 65 provides daily service to and from Jackson Park, Lake City, Wedgwood, Children's Hospital, and the University District with weekday headways of about 15 minutes from 5:00 A.M. to 10:30 P.M., and 20 to 30 minutes after 10:30 P.M.

Route 75 provides daily service to and from Northgate, Lake City, Sand Point, Children's Hospital, and the University District with weekday headways of about 15 minutes from 5:00 A.M. to 9:00 P.M., and 30 minutes after 9:00 P.M.

In January 2017, King County Metro adopted 'Metro Connects,'[23] the 25-year vision plan that will serve as the guiding policy framework for future improvements to the transit network. The plan identifies some changes to routes serving the study area, but none are expected to be in place by 2025 when the school replacement project is complete.

School bus transportation is made available to John Rogers Elementary School students who qualify for transportation. The existing school is served by two full-size school buses and two smaller Special Education (SPED) bus.[24] Currently, those buses use school-bus load/unload zones located on the south side of NE 109th Street west of 40th Avenue NE in front of single-family homes.

[23] King County Metro, adopted January 2017.

[24] Seattle Public Schools, March 2022.

2.8. Non-Motorized Transportation Facilities

As described in the *Roadway Network* section, the study area roadways have incomplete segments of sidewalks or sidewalk on only one side. There are sidewalks adjacent to the school site on NE 110th and NE 105th Streets. There are marked crosswalks at several of the study-area intersections and crosswalks with RRFBs in some locations as listed below.

- NE 110th Street / 35th Avenue NE (signalized): *crosswalks on all legs*
- NE 110th Street / 39th Avenue NE (unsignalized): *crosswalk on west leg*
- NE 110th Street / 40th Avenue NE / John Rogers Access (unsignalized): *crosswalk on east leg*
- NE 110th Street / Sand Point Way NE (unsignalized): *crosswalk on south leg with RRFB*
- NE 109th Street / 39th Avenue NE (uncontrolled): *crosswalk on south leg*
- NE 109th St / 39th Ave NE / John Rogers Access (uncontrolled): *crosswalks on south and east legs*
- NE 105th Street / 35th Avenue NE (unsignalized): *crosswalk on north leg*

In addition to the crosswalks at the above study-area intersections there are crosswalks near the school site on NE 105th Street on the west leg at 40th Avenue NE and on the west leg at 41st Place NE. There is pedestrian access to the eastern side of the school site provided by a trail at the street-end of NE 109th Street west of Alton Avenue NE.

The count data indicate relatively high levels of pedestrian activity at intersections around the school during the analysis hours. The NE 109th Street / 40th Avenue NE intersection experienced the highest pedestrian volume with over 200 crossings in the morning peak hour—mostly across the south leg. These reflect students and parents walking from the local area, some walking from cars after being dropped-off on local streets, and large numbers alighting from the school buses on the south side of NE 109th Street. There were also relatively high volumes of pedestrians (135 crossing) at the NE 109th Street / 39th Avenue NE intersection and fewer at the intersections of NE 105th Street / 39th Avenue NE (67 crossings) and NE 110th Street / 40th Avenue NE (45 crossings) in the morning peak hour. Afternoon pedestrian volumes were similar to those observed in the morning. During the morning arrival and afternoon dismissal times, few bicycles (0 to 2) were observed at the intersections closest to the site, with the most observed (5 to 7 per hour) at the NE 105th Street / 39th Avenue NE intersections. The school Principal indicated that five to ten students ride bikes to and from school and that three to seven adults bicycle.[25]

The City of Seattle's current *CIP* and the *Safe Routes to School 5-Year Action Plan for Seattle* were reviewed to determine if any pedestrian facility improvements are planned in the area. The proposed *2022-2027 CIP* includes funding over the next five years to advance the *Pedestrian Master Plan*[26] recommendations. However, no specific planned non-motorized facility improvements are listed for the study area roadways or intersections in the *CIP. Seattle Pedestrian Master Plan 2022-2024 Implementation Plan Report*[27] does not list any planned improvements within the study area.

The *BMP* identifies planned bicycle infrastructure improvements with neighborhood greenways recommended as part of the Citywide Network as well as the Local Connector network along NE 105th Street, Alton Avenue NE, 40th Avenue NE (south of the site), and 45th Avenue NE (south of the site). An in-street local connector was recommended along NE 110th Street and protected bicycle lanes were recommended along 35th Avenue NE. It also lists recommended neighborhood greenways along several other roadways beyond the local study area.

25 Email communication, B. Ostbye – Principal, John Rogers Elementary School, May 18, 2022.
26 SDOT, June 2017.
27 SDOT, 2021.

3. PROJECT IMPACTS

This section describes the conditions that would exist with the John Rogers Elementary School Replacement complete and the school operating with up to 540 students. Vehicle trip estimates associated with the school replacement were added to the 2025-without-project traffic volume forecasts. Level of service analyses were performed to determine the proposed project's impact on traffic operations in the study area. Parking demand and the potential change to on-street parking utilization was also estimated.

3.1. Roadway Network

The existing site access on NE 110th Street would be widened from 17 feet to 22 feet to accommodate two-way access for the existing 20-stall northern staff parking lot that would be retained; the existing concrete driveway apron and the adjacent pedestrian connection would be replaced. The existing site access on NE 109th street would be re-configured to accommodate the new on-site school-bus loop and service/delivery access. New curb ramps would be provided at the southeast and southwest corner of the intersection at 40th Avenue NE. Frontage improvements would be provided along 40th Avenue NE as required by SDOT through the Street Improvement Permit (SIP) process and may include right-of-way dedication, a walkway or sidewalk, curb, and gutter, and/or vehicular turn around/cul-de-sac. As part of the construction of a new site access driveway on NE 105th Street, sidewalk and curb would be continued to the east connecting with the existing sidewalk and curb along the adjacent property. The existing angle parking on the north side of NE 105th Street is planned to be retained; the existing school-bus load zone on the south side of NE 109th Street west of 40th Avenue NE would be removed.

It is acknowledged that as part of the City's *Seattle Transportation Plan* process (launched in March 2022), SDOT is reviewing and may in the longer-term expand its school-streets program that closes neighborhood streets around some schools to pass-through traffic, including parents. This program has a goal of reducing traffic congestion in front of schools, encouraging families to walk or bike to school, and/or park a few blocks away and walk, dispersing the vehicular traffic impacts of the school and added enrollment. To reflect worst-case conditions for evaluating potential impacts, this analysis reflects the current patterns with vehicular activity concentrated on and adjacent to the school site.

3.2. Traffic Volumes

The proposed project could generate new vehicular, pedestrian, and bicycle activity on the surrounding transportation network. The school is expected to have an enrollment capacity of up to 540 students, and is expected to generate an increase in daily and peak hour traffic compared to year 2022 conditions when the enrollment was 262 students. The following describes the method used to estimate project-generated traffic.

3.2.1. School Trip Generation

Trip generation estimates for school projects are generally developed using one of two methods. For new schools, rates published in the Institute of Transportation Engineers' *Trip Generation Manual*[28] can be applied. For modernizations, replacements, and/or expansions of existing schools, actual counts of the existing school can be used. Trip generation estimates were derived from the video traffic counts performed at surrounding intersections and along the roadways adjacent to the school. The resulting estimates were compared to published trip generation rates.

Based on the data collected, the school currently generates an estimated 0.92 trips per student in the morning peak hour and 0.53 trips per student in the afternoon peak hour. The rates are higher than average rates published for Elementary Schools (Land Use 520) in the *Trip Generation Manual* (0.75 trips per student in the morning peak hour and 0.45 trips per student in the afternoon peak hour), but are generally comparable to rates derived from counts at other Seattle elementary schools. Since these rates

[28] ITE, 11th Edition, September 2021.

were derived specifically for the existing school, they are most appropriate for use in evaluating future conditions with the John Rogers Elementary School Replacement and added enrollment capacity.

The derived rates were applied to the proposed new enrollment capacity at John Rogers Elementary (540 students including the possible new pre-school component), and Table 4 presents the resulting trip generation estimates. These estimates include school bus trips, employee trips, and family-vehicle trips. No change to the number of school buses serving the site is expected.[29] These estimates account for trips associated with the pre-school and before- and after-school care components, although many of those trips may occur outside of the peak hours for the school.

Table 4. John Rogers Elementary School Replacement Project – Trip Generation Estimates

		Morning Peak Hour			Afternoon Peak Hour		
Site Condition	Enrollment	In	Out	Total	In	Out	Total
Proposed John Rogers Elementary	540 students [a]	278	219	497	119	167	286
Existing John Rogers Elementary	262 students [b]	135	106	241	58	81	139
Net Change	278 students	143	113	256	61	86	147

Source: Heffron Transportation, Inc., April 2022.

a. *Potential future capacity of school with Pre-K addition.*

b. *Enrollment of the existing school at the time of site traffic counts; SPS P223 Enrollment Report, Feb. 2022.*

3.2.2. Trip Distribution & Assignment

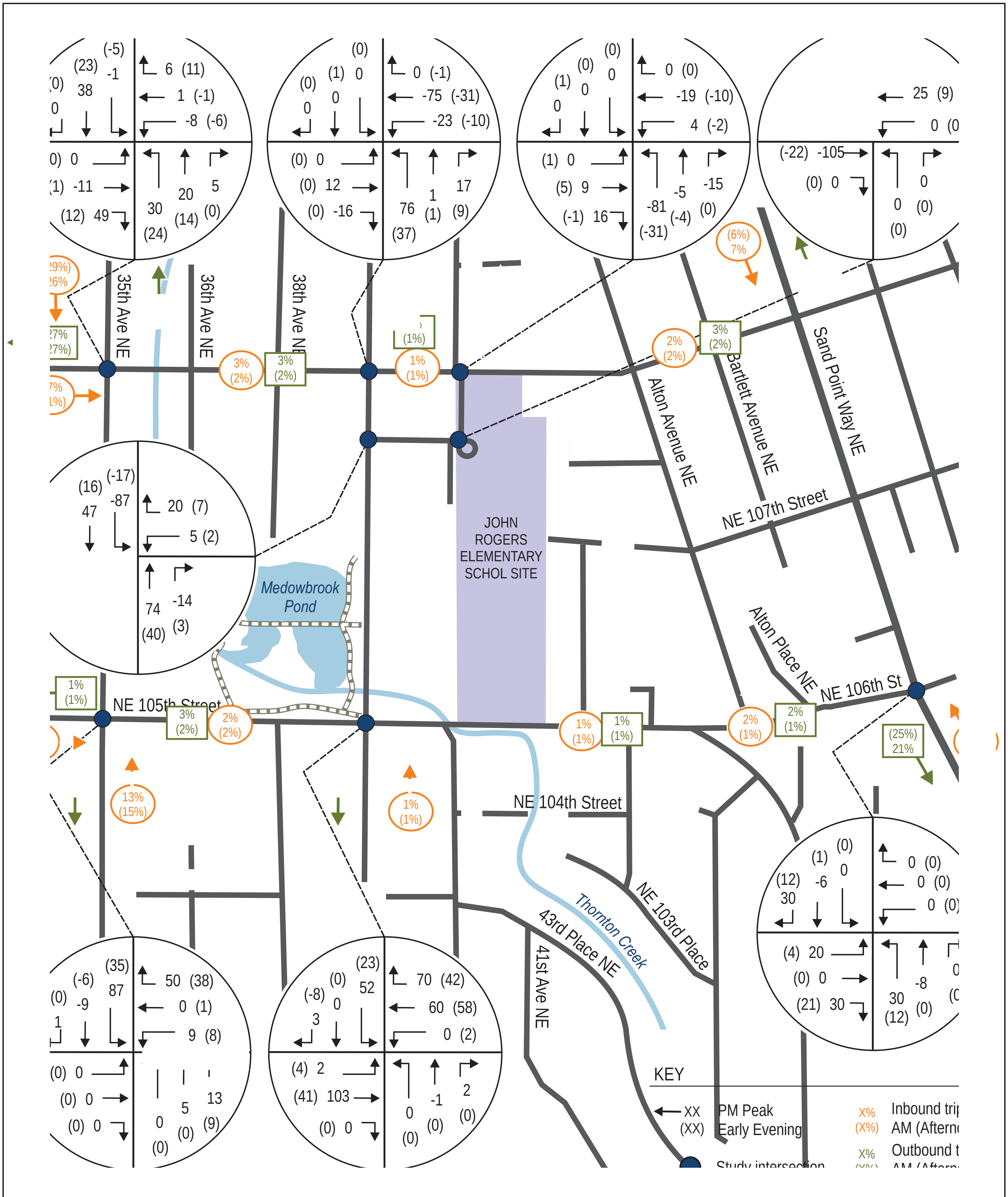
The larger John Rogers Elementary School is expected to accommodate growth largely within the existing enrollment area for the school. Trip distribution patterns for the added elementary school trips within the project study area were developed based on a combination of resources including: 1) the school's attendance area; 2) population density data in census tracks within the subsectors of school's attendance area; 3) employment location of residents living within the school's attendance area from *OnTheMap;*[30] 4) Google Maps predictive travel-route and travel-time mapping resource; 5) traffic counts and directional patterns at intersections adjacent to the site; and 6) the proposed changes to site access, parking, and internal circulation. The resulting trip patterns reflect typical habits of some family drivers linking student drop-off and pick-up trips with trips to and from work or other destinations. For existing, without-, and with-project conditions, most of the morning and afternoon peak hour trips consist of passenger vehicles (for student drop off and pick up) and school buses with some trips generated by staff.

School buses and drivers transporting students to and from the pre-school and before- and after-school care areas would use the access at the east end of NE 109th Street. Some school employees would use the driveway on NE 110th Street to access the 20-stall staff parking lot. The remaining family-driver trips, some staff trips, and visitor trips would use the new access on NE 105th Street. Some family-vehicle load/unload is also expected to occur from on-street parking areas as currently occurs, but larger increases are expected along NE 105th Street where new vehicle access, pedestrian, and bicycle connections would be provided.

Figure 9 shows the estimated net changes in traffic at the study intersections along with the project trip distribution percentages for morning and afternoon peak hours. As shown, the project is expected to shift family-vehicle traffic away from NE 110th Street to NE 105th Street. The net changes in peak hour trips were combined with the forecast 2025-without-project traffic volumes to reflect future conditions with the project. Figure 10 shows the forecast 2025-with-project morning and afternoon peak hour traffic volumes.

29 Email communication, T. Yang, March 2, 2022.

30 Version 6, United States Census Bureau, web-based mapping and reporting application, https://onthemap.ces.census.gov/, accessed March 2022.



SEATTLE PUBLIC SCHOOLS
John Rogers Elementary Replacement

Figure 9
Trip Distribution and Net New Project Trips
Morning and Afternoon Peak Hours

heffron transportation inc

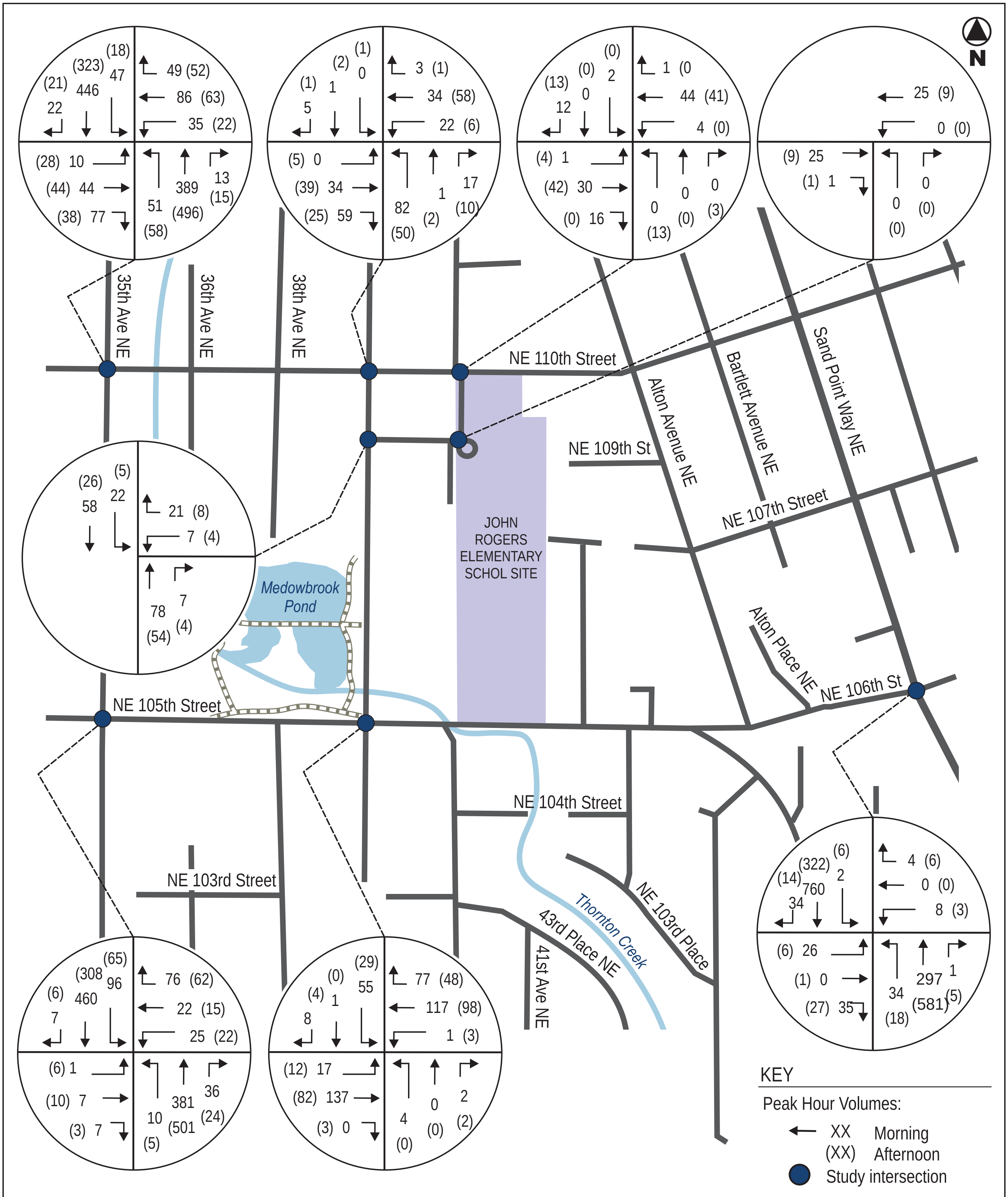


Figure 10
Forecast 2025-With-Project Traffic Volumes
Morning and Afternoon Peak Hours

3.3. Traffic Operations

Intersection levels of service for forecast 2025-with-project conditions were evaluated using the same methodology described previously. The additional enrollment capacity could result in increased pedestrian trips, crossings, and bicycle activity at the nearby study intersections. The operational analyses accounted for these potential increases. Table 5 shows the results of the analysis; levels of service for the without-project conditions are provided for comparison.

Table 5. Level of Service Summary – Forecast 2025-Without- and With-Project Conditions

Control Type / Intersections	Morning Peak Hour				Afternoon Peak Hour			
	Without-Project		With-Project		Without-Project		With-Project	
Signalized	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
NE 110th Street / 35th Avenue NE	B	17.9	B	17.0	B	16.0	B	16.3
Uncontrolled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 109th St / 40th Ave NE / Dwy [3]	A	8.8	A	7.5	A	7.5	A	7.9
Stop Controlled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 110th St / 39th Ave NE (overall)	A	2.0	A	6.4	A	1.9	A	4.4
Eastbound Left-Turn Movement	A	0.0	A	0.0	A	7.5	A	7.5
Westbound Left-Turn Movement	A	7.8	A	7.7	A	7.4	A	7.5
Northbound Approach	B	13.6	B	13.6	B	10.4	B	10.9
Southbound Approach	B	10.2	A	9.3	B	10.0	B	10.4
NE 110th St / 40th Ave NE / Dwy (overall)	A	7.7	A	1.7	A	5.4	A	3.2
Eastbound Left-Turn Movement	A	7.4	A	7.4	A	7.4	A	7.3
Westbound Left-Turn Movement	A	0.0	A	7.4	A	7.3	A	0.0
Northbound Approach	B	11.5	A	0.0	B	10.4	A	9.5
Southbound Approach	A	9.1	A	9.0	A	8.7	A	8.7
NE 109th St / 39th Ave NE (overall)	A	6.4	A	3.6	A	4.0	A	2.2
Southbound Left-Turn Movement	A	7.8	A	7.7	A	7.4	A	7.9
Westbound Approach	B	13.6	B	11.0	A	9.6	B	10.6
NE 105th St / 35th Ave NE (overall)	A	2.3	A	6.7	A	2.8	A	6.6
Northbound Left-Turn Movement	A	8.6	A	8.6	A	8.3	A	8.3
Southbound Left-Turn Movement	A	8.6	A	8.9	A	9.3	A	9.9
Eastbound Approach	C	19.9	D	28.5	D	28.3	E	41.8
Westbound Approach	D	25.2	E	49.5	D	27.3	E	47.1
NE 106th St / Sand Point Wy NE (overall)	A	0.7	A	3.3	A	0.5	A	1.1
Northbound Left-Turn Movement	A	9.6	B	10.0	A	8.0	A	8.1
Southbound Left-Turn Movement	A	8.2	A	8.1	A	9.3	A	9.3
Eastbound Approach	D	25.2	E	39.8	C	15.5	C	15.2
Westbound Approach	D	25.3	D	34.2	C	18.2	C	19.6
Traffic-Circle Controlled	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
NE 105th St / 39th Ave NE	A	3.2	A	4.5	A	3.1	A	3.6

Source: Heffron Transportation, Inc., April 2022.

1. *LOS = Level of service.*
2. *Delay = Average seconds of delay per vehicle.*
3. *Uncontrolled intersection evaluated as all-way-stop.*

As shown, all of the study-area intersections are forecast to operate at LOS B or better overall in 2025 with the proposed school replacement project. The added vehicular traffic, increases in pedestrian activity around the school during peak hours due to the larger enrollment capacity, and the shift in traffic to the south side of the site at NE 105th Street with the new access configuration is expected to change delay at several study-area intersections. Some intersections and movements are forecast to experience reductions in delay as drivers shift to access on the south portion of the site. Intersections along NE 105th Street are forecast to experience increases in delay. The largest increase in delay for forecast at the NE 105th Street 35th Avenue NE intersection during the morning peak hour. East-west movements are forecast to degrade to LOS E with the added and shifted school traffic. However, drivers could find alternative routes if they find these delays excessive and this change in delay would not be considered a significant adverse impact. All other unsignalized movements would continue to operate at LOS D or better during both peak hours. As is typical in school areas during peak conditions—some congestion around the school would likely occur for about 20 minutes before and after school. However, the project would not result in significant adverse impacts to study area traffic operating conditions.

3.4. Parking Supply and Demand

The project would decrease the on-site parking supply to 28 spaces for all-day use; the on-site family-vehicle load/unload area (11 spaces) could be used for visitor parking during the school day. Both the family-vehicle and school-bus load/unload areas could be used for parking on evenings and weekends for events. In total, the site would have 51 parking spaces for event conditions (20 spaces in the north staff lot, 4 spaces in the visitor lot, 4 spaces in the eastern lot, 11 spaces in the passenger-vehicle load/unload loop, and 12 spaces in the school-bus load/unload area). The school replacement school would have less off-street parking than would be required by Seattle land use code. As part of the building permit approval process for the project, SDCI is anticipated to initiate a Development Standard Departure process with the Seattle Department of Neighborhoods to review this and any other code departures requested.

The school's frontage along NE 105th Street has angle parking that is expected to be retained. The existing school-bus load/unload only area along the south side of NE 109th Street west of 40th Avenue NE is anticipated to be removed and that area could be used for parking (space for four vehicles).

3.4.1. School Day Parking

School-day parking at elementary schools is primarily influenced by staffing levels and family-volunteer activity. With the new school planned at its increased enrollment capacity (540 students), the school could have up to 56 to 63 total employees (50 to 55 for the elementary school and 6 to 8 additional staff for the pre-school and before- and after-school care components).[31] Future parking demand estimates were developed based on the rates derived for the existing John Rogers Elementary School site and presented previously. from 0.91- to 1.09-vehicles-per-employee. Based on the range of rates, the proposed replacement school with the increased staff could generate parking demand of 51 to 69 vehicles—an increase of 10 to 20 vehicles compared to the existing school. Demand is likely to vary somewhat depending on the number of part-time staff and volunteers on site at any one time.

Demand for on-street parking in the area is likely to increase due to higher numbers of staff and school visitors/volunteers and fewer spaces to be provided in site. The school demand would be partially accommodated by the on-site parking. The increase in on-street demand is estimated to range from 23 to 41 vehicles. As detailed previously, on-street parking within the site vicinity averages 17% occupied on school days, with about 320 unused spaces. The increase in school-day on-street parking demand could be accommodated by unused supply and typical utilization is estimated to remain below 30%.

31 DLR Group, April 12, 2022.

3.4.2. Evening Event Parking

The school is expected to continue hosting evening events periodically throughout the school year. In general, evening events are held between about 5:30 or 6:00 P.M. and 8:00 P.M. Evening events typically occur about once per month or once every other month with attendance that can range from 50 to over 300 people. The types of events typically held at elementary schools are listed below.

- **Large School Events** – Curriculum Night (Open House) is held once per year in the fall and can have the highest attendance. Other occasional events could consist of concerts or performances, Literacy Night, Math Night, Art Walk, and Movie Nights that each may draw about 100 attendees. Some of the larger events have staggered arrivals and not all attendees are on site at once, while others have fixed start and end times and all attendees are on site simultaneously.

- **PTA Meetings** – PTA meetings may occur once per quarter with about 50 attendees.

- **Community Use** – The site may be scheduled for use by community groups (e.g., Cub Scouts, Boy Scouts, Brownies, etc.) or recreational sports that may occur in classrooms, the lunchroom, gymnasium, or other areas of the school. These typically have relatively small attendance of 10 to 50, but may occur more frequently.

For larger events, there are usually between 3.0 and 3.5 persons attending for each parked vehicle (the higher rate is more common for larger events). This rate accounts for higher levels of carpooling (parents and children in a single vehicle) as well as drop-off activity that does not generate parked vehicles. At these rates, the larger events (those other than Curriculum Night) could generate parking demand between 45 and 120 vehicles. Observations conducted by Heffron Transportation staff on Curriculum Nights at other schools indicate the proposed expanded John Rogers Elementary could generate demand of about 270 vehicles. As described, the site would have event parking capacity for up to 51 vehicles and there were about 320 on-street spaces available on non-event nights. The additional on-street demand during events could be accommodated by the unused supply and utilization is expected to remain below 75%. Due to the relative infrequency of events (one per month or every other month), the increase in demand associated with the replacement project would not represent a significant adverse impact.

3.5. Traffic Safety

The collision data provided for the study area did not indicate any unusual collision patterns that would impact or be impacted by the proposed project. The school expansion is expected to increase traffic and pedestrian traffic activity around the school site. However, the existing measures implemented around the school, including school-zone speed limits and speed cushions would remain. The project is not expected to result in significant adverse safety impacts.

3.6. Transit

School bus service would continue with the proposed project, and as noted previously, no change to the number of school buses is anticipated with the project. An on-site school-bus load/unload loop would be located at the northwest corner of the new building, and be accessed from NE 109th Street east of 40th Avenue NE. The existing school-bus load zone on the south side of NE 109th Street west of 40th Avenue NE would be removed.

A small number of transit trips may be generated by the teachers or staff at the site; however, the traffic estimates do not rely on reductions in auto trips to account for any staff transit usage. The closest bus stops are located along 35th Avenue NE at NE 105th and NE 110th Streets about ¼-mile to the west and along Sand Point Way NE at NE 106th and NE 110th Streets about ¼-mile to the east. The project is not expected to result in adverse impacts to transit facilities or service.

3.7. Non-Motorized Transportation Facilities

John Rogers Elementary School, with increased enrollment capacity, is expected to generate additional pedestrian trips within the site vicinity. It is anticipated that the largest increases in pedestrian activity would occur along NE 105th Street adjacent to the school where the new primary access is planned for those not arriving or departing in school buses. There may also be increases in bicycle trips within the site vicinity due to the proposed project. The project proposes to accommodate long-term parking for 73 bicycles and short-term parking for 27 bicycles. It would also develop a 10- to 12-foot shared path for pedestrians and bicycles to access the site from NE 105th Street. Pedestrian access from NE 109th Street (east and west of the site) and at NE 110th Street would be enhanced.

3.8. Short-term Impacts from Construction

The school would be closed during construction, which is planned to start in summer 2023, and end in August 2025 when the school is planned to be ready for occupancy and reopen in fall 2025. During construction, students would be temporarily accommodated in the John Marshall School building located at 520 NE Ravenna Boulevard east of Green Lake.

The construction effort would include demolition and earthwork that would generate truck traffic to and from the site. It is estimated that the proposed project would require fill of approximately 39,000 cubic yards (cy) of material and excavated material of about 6,000 cy.[32] The early site work would include demolition, removal of portables, site grading, geo-thermal well installation, and foundations and building pad preparation. This effort is anticipated to occur over about 20 to 28 weeks beginning in Summer 2023. Assuming an average of 20-cubic yards per truck (truck/trailer combination), the earthwork transport (import and export) could generate about 2,250 truckloads over the duration of the effort. If assumed to be completed over about 18 weeks during that period, it would generate about 25 truckloads per day and an average of about 3 truckloads per hour (3 trucks in and 3 trucks out) on a typical eight-hour construction work day. This volume of truck traffic would be noticeable to residents living adjacent to the site, but is not expected to result in adverse impacts to traffic operations in the site vicinity. Construction access for workers in expected to occur from the existing driveway on NE 110th Street. Truck access is expected to occur through the site on a temporary haul road connecting from NE 109th Street to the southeast corner on NE 105th Street. Overall site-generated traffic during construction is expected to be lower than conditions with the school operating normally with students on campus.

Construction of the project would also generate employee, equipment, and material delivery trips to and from the site. It is anticipated that construction workers would arrive at the construction site before the AM peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts for schools are usually from 7:00 A.M. to 3:30 P.M., with workers arriving between 6:30 and 6:45 A.M., but not starting work until 7:00 A.M. The number of workers at the project site at any one time would vary depending upon the construction element being implemented. Parking is expected to occur on site and on-street near the school.

32 Email communication, DLR Group, April 8, 2022.

4. FINDINGS AND RECOMMENDATIONS

The following sections summarize the findings and recommendations of the analysis.

4.1. Short-Term Conditions – Construction

- The school-replacement project is proposed to begin construction during summer 2023 with occupancy of the expanded school in fall 2025. During the construction effort, John Rogers Elementary School would be temporarily relocated to the John Marshall School building.
- Earthwork export and import activity is estimated to generate about 25 truckloads per day and an average of about 3 truckloads per hour (3 trucks in and 3 trucks out) on a typical eight-hour construction work day. This volume of truck traffic would be noticeable to residents living adjacent to the site, but is not expected to result in adverse impacts to traffic operations in the site vicinity. Construction access for trucks is expected to occur from NE 109th Street and NE 105th Street. Since students would be located off-site for the duration of the construction effort, overall site-generated traffic is expected to be lower than conditions with the school operating normally.
- Construction employee parking is expected to occur on site and on-street near the site.

It is recommended that the contractor and SPS develop a Construction Transportation Management Plan. Details to be included in this plan are described in Section 4.3.

4.2. Long-Term Conditions – Operations

- The school is proposed to provide student capacity to 540 students (up from its current enrollment of 262 students) and could have up to 56 to 63 employees, including staff supporting the pre-K and before- and after-school care programs (up from the current 45 employees).
- At the proposed capacity and compared to the site's current enrollment, the new school is projected to generate a net increase of 256 trips (143 in, 113 out) during the morning peak hour (from 7:15 to 8:15 A.M.) and 147 trips (61 in, 86 out) during the afternoon peak hour (from 2:15 to 3:15 P.M.).
- The existing site access on NE 110th Street would be widened from 17 feet to 22 feet to accommodate two-way access for the existing northern staff parking lot that would be retained. The existing site access on NE 109th street would be re-configured to accommodate the new on-site school-bus loop and service/delivery access. New curb ramps would be provided at the southeast and southwest corner of the intersection at 40th Avenue NE. Frontage improvements would be provided along 40th Avenue NE as required by SDOT through the SIP process. As part of the construction of a new site access driveway on NE 105th Street, sidewalk and curb would be continued to the east connecting with the existing sidewalk and curb along the adjacent property. The existing angle parking on the north side of NE 105th Street is planned to be retained; the existing school-bus load zone on the south side of NE 109th Street west of 40th Avenue NE would be removed.
- The existing angle parking on the north side of NE 105th Street is planned to be retained; the existing school-bus load zone on the south side of NE 109th Street west of 40th Avenue NE would be removed.
- The project would decrease the on-site parking supply to 28 spaces for regular school-day use (for staff and visitors). Both the family-vehicle and school-bus load/unload areas could be used for parking on evenings and weekends for events. In total, the site would have 51 parking spaces for event conditions

- With the additional traffic and pedestrian activity generated by the school with a larger enrollment capacity all of the study-area intersections are forecast to operate at LOS B or better overall in 2025. The project is forecast to shift traffic to the south side of the site at NE 105th Street with the new access configuration and is expected to change delay at several study-area intersections. Some intersections and movements are forecast to experience reductions in delay while intersections along NE 105th Street are forecast to experience increases in delay. The project would not result in significant adverse impacts to study area traffic operating conditions.
- At the proposed enrollment capacity of 540 students, the proposed replacement school could generate parking demand of 51 to 69 vehicles—an increase of 10 to 20 vehicles compared to the existing school. The school demand would be partially accommodated by on-site parking. The increase in on-street demand is estimated to range from 23 to 41 vehicles and would be accommodated by unused supply (typical utilization is estimated to remain below 30%).
- The school is expected to continue hosting evening events periodically throughout the school year. Larger events (those other than Curriculum Night) could generate parking demand between 45 and 120 vehicles and would be easily accommodated by on-site and near-site unused on-street parking supply (there were about 320 on-street spaces available on non-event nights). The largest events (such as Curriculum Night) could generate demand of about 270 vehicles, which could be accommodated by on-site and on-street supply with utilization expected to remain below 75%.

Based the above findings, the school replacement project would not result in significant adverse impacts to traffic operations or parking. However, two measures are recommended (see Section 4.3) to minimize traffic and parking-effects on the surrounding neighborhood.

4.3. Recommendations

Based on the findings presented above, the following measures are recommended to reduce the traffic and parking impacts associated with construction and operations of the John Rogers Elementary replacement.

A. **Construction Transportation Management Plan (CTMP):** The District should require the selected contractor to develop a Construction Transportation Management Plan (CTMP) that addresses traffic and pedestrian control during construction of the new facility. It would define truck routes, lane closures, walkway closures, and parking or load/unload area disruptions, as necessary. To the extent possible, the CTMP would direct trucks along the shortest route to arterials and away from residential streets to avoid unnecessary conflicts with resident and pedestrian activity. The CTMP may also include measures to keep adjacent streets clean on a daily basis at the truck exit points (such as street sweeping or on-site truck wheel cleaning) to reduce tracking dirt offsite.

B. **Transportation Management Plan (TMP):** Prior to the school reopening, the District and school Principal should establish a TMP to educate families about the access load/unload procedures for the new site layout. The TMP should also encourage school bus ridership, carpooling, bicycling, and supervised walking (such as walking school buses). The plan should require the school to distribute information to families about drop-off and pick-up procedures, as well as travel routes for approaching and leaving the school. It should also instruct staff and parents not to block or partially block any residential driveways with parked or stopped vehicles.

C. **Update right-of-way and curb-side signage:** The District should work with SDOT to confirm the removal of signage for the school-bus load zone on the south side of NE 109th Street.

APPENDIX A
Level of Service Definitions

Levels of service (LOS) are qualitative descriptions of traffic operating conditions. These levels of service are designated with letters ranging from LOS A, which is indicative of good operating conditions with little or no delay, to LOS F, which is indicative of stop-and-go conditions with frequent and lengthy delays. Levels of service for this analysis were developed using procedures presented in the *Highway Capacity Manual, Sixth Edition* (Transportation Research Board, 2016).

Signalized Intersections

Level of service for signalized intersections is defined in terms of average delay for all vehicles that travel through the intersection. Delay can be a cause of driver discomfort, frustration, inefficient fuel consumption, and lost travel time. Specifically, level-of-service criteria are stated in terms of the average delay per vehicle in seconds. Delay is a complex measure and is dependent on a number of variables including: number and type of vehicles by movement, intersection lane geometry, signal phasing, the amount of green time allocated to each phase, transit stops and parking maneuvers. Table A-1 shows the level of service criteria for signalized intersections from the *Highway Capacity Manual, Sixth Edition.*

Table A-1. Level of Service for Signalized Intersections

Level of Service	Average Control Delay Per Vehicle
A	≤ 10 seconds
B	> 10 – 20 seconds
C	> 20 – 35 seconds
D	> 35 – 55 seconds
E	> 55 – 80 seconds
F	> 80 seconds

Source: Transportation Research Board, Highway Capacity Manual, Exhibit 19.8, 2016.

Unsignalized Intersections

For unsignalized intersections, level of service is based on the average delay per vehicle for each turning movement. The level of service for all-way stop or roundabout-controlled intersections is based upon the average delay for all vehicles that travel through the intersection. The level of service for a one- or two-way, stop-controlled intersection, delay is related to the availability of gaps in the main street's traffic flow, and the ability of a driver to enter or pass through those gaps. Table A-2 shows the level of service criteria for unsignalized intersections from the *Highway Capacity Manual, Sixth Edition*.

Table A-2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle
A	0 – 10 seconds
B	> 10 – 15 seconds
C	> 15 – 25 seconds
D	> 25 – 35 seconds
E	> 35 – 50 seconds
F	> 50 seconds

Source: Transportation Research Board, Highway Capacity Manual, Exhibit 20.2, 2016.

APPENDIX B
Parking Utilization Study Data

				Parking Supply					
							Total Parking		
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted	School Load Only 7-10a, 1-4p	**Total Parking**	**Morning**	**Mid Morning**	**Evening**
AA	40TH AVE NE	NE 113TH ST AND 800' BOUNDARY	W	2	0	**2**	**2**	**2**	**2**
AB	40TH AVE NE	NE 113TH ST AND 800' BOUNDARY	E	2	0	**2**	**2**	**2**	**2**
AC	NE 113TH ST	800' BOUNDARY AND 40TH AVE NE	N	1	0	**1**	**1**	**1**	**1**
AD	NE 113TH ST	800' BOUNDARY AND 40TH AVE NE	S	5	0	**5**	**5**	**5**	**5**
AE	NE 113TH ST	40TH AVE NE AND 800' BOUNDARY	N	0	0	**0**	**0**	**0**	**0**
AF	NE 113TH ST	40TH AVE NE AND 800' BOUNDARY	S	3	0	**3**	**3**	**3**	**3**
AG	38TH AVE NE	NE 110TH ST AND 800' BOUNDARY	W	2	0	**2**	**2**	**2**	**2**
AH	38TH AVE NE	NE 110TH ST AND 800' BOUNDARY	E	4	0	**4**	**4**	**4**	**4**
AI	39TH AVE NE	NE 110TH ST AND DEAD END 4	W	4	0	**4**	**4**	**4**	**4**
AJ	39TH AVE NE	NE 110TH ST AND DEAD END 4	E	2	0	**2**	**2**	**2**	**2**
AK	40TH AVE NE	NE 110TH ST AND NE 113TH ST	W	19	0	**19**	**19**	**19**	**19**
AL	40TH AVE NE	NE 110TH ST AND NE 113TH ST	E	13	0	**13**	**13**	**13**	**13**
AM	ALTON AVE NE	NE 110TH ST AND 800' BOUNDARY	W	7	0	**7**	**7**	**7**	**7**
AN	ALTON AVE NE	NE 110TH ST AND 800' BOUNDARY	E	12	0	**12**	**12**	**12**	**12**
AO	NE 110TH ST	800' BOUNDARY AND 38TH AVE NE	N	3	0	**3**	**3**	**3**	**3**
AP	NE 110TH ST	800' BOUNDARY AND 38TH AVE NE	S	0	0	**0**	**0**	**0**	**0**
AQ	NE 110TH ST	38TH AVE NE AND 39TH AVE NE	N	2	0	**2**	**2**	**2**	**2**
AR	NE 110TH ST	38TH AVE NE AND 39TH AVE NE	S	0	0	**0**	**0**	**0**	**0**
AS	NE 110TH ST	39TH AVE NE AND 40TH AVE NE	N	2	0	**2**	**2**	**2**	**2**
AT	NE 110TH ST	39TH AVE NE AND 40TH AVE NE	S	2	0	**2**	**2**	**2**	**2**

				Parking Supply					
							Total Parking		
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted	School Load Only 7-10a, 1-4p	**Total Parking**	**Morning**	**Mid Morning**	**Evening**
AU	NE 110TH ST	40TH AVE NE AND ALTON AVE NE	N	5	0	**5**	**5**	**5**	**5**
AV	NE 110TH ST	40TH AVE NE AND ALTON AVE NE	S	0	0	**0**	**0**	**0**	**0**
AW	NE 110TH ST	ALTON AVE NE AND BARTLETT AVE NE	N	0	0	**0**	**0**	**0**	**0**
AX	NE 110TH ST	ALTON AVE NE AND BARTLETT AVE NE	S	0	0	**0**	**0**	**0**	**0**
AY	38TH AVE NE	800' BOUNDARY AND NE 110TH ST	W	3	0	**3**	**3**	**3**	**3**
AZ	38TH AVE NE	800' BOUNDARY AND NE 110TH ST	E	10	0	**10**	**10**	**10**	**10**
BA	39TH AVE NE	NE 109TH ST AND NE 110TH ST	W	5	0	**5**	**5**	**5**	**5**
BB	39TH AVE NE	NE 109TH ST AND NE 110TH ST	E	4	0	**4**	**4**	**4**	**4**
BC	ALTON AVE NE	NE 109TH ST AND NE 110TH ST	W	8	0	**8**	**8**	**8**	**8**
BD	ALTON AVE NE	NE 109TH ST AND NE 110TH ST	E	7	0	**7**	**7**	**7**	**7**
BE	NE 109TH ST	39TH AVE NE AND 40TH AVE NE	N	10	0	**10**	**10**	**10**	**10**
BF	NE 109TH ST	39TH AVE NE AND 40TH AVE NE	S	3	4	**7**	**3**	**7**	**7**
BG	39TH AVE NE	NE 105TH ST AND NE 109TH ST	W	12	0	**12**	**12**	**12**	**12**
BH	39TH AVE NE	NE 105TH ST AND NE 109TH ST	E	10	0	**10**	**10**	**10**	**10**
BI	40TH AVE NE	DEAD END 4 AND NE 109TH ST	W	7	0	**7**	**7**	**7**	**7**
BJ	40TH AVE NE	DEAD END 4 AND NE 109TH ST	E	0	0	**0**	**0**	**0**	**0**
BK	41ST PL NE	NE 105TH ST AND 800' BOUNDARY	W	18	0	**18**	**18**	**18**	**18**
BL	41ST PL NE	NE 105TH ST AND 800' BOUNDARY	E	19	0	**19**	**19**	**19**	**19**
BM	NE 105TH ST	800' BOUNDARY AND 38TH AVE NE	N	0	0	**0**	**0**	**0**	**0**
BN	NE 105TH ST	800' BOUNDARY AND 38TH AVE NE	S	0	0	**0**	**0**	**0**	**0**

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply: Unrestricted	Parking Supply: School Load Only 7-10a, 1-4p	Parking Supply: Total Parking	Total Parking: Morning	Total Parking: Mid Morning	Total Parking: Evening
BO	NE 105TH ST	38TH AVE NE AND 39TH AVE NE	N	0	0	**0**	**0**	**0**	**0**
BP	NE 105TH ST	38TH AVE NE AND 39TH AVE NE	S	0	0	**0**	**0**	**0**	**0**
BQ	NE 105TH ST	39TH AVE NE AND 40TH AVE NE	N	0	0	**0**	**0**	**0**	**0**
BR	NE 105TH ST	39TH AVE NE AND 40TH AVE NE	S	11	0	**11**	**11**	**11**	**11**
BS	NE 105TH ST	40TH AVE NE AND 41ST PL NE	N	25	0	**25**	**25**	**25**	**25**
BT	NE 105TH ST	40TH AVE NE AND 41ST PL NE	S	14	0	**14**	**14**	**14**	**14**
BU	NE 105TH ST	41ST PL NE AND 42ND AVE NE	N	5	0	**5**	**5**	**5**	**5**
BV	NE 105TH ST	41ST PL NE AND 42ND AVE NE	S	5	0	**5**	**5**	**5**	**5**
BW	NE 105TH ST	42ND AVE NE AND NE 104TH PL	N	4	0	**4**	**4**	**4**	**4**
BX	NE 105TH ST	42ND AVE NE AND NE 104TH PL	S	5	0	**5**	**5**	**5**	**5**
BY	NE 105TH ST	NE 104TH PL AND ALTON AVE NE	N	0	0	**0**	**0**	**0**	**0**
BZ	NE 105TH ST	NE 104TH PL AND ALTON AVE NE	S	0	0	**0**	**0**	**0**	**0**
CA	NE 104TH PL	NE 105TH ST AND 800' BOUNDARY	NE	5	0	**5**	**5**	**5**	**5**
CB	NE 104TH PL	NE 105TH ST AND 800' BOUNDARY	SW	3	0	**3**	**3**	**3**	**3**
CC	38TH AVE NE	800' BOUNDARY AND NE 105TH ST	W	4	0	**4**	**4**	**4**	**4**
CD	38TH AVE NE	800' BOUNDARY AND NE 105TH ST	E	3	0	**3**	**3**	**3**	**3**
CE	39TH AVE NE	800' BOUNDARY AND NE 105TH ST	W	12	0	**12**	**12**	**12**	**12**
CF	39TH AVE NE	800' BOUNDARY AND NE 105TH ST	E	9	0	**9**	**9**	**9**	**9**
CG	40TH AVE NE	NE 104TH ST AND NE 105TH ST	W	5	0	**5**	**5**	**5**	**5**
CH	40TH AVE NE	NE 104TH ST AND NE 105TH ST	E	4	0	**4**	**4**	**4**	**4**

				Parking Supply					
							Total Parking		
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted	School Load Only 7-10a, 1-4p	**Total Parking**	**Morning**	**Mid Morning**	**Evening**
CI	42ND AVE NE	NE 104TH ST AND NE 105TH ST	W	6	0	**6**	**6**	**6**	**6**
CJ	42ND AVE NE	NE 104TH ST AND NE 105TH ST	E	8	0	**8**	**8**	**8**	**8**
CK	NE 104TH ST	40TH AVE NE AND DEAD END 4	N	5	0	**5**	**5**	**5**	**5**
CL	NE 104TH ST	40TH AVE NE AND DEAD END 4	S	7	0	**7**	**7**	**7**	**7**
CM	NE 104TH ST	800' BOUNDARY AND 42ND AVE NE	N	0	0	**0**	**0**	**0**	**0**
CN	NE 104TH ST	800' BOUNDARY AND 42ND AVE NE	S	6	0	**6**	**6**	**6**	**6**
CO	40TH AVE NE	43RD PL NE AND NE 104TH ST	W	4	0	**4**	**4**	**4**	**4**
CP	40TH AVE NE	43RD PL NE AND NE 104TH ST	E	3	0	**3**	**3**	**3**	**3**
CQ	42ND AVE NE	800' BOUNDARY AND NE 104TH ST	W	2	0	**2**	**2**	**2**	**2**
CR	42ND AVE NE	800' BOUNDARY AND NE 104TH ST	E	2	0	**2**	**2**	**2**	**2**
CS	NE 103RD ST	800' BOUNDARY AND 40TH AVE NE	N	3	0	**3**	**3**	**3**	**3**
CT	NE 103RD ST	800' BOUNDARY AND 40TH AVE NE	S	3	0	**3**	**3**	**3**	**3**
CU	43RD PL NE	800' BOUNDARY AND 40TH AVE NE	N	4	0	**4**	**4**	**4**	**4**
CV	43RD PL NE	800' BOUNDARY AND 40TH AVE NE	S	6	0	**6**	**6**	**6**	**6**
CW	40TH AVE NE	800' BOUNDARY AND 43RD PL NE	W	1	0	**1**	**1**	**1**	**1**
CX	40TH AVE NE	800' BOUNDARY AND 43RD PL NE	E	2	0	**2**	**2**	**2**	**2**
			TOTAL	**382**	**4**	**386**	**382**	**386**	**386**

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply: Total Parking: Morning	Parking Supply: Total Parking: Mid Morning	Parking Supply: Total Parking: Evening	Parking Occupancy: Morning (7:00 A.M. to 7:45 A.M.): Tuesday 3.1.22	Morning: Thursday 3.3.22	Morning: School Day Average	Morning: Non School Day Sample Wednesday 2.23.22	Mid Morning (10:30 A.M. to 11:15 A.M.): Tuesday 3.1.22	Mid Morning: Thursday 3.3.22	Mid Morning: School Day Average	Mid Morning: Non School Day Sample Wednesday 2.23.22	Evening (7:30 P.M. to 8:15 P.M.): Tuesday 3.1.22	Evening: Thursday 3.3.22	Evening: School Day Average	Evening: Non School Day Sample Wednesday 2.23.22
AA	40TH AVE NE	NE 113TH ST AND 800' BOUNDARY	W	2	2	2	0	1	1	1	1	0	1	0	0	1	1	1
AB	40TH AVE NE	NE 113TH ST AND 800' BOUNDARY	E	2	2	2	0	0	0	0	0	0	0	0	0	0	0	1
AC	NE 113TH ST	800' BOUNDARY AND 40TH AVE NE	N	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
AD	NE 113TH ST	800' BOUNDARY AND 40TH AVE NE	S	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0
AE	NE 113TH ST	40TH AVE NE AND 800' BOUNDARY	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AF	NE 113TH ST	40TH AVE NE AND 800' BOUNDARY	S	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0
AG	38TH AVE NE	NE 110TH ST AND 800' BOUNDARY	W	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2
AH	38TH AVE NE	NE 110TH ST AND 800' BOUNDARY	E	4	4	4	1	0	1	1	0	2	1	0	0	0	0	0
AI	39TH AVE NE	NE 110TH ST AND DEAD END 4	W	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1
AJ	39TH AVE NE	NE 110TH ST AND DEAD END 4	E	2	2	2	1	0	1	1	3	1	2	0	1	0	1	0
AK	40TH AVE NE	NE 110TH ST AND NE 113TH ST	W	19	19	19	4	6	5	5	5	5	5	4	8	7	8	6
AL	40TH AVE NE	NE 110TH ST AND NE 113TH ST	E	13	13	13	3	5	4	3	2	1	2	1	3	5	4	2
AM	ALTON AVE NE	NE 110TH ST AND 800' BOUNDARY	W	7	7	7	3	3	3	3	2	3	3	2	3	1	2	3
AN	ALTON AVE NE	NE 110TH ST AND 800' BOUNDARY	E	12	12	12	0	0	0	0	0	1	1	0	0	1	1	2
AO	NE 110TH ST	800' BOUNDARY AND 38TH AVE NE	N	3	3	3	1	1	1	2	2	2	2	2	0	0	0	0
AP	NE 110TH ST	800' BOUNDARY AND 38TH AVE NE	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AQ	NE 110TH ST	38TH AVE NE AND 39TH AVE NE	N	2	2	2	0	0	0	0	1	1	1	1	0	0	0	0
AR	NE 110TH ST	38TH AVE NE AND 39TH AVE NE	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AS	NE 110TH ST	39TH AVE NE AND 40TH AVE NE	N	2	2	2	1	2	2	1	0	0	0	1	1	2	2	2
AT	NE 110TH ST	39TH AVE NE AND 40TH AVE NE	S	2	2	2	0	1	1	0	0	1	1	0	2	2	2	2
AU	NE 110TH ST	40TH AVE NE AND ALTON AVE NE	N	5	5	5	5	5	5	4	7	5	6	5	6	6	6	5
AV	NE 110TH ST	40TH AVE NE AND ALTON AVE NE	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AW	NE 110TH ST	ALTON AVE NE AND BARTLETT AVE NE	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AX	NE 110TH ST	ALTON AVE NE AND BARTLETT AVE NE	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AY	38TH AVE NE	800' BOUNDARY AND NE 110TH ST	W	3	3	3	1	1	1	1	0	0	0	0	1	1	1	2
AZ	38TH AVE NE	800' BOUNDARY AND NE 110TH ST	E	10	10	10	3	3	3	1	2	2	2	1	3	2	3	2
BA	39TH AVE NE	NE 109TH ST AND NE 110TH ST	W	5	5	5	0	0	0	0	1	0	1	0	1	0	1	0
BB	39TH AVE NE	NE 109TH ST AND NE 110TH ST	E	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0
BC	ALTON AVE NE	NE 109TH ST AND NE 110TH ST	W	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0
BD	ALTON AVE NE	NE 109TH ST AND NE 110TH ST	E	7	7	7	2	1	2	3	1	1	1	3	3	2	3	6
BE	NE 109TH ST	39TH AVE NE AND 40TH AVE NE	N	10	10	10	1	0	1	0	1	0	1	0	0	1	1	0
BF	NE 109TH ST	39TH AVE NE AND 40TH AVE NE	S	3	7	7	0	0	0	0	0	0	0	0	0	0	0	0

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply: Total Parking: Morning	Parking Supply: Total Parking: Mid Morning	Parking Supply: Total Parking: Evening	Parking Occupancy: Morning (7:00 A.M. to 7:45 A.M.): Tuesday 3.1.22	Morning: Thursday 3.3.22	Morning: School Day Average	Morning: Non School Day Sample Wednesday 2.23.22	Mid Morning (10:30 A.M. to 11:15 A.M.): Tuesday 3.1.22	Mid Morning: Thursday 3.3.22	Mid Morning: School Day Average	Mid Morning: Non School Day Sample Wednesday 2.23.22	Evening (7:30 P.M. to 8:15 P.M.): Tuesday 3.1.22	Evening: Thursday 3.3.22	Evening: School Day Average	Evening: Non School Day Sample Wednesday 2.23.22
BG	39TH AVE NE	NE 105TH ST AND NE 109TH ST	W	**12**	**12**	**12**	3	3	**3**	**4**	5	2	**4**	**3**	4	3	**4**	**4**
BH	39TH AVE NE	NE 105TH ST AND NE 109TH ST	E	**10**	**10**	**10**	1	2	**2**	**2**	3	3	**3**	**3**	2	2	**2**	**2**
BI	40TH AVE NE	DEAD END 4 AND NE 109TH ST	W	**7**	**7**	**7**	1	2	**2**	**2**	2	3	**3**	**2**	2	2	**2**	**2**
BJ	40TH AVE NE	DEAD END 4 AND NE 109TH ST	E	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BK	41ST PL NE	NE 105TH ST AND 800' BOUNDARY	W	**18**	**18**	**18**	5	6	**6**	**4**	4	7	**6**	**8**	4	4	**4**	**3**
BL	41ST PL NE	NE 105TH ST AND 800' BOUNDARY	E	**19**	**19**	**19**	7	8	**8**	**6**	5	7	**6**	**6**	8	7	**8**	**8**
BM	NE 105TH ST	800' BOUNDARY AND 38TH AVE NE	N	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BN	NE 105TH ST	800' BOUNDARY AND 38TH AVE NE	S	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BO	NE 105TH ST	38TH AVE NE AND 39TH AVE NE	N	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BP	NE 105TH ST	38TH AVE NE AND 39TH AVE NE	S	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BQ	NE 105TH ST	39TH AVE NE AND 40TH AVE NE	N	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BR	NE 105TH ST	39TH AVE NE AND 40TH AVE NE	S	**11**	**11**	**11**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BS	NE 105TH ST	40TH AVE NE AND 41ST PL NE	N	**25**	**25**	**25**	2	2	**2**	**2**	2	1	**2**	**1**	0	0	**0**	**0**
BT	NE 105TH ST	40TH AVE NE AND 41ST PL NE	S	**14**	**14**	**14**	2	2	**2**	**1**	1	2	**2**	**1**	1	1	**1**	**1**
BU	NE 105TH ST	41ST PL NE AND 42ND AVE NE	N	**5**	**5**	**5**	0	0	**0**	**1**	0	0	**0**	**0**	2	2	**2**	**0**
BV	NE 105TH ST	41ST PL NE AND 42ND AVE NE	S	**5**	**5**	**5**	1	1	**1**	**1**	1	1	**1**	**1**	0	1	**1**	**1**
BW	NE 105TH ST	42ND AVE NE AND NE 104TH PL	N	**4**	**4**	**4**	1	2	**2**	**2**	2	2	**2**	**2**	2	2	**2**	**2**
BX	NE 105TH ST	42ND AVE NE AND NE 104TH PL	S	**5**	**5**	**5**	0	1	**1**	**0**	0	0	**0**	**0**	0	1	**1**	**0**
BY	NE 105TH ST	NE 104TH PL AND ALTON AVE NE	N	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
BZ	NE 105TH ST	NE 104TH PL AND ALTON AVE NE	S	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CA	NE 104TH PL	NE 105TH ST AND 800' BOUNDARY	NE	**5**	**5**	**5**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CB	NE 104TH PL	NE 105TH ST AND 800' BOUNDARY	SW	**3**	**3**	**3**	1	1	**1**	**1**	1	1	**1**	**1**	1	1	**1**	**1**
CC	38TH AVE NE	800' BOUNDARY AND NE 105TH ST	W	**4**	**4**	**4**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CD	38TH AVE NE	800' BOUNDARY AND NE 105TH ST	E	**3**	**3**	**3**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CE	39TH AVE NE	800' BOUNDARY AND NE 105TH ST	W	**12**	**12**	**12**	0	0	**0**	**0**	1	1	**1**	**0**	0	0	**0**	**0**
CF	39TH AVE NE	800' BOUNDARY AND NE 105TH ST	E	**9**	**9**	**9**	2	2	**2**	**1**	0	0	**0**	**0**	2	1	**2**	**1**
CG	40TH AVE NE	NE 104TH ST AND NE 105TH ST	W	**5**	**5**	**5**	0	0	**0**	**0**	1	0	**1**	**0**	0	0	**0**	**0**
CH	40TH AVE NE	NE 104TH ST AND NE 105TH ST	E	**4**	**4**	**4**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CI	42ND AVE NE	NE 104TH ST AND NE 105TH ST	W	**6**	**6**	**6**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CJ	42ND AVE NE	NE 104TH ST AND NE 105TH ST	E	**8**	**8**	**8**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CK	NE 104TH ST	40TH AVE NE AND DEAD END 4	N	**5**	**5**	**5**	0	0	**0**	**0**	1	0	**1**	**1**	0	0	**0**	**0**
CL	NE 104TH ST	40TH AVE NE AND DEAD END 4	S	**7**	**7**	**7**	1	1	**1**	**1**	1	1	**1**	**1**	3	1	**2**	**1**

				Parking Supply			Parking Occupancy											
				Total Parking			Morning (7:00 A.M. to 7:45 A.M.)				Mid Morning (10:30 A.M. to 11:15 A.M.)				Evening (7:30 P.M. to 8:15 P.M.)			
Block Face ID	Street Name	Street Segment	Side of Street	Morning	Mid Morning	Evening	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22
CM	NE 104TH ST	800' BOUNDARY AND 42ND AVE NE	N	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CN	NE 104TH ST	800' BOUNDARY AND 42ND AVE NE	S	**6**	**6**	**6**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CO	40TH AVE NE	43RD PL NE AND NE 104TH ST	W	**4**	**4**	**4**	1	1	**1**	**1**	1	1	**1**	**0**	1	1	**1**	**1**
CP	40TH AVE NE	43RD PL NE AND NE 104TH ST	E	**3**	**3**	**3**	0	0	**0**	**0**	1	3	**2**	**1**	0	0	**0**	**1**
CQ	42ND AVE NE	800' BOUNDARY AND NE 104TH ST	W	**2**	**2**	**2**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CR	42ND AVE NE	800' BOUNDARY AND NE 104TH ST	E	**2**	**2**	**2**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CS	NE 103RD ST	800' BOUNDARY AND 40TH AVE NE	N	**3**	**3**	**3**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CT	NE 103RD ST	800' BOUNDARY AND 40TH AVE NE	S	**3**	**3**	**3**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CU	43RD PL NE	800' BOUNDARY AND 40TH AVE NE	N	**4**	**4**	**4**	2	2	**2**	**3**	2	2	**2**	**3**	3	3	**3**	**2**
CV	43RD PL NE	800' BOUNDARY AND 40TH AVE NE	S	**6**	**6**	**6**	0	0	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**
CW	40TH AVE NE	800' BOUNDARY AND 43RD PL NE	W	**1**	**1**	**1**	0	0	**0**	**0**	0	0	**0**	**1**	0	0	**0**	**0**
CX	40TH AVE NE	800' BOUNDARY AND 43RD PL NE	E	**2**	**2**	**2**	0	0	**0**	**1**	1	1	**1**	**0**	1	0	**1**	**1**
			TOTAL	**382**	**386**	**386**	**59**	**68**	**64**	**62**	**65**	**65**	**65**	**57**	**71**	**66**	**69**	**68**

				Parking Supply			Parking Utilization											
				Total Parking			Morning (7:00 A.M. to 7:45 A.M.)				Mid Morning (10:30 A.M. to 11:15 A.M.)				Evening (7:30 P.M. to 8:15 P.M.)			
Block Face ID	Street Name	Street Segment	Side of Street	**Morning**	**Mid Morning**	**Evening**	Tuesday 11.16.2021	Thursday 11.18.2021	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22
AA	40TH AVE NE	NE 113TH ST AND 800' BOUNDARY	W	**2**	**2**	**2**	0%	50%	**25%**	**50%**	50%	0%	**25%**	**0%**	0%	50%	**25%**	**50%**
AB	40TH AVE NE	NE 113TH ST AND 800' BOUNDARY	E	**2**	**2**	**2**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**50%**
AC	NE 113TH ST	800' BOUNDARY AND 40TH AVE NE	N	**1**	**1**	**1**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
AD	NE 113TH ST	800' BOUNDARY AND 40TH AVE NE	S	**5**	**5**	**5**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
AE	NE 113TH ST	40TH AVE NE AND 800' BOUNDARY	N	**0**	**0**	**0**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
AF	NE 113TH ST	40TH AVE NE AND 800' BOUNDARY	S	**3**	**3**	**3**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
AG	38TH AVE NE	NE 110TH ST AND 800' BOUNDARY	W	**2**	**2**	**2**	100%	100%	**100%**	**100%**	50%	50%	**50%**	**50%**	100%	100%	**100%**	**100%**
AH	38TH AVE NE	NE 110TH ST AND 800' BOUNDARY	E	**4**	**4**	**4**	25%	0%	**13%**	**25%**	0%	50%	**25%**	**0%**	0%	0%	**0%**	**0%**
AI	39TH AVE NE	NE 110TH ST AND DEAD END 4	W	**4**	**4**	**4**	25%	25%	**25%**	**25%**	25%	25%	**25%**	**25%**	25%	25%	**25%**	**25%**
AJ	39TH AVE NE	NE 110TH ST AND DEAD END 4	E	**2**	**2**	**2**	50%	0%	**25%**	**50%**	150%	50%	**100%**	**0%**	50%	0%	**25%**	**0%**
AK	40TH AVE NE	NE 110TH ST AND NE 113TH ST	W	**19**	**19**	**19**	21%	32%	**26%**	**26%**	26%	26%	**26%**	**21%**	42%	37%	**39%**	**32%**
AL	40TH AVE NE	NE 110TH ST AND NE 113TH ST	E	**13**	**13**	**13**	23%	38%	**31%**	**23%**	15%	8%	**12%**	**8%**	23%	38%	**31%**	**15%**
AM	ALTON AVE NE	NE 110TH ST AND 800' BOUNDARY	W	**7**	**7**	**7**	43%	43%	**43%**	**43%**	29%	43%	**36%**	**29%**	43%	14%	**29%**	**43%**
AN	ALTON AVE NE	NE 110TH ST AND 800' BOUNDARY	E	**12**	**12**	**12**	0%	0%	**0%**	**0%**	0%	8%	**4%**	**0%**	0%	8%	**4%**	**17%**
AO	NE 110TH ST	800' BOUNDARY AND 38TH AVE NE	N	**3**	**3**	**3**	33%	33%	**33%**	**67%**	67%	67%	**67%**	**67%**	0%	0%	**0%**	**0%**
AP	NE 110TH ST	800' BOUNDARY AND 38TH AVE NE	S	**0**	**0**	**0**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
AQ	NE 110TH ST	38TH AVE NE AND 39TH AVE NE	N	**2**	**2**	**2**	0%	0%	**0%**	**0%**	50%	50%	**50%**	**50%**	0%	0%	**0%**	**0%**
AR	NE 110TH ST	38TH AVE NE AND 39TH AVE NE	S	**0**	**0**	**0**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
AS	NE 110TH ST	39TH AVE NE AND 40TH AVE NE	N	**2**	**2**	**2**	50%	100%	**75%**	**50%**	0%	0%	**0%**	**50%**	50%	100%	**75%**	**100%**
AT	NE 110TH ST	39TH AVE NE AND 40TH AVE NE	S	**2**	**2**	**2**	0%	50%	**25%**	**0%**	0%	50%	**25%**	**0%**	100%	100%	**100%**	**100%**
AU	NE 110TH ST	40TH AVE NE AND ALTON AVE NE	N	**5**	**5**	**5**	100%	100%	**100%**	**80%**	140%	100%	**120%**	**100%**	120%	120%	**120%**	**100%**
AV	NE 110TH ST	40TH AVE NE AND ALTON AVE NE	S	**0**	**0**	**0**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
AW	NE 110TH ST	ALTON AVE NE AND BARTLETT AVE NE	N	**0**	**0**	**0**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
AX	NE 110TH ST	ALTON AVE NE AND BARTLETT AVE NE	S	**0**	**0**	**0**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
AY	38TH AVE NE	800' BOUNDARY AND NE 110TH ST	W	**3**	**3**	**3**	33%	33%	**33%**	**33%**	0%	0%	**0%**	**0%**	33%	33%	**33%**	**67%**
AZ	38TH AVE NE	800' BOUNDARY AND NE 110TH ST	E	**10**	**10**	**10**	30%	30%	**30%**	**10%**	20%	20%	**20%**	**10%**	30%	20%	**25%**	**20%**
BA	39TH AVE NE	NE 109TH ST AND NE 110TH ST	W	**5**	**5**	**5**	0%	0%	**0%**	**0%**	20%	0%	**10%**	**0%**	20%	0%	**10%**	**0%**
BB	39TH AVE NE	NE 109TH ST AND NE 110TH ST	E	**4**	**4**	**4**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
BC	ALTON AVE NE	NE 109TH ST AND NE 110TH ST	W	**8**	**8**	**8**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
BD	ALTON AVE NE	NE 109TH ST AND NE 110TH ST	E	**7**	**7**	**7**	29%	14%	**21%**	**43%**	14%	14%	**14%**	**43%**	43%	29%	**36%**	**86%**
BE	NE 109TH ST	39TH AVE NE AND 40TH AVE NE	N	**10**	**10**	**10**	10%	0%	**5%**	**0%**	10%	0%	**5%**	**0%**	0%	10%	**5%**	**0%**
BF	NE 109TH ST	39TH AVE NE AND 40TH AVE NE	S	**3**	**7**	**7**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
BG	39TH AVE NE	NE 105TH ST AND NE 109TH ST	W	**12**	**12**	**12**	25%	25%	**25%**	**33%**	42%	17%	**29%**	**25%**	33%	25%	**29%**	**33%**
BH	39TH AVE NE	NE 105TH ST AND NE 109TH ST	E	**10**	**10**	**10**	10%	20%	**15%**	**20%**	30%	30%	**30%**	**30%**	20%	20%	**20%**	**20%**

Block Face ID	Street Name	Street Segment	Side of Street	Parking Supply: Total Parking		
				Morning	Mid Morning	Evening
BI	40TH AVE NE	DEAD END 4 AND NE 109TH ST	W	**7**	**7**	**7**
BJ	40TH AVE NE	DEAD END 4 AND NE 109TH ST	E	**0**	**0**	**0**
BK	41ST PL NE	NE 105TH ST AND 800' BOUNDARY	W	**18**	**18**	**18**
BL	41ST PL NE	NE 105TH ST AND 800' BOUNDARY	E	**19**	**19**	**19**
BM	NE 105TH ST	800' BOUNDARY AND 38TH AVE NE	N	**0**	**0**	**0**
BN	NE 105TH ST	800' BOUNDARY AND 38TH AVE NE	S	**0**	**0**	**0**
BO	NE 105TH ST	38TH AVE NE AND 39TH AVE NE	N	**0**	**0**	**0**
BP	NE 105TH ST	38TH AVE NE AND 39TH AVE NE	S	**0**	**0**	**0**
BQ	NE 105TH ST	39TH AVE NE AND 40TH AVE NE	N	**0**	**0**	**0**
BR	NE 105TH ST	39TH AVE NE AND 40TH AVE NE	S	**11**	**11**	**11**
BS	NE 105TH ST	40TH AVE NE AND 41ST PL NE	N	**25**	**25**	**25**
BT	NE 105TH ST	40TH AVE NE AND 41ST PL NE	S	**14**	**14**	**14**
BU	NE 105TH ST	41ST PL NE AND 42ND AVE NE	N	**5**	**5**	**5**
BV	NE 105TH ST	41ST PL NE AND 42ND AVE NE	S	**5**	**5**	**5**
BW	NE 105TH ST	42ND AVE NE AND NE 104TH PL	N	**4**	**4**	**4**
BX	NE 105TH ST	42ND AVE NE AND NE 104TH PL	S	**5**	**5**	**5**
BY	NE 105TH ST	NE 104TH PL AND ALTON AVE NE	N	**0**	**0**	**0**
BZ	NE 105TH ST	NE 104TH PL AND ALTON AVE NE	S	**0**	**0**	**0**
CA	NE 104TH PL	NE 105TH ST AND 800' BOUNDARY	NE	**5**	**5**	**5**
CB	NE 104TH PL	NE 105TH ST AND 800' BOUNDARY	SW	**3**	**3**	**3**
CC	38TH AVE NE	800' BOUNDARY AND NE 105TH ST	W	**4**	**4**	**4**
CD	38TH AVE NE	800' BOUNDARY AND NE 105TH ST	E	**3**	**3**	**3**
CE	39TH AVE NE	800' BOUNDARY AND NE 105TH ST	W	**12**	**12**	**12**
CF	39TH AVE NE	800' BOUNDARY AND NE 105TH ST	E	**9**	**9**	**9**
CG	40TH AVE NE	NE 104TH ST AND NE 105TH ST	W	**5**	**5**	**5**
CH	40TH AVE NE	NE 104TH ST AND NE 105TH ST	E	**4**	**4**	**4**
CI	42ND AVE NE	NE 104TH ST AND NE 105TH ST	W	**6**	**6**	**6**
CJ	42ND AVE NE	NE 104TH ST AND NE 105TH ST	E	**8**	**8**	**8**
CK	NE 104TH ST	40TH AVE NE AND DEAD END 4	N	**5**	**5**	**5**
CL	NE 104TH ST	40TH AVE NE AND DEAD END 4	S	**7**	**7**	**7**
CM	NE 104TH ST	800' BOUNDARY AND 42ND AVE NE	N	**0**	**0**	**0**
CN	NE 104TH ST	800' BOUNDARY AND 42ND AVE NE	S	**6**	**6**	**6**
CO	40TH AVE NE	43RD PL NE AND NE 104TH ST	W	**4**	**4**	**4**
CP	40TH AVE NE	43RD PL NE AND NE 104TH ST	E	**3**	**3**	**3**

Block Face ID	Parking Utilization: Morning (7:00 A.M. to 7:45 A.M.)				Mid Morning (10:30 A.M. to 11:15 A.M.)				Evening (7:30 P.M. to 8:15 P.M.)			
	Tuesday 11.16.2021	Thursday 11.18.2021	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22
BI	14%	29%	**21%**	**29%**	29%	43%	**36%**	**29%**	29%	29%	**29%**	**29%**
BJ	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
BK	28%	33%	**31%**	**22%**	22%	39%	**31%**	**44%**	22%	22%	**22%**	**17%**
BL	37%	42%	**39%**	**32%**	26%	37%	**32%**	**32%**	42%	37%	**39%**	**42%**
BM	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
BN	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
BO	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
BP	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
BQ	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
BR	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
BS	8%	8%	**8%**	**8%**	8%	4%	**6%**	**4%**	0%	0%	**0%**	**0%**
BT	14%	14%	**14%**	**7%**	7%	14%	**11%**	**7%**	7%	7%	**7%**	**7%**
BU	0%	0%	**0%**	**20%**	0%	0%	**0%**	**0%**	40%	40%	**40%**	**0%**
BV	20%	20%	**20%**	**20%**	20%	20%	**20%**	**20%**	0%	20%	**10%**	**20%**
BW	25%	50%	**38%**	**50%**	50%	50%	**50%**	**50%**	50%	50%	**50%**	**50%**
BX	0%	20%	**10%**	**0%**	0%	0%	**0%**	**0%**	0%	20%	**10%**	**0%**
BY	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
BZ	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
CA	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CB	33%	33%	**33%**	**33%**	33%	33%	**33%**	**33%**	33%	33%	**33%**	**33%**
CC	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CD	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CE	0%	0%	**0%**	**0%**	8%	8%	**8%**	**0%**	0%	0%	**0%**	**0%**
CF	22%	22%	**22%**	**11%**	0%	0%	**0%**	**0%**	22%	11%	**17%**	**11%**
CG	0%	0%	**0%**	**0%**	20%	0%	**10%**	**0%**	0%	0%	**0%**	**0%**
CH	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CI	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CJ	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CK	0%	0%	**0%**	**0%**	20%	0%	**10%**	**20%**	0%	0%	**0%**	**0%**
CL	14%	14%	**14%**	**14%**	14%	14%	**14%**	**14%**	43%	14%	**29%**	**14%**
CM	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**	NS	NS	**NS**	**NS**
CN	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CO	25%	25%	**25%**	**25%**	25%	25%	**25%**	**0%**	25%	25%	**25%**	**25%**
CP	0%	0%	**0%**	**0%**	33%	100%	**67%**	**33%**	0%	0%	**0%**	**33%**

				Parking Supply			Parking Utilization											
				Total Parking			Morning (7:00 A.M. to 7:45 A.M.)				Mid Morning (10:30 A.M. to 11:15 A.M.)				Evening (7:30 P.M. to 8:15 P.M.)			
Block Face ID	Street Name	Street Segment	Side of Street	**Morning**	**Mid Morning**	**Evening**	Tuesday 11.16.2021	Thursday 11.18.2021	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22	Tuesday 3.1.22	Thursday 3.3.22	School Day Average	Non School Day Sample Wednesday 2.23.22
CQ	42ND AVE NE	800' BOUNDARY AND NE 104TH ST	W	**2**	**2**	**2**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CR	42ND AVE NE	800' BOUNDARY AND NE 104TH ST	E	**2**	**2**	**2**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CS	NE 103RD ST	800' BOUNDARY AND 40TH AVE NE	N	**3**	**3**	**3**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CT	NE 103RD ST	800' BOUNDARY AND 40TH AVE NE	S	**3**	**3**	**3**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CU	43RD PL NE	800' BOUNDARY AND 40TH AVE NE	N	**4**	**4**	**4**	50%	50%	**50%**	**75%**	50%	50%	**50%**	**75%**	75%	75%	**75%**	**50%**
CV	43RD PL NE	800' BOUNDARY AND 40TH AVE NE	S	**6**	**6**	**6**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**0%**
CW	40TH AVE NE	800' BOUNDARY AND 43RD PL NE	W	**1**	**1**	**1**	0%	0%	**0%**	**0%**	0%	0%	**0%**	**100%**	0%	0%	**0%**	**0%**
CX	40TH AVE NE	800' BOUNDARY AND 43RD PL NE	E	**2**	**2**	**2**	0%	0%	**0%**	**50%**	50%	50%	**50%**	**0%**	50%	0%	**25%**	**50%**
			TOTAL	**382**	**386**	**386**	**15%**	**18%**	**17%**	**16%**	**17%**	**17%**	**17%**	**15%**	**18%**	**17%**	**18%**	**18%**

TECHNICAL MEMORANDUM

Project: **John Rogers Elementary School Replacement**

Subject: Parking Analysis Addendum for Site Plan Modifications

Date: October 27, 2022

Author: Tod S. McBryan, P.E.

This *Parking Analysis Addendum* updates analysis presented in the *John Rogers Elementary School Replacement Transportation Technical Report,*[1] to reflect minor modifications to the proposed site plan made after publication of the project's draft SEPA Checklist.

1. Changes to Proposed On-Site Parking Supply

Seattle Public Schools has revised the proposed John Rogers Elementary School site plan in response to the City's Land Use Code departures process and other comments. Figure 1 (attached) shows the revised site plan. The revised site plan now has three more parking spaces than shown previously, and would allow use of the hard-surface play area for occasional special event parking. With the revised site plan, the project would expand the existing northern staff parking lot from 20 to 22 spaces. It would provide 5 spaces in the lot accessed from the school-bus load/unload loop and 5 spaces accessed from the family-vehicle load/unload area for a total of 32 permanent parking spaces. In addition, 10 spaces in the on-site family-vehicle load/unload area could be used for visitor parking during the school day. In total, the revised site plan would provide 42 parking spaces for school-day use (an increase of 3 spaces compared to site plan presented in the Draft SEPA Checklist and referenced *Transportation Technical Report*).

For occasional evening or weekend events, the school-bus load/unload area (12 spaces) and the hard-surface play area (estimated to accommodate about 20 vehicles) could be used in addition to the school-day parking described above. The event-parking within the hard surface play area would be used infrequently for all-school after-hours events. In total, the updated site plan provides 74 parking spaces for event conditions (an increase of 23 spaces compared to the previous site plan and analysis).

2. School-Day Parking

As described in the referenced *Transportation Technical Report*, the proposed replacement school with the increased enrollment capacity and staff could generate parking demand of 51 to 69 vehicles—an increase of 10 to 20 vehicles compared to the existing school. Demand is likely to vary somewhat depending on the number of part-time staff and volunteers on site at any one time. The school demand would be partially accommodated by the on-site parking. The increase in on-street demand is estimated to range from 19 to 37 vehicles. On-street parking within the site vicinity averages 17% occupied on school days, with about 320 unused spaces. The increase in school-day on-street parking demand could be accommodated by unused supply and typical utilization is estimated to remain below 30%.

[1] Heffron Transportation, Inc., June 2, 2022.

3. Evening Event Parking

The school is expected to continue hosting evening events periodically throughout the school year. In general, evening events are held between about 5:30 or 6:00 P.M. and 8:00 P.M. Evening events typically occur about once per month or once every other month with attendance that can range from 50 to over 300 people. Larger events, those other than Curriculum Night, could generate parking demand between 45 and 120 vehicles; Curriculum Night at the larger John Rogers Elementary could generate demand of about 270 vehicles once per year. As described above, the site is now proposed to have event parking capacity for up to 74 vehicles and there were about 320 unoccupied on-street spaces on non-event nights. The additional on-street demand during events could be accommodated by the unused supply and utilization is expected to remain at or below about 70%. Due to the relative infrequency of events, the increase in demand associated with the replacement project would not represent a significant adverse impact and no changes to the conclusions or recommendations in the *Transportation Technical Report* are required.

John Rogers ES Site Plan Update Transp Addendum - FINAL

Source: DLR Group, October 19, 2022.

SEATTLE PUBLIC SCHOOLS
John Rogers Elementary Replacement

Figure 1

Proposed Site Plan

heffron transportation inc

Appendix I

SUMMARY OF PUBLIC COMMENTS AND RESPONSES

John Rogers Elementary School Replacement Project – Draft SEPA Checklist Public Comment Responses

#	Comment	Response	Document Reference
	Arndt, Michael*		
1	It has come to understanding that there has NOT been a EIS done for this project. Which is very concerning as this is a nesting area for the Native Painted Turtles. Over the weekend we have documented one laying her eggs in the lower play field. Not only that this is a nesting area, it is also a play area for the native river otters in the early hours of the morning before the area is taken over by the humans.	Subsequent the issuance of the Draft SEPA Checklist, a wildlife habitat assessment was conducted by Raedeke Associates (Appendix F) to investigate wildlife habitat and the turtles that were observed onsite by community members. No turtles or obvious nesting sites were observed during field investigations on the project site. However, based on photographs that were submitted to SPS, the turtle that was observed on the site by community members was determined to be a red-eared slider; this determination was also confirmed by Washington Department of Fish and Wildlife (WDFW) biologists. The red-eared slider is a non-native turtle species. It is native to the eastern United States and has been historically sold in pet stores throughout the country. Most red-eared sliders seen in Washington escaped or released pets. As noted in Appendix F, the WDFW Priority Habitat and Species database does not indicate the presence of any native turtle species on or within 1,000 feet of the project site and no turtles or obvious nesting sites were observed during field investigations. The proposed project is not anticipated to have impacts on known native turtle populations. The existing playfield is frequently used for recreation activities and off-leash dogs which likely deters many species from utilizing the playfield. Development of the proposed project does include native landscaping in areas that are currently occupied by open, poorly vegetated areas which could result in a modest increase in overall wildlife diversity utilizing the site as a result of an increased plant community diversity and removal of non-native vegetation. Measures are also identified in Appendix F and the SEPA Checklist to avoid or minimize potential impacts to any turtles and other wildlife species that may utilize the project site or habitats in the vicinity of the project site.	SEPA Checklist Section B.5 and Appendix F
2	We have lived here since 2005 and saw the 1000's of crows that would congregate at this playfield before sunset as they made their way around the lake to Bothell. When the field was updated about 10 years ago or so that number of crows dropped to only 100's nightly.	This comment is noted. Section B.5 of the SEPA Checklist notes that crows are a part of the wildlife population observed on the site and in the area.	SEPA Checklist Section B.5
	Berkow, Janet*		
3	I understand that the comment period for this planned new construction project at John Rogers Elementary and the adjacent playfield has closed as of last week, but new information came up this weekend that has prompted me (and a number of neighbors) to flag a serious potential problem. I've encouraged my neighbors to reach out to you as well.	Please see the response to Comment 1 regarding turtles.	SEPA Checklist Section B.5 and Appendix F

#	Comment	Response	Document Reference
	This weekend, a number of us witnessed a turtle laying her eggs in the north end of the playfield. She dug a nest deep in the soil, laid her eggs, then covered it all up so the nest is undetectable. I spoke with a few neighbors who live right next to the playfield, and they reported that this happens every year, and this is the third turtle they're aware of that lays eggs in the field. Another neighbor tracked the turtle returning to the creek where it lives (southwest corner of the playfield where the creek runs under 105th.) We know that there is a good sized population of turtles in Meadowbrook Pond and the connected branches of Thornton Creek throughout the watershed area.		
4	Replacing the existing natural turf in the playfield with artificial turf is part of the new construction plan, and it is this piece of the plan I would like to STRONGLY encourage you to re-examine due to the impacts on local wildlife. I've cc:d Jessyn Farrell, Director of the Seattle Office of Sustainability and Development on this message to make sure they are aware of the issue as well.	As noted in Section A.11 and B.4, as project design has progressed the option for synthetic turf has been removed and the proposed project would include a new grass playfield to replace the existing grass field. The new grass field would continue to provide a natural recreation surface at the site.	SEPA Checklist Section A.11 and B.4
	Conte, Candace		
5	Greetings. I am writing as a neighbor of John Rogers Elementary and would like to comment on the environmental impact of the proposed car and parking situation at the school. The playfield at John Rogers is a wonderful asset of the neighborhood, used by the surrounding community and our resident wildlife. Its proximity to Meadowbrook Pond brings rabbits, turtles, eagles, osprey, otters, kingfishers, herons, opossums, butterflies, and other wildlife and shelters them from surrounding traffic. I am attaching three pictures: one of a baby rabbit and two of a large turtle passing through the playfield, all taken in the past couple weeks. In addition to a home and byway for the animals, the space surrounding the field provides some greenery for the neighborhood, which means cleaner air and heat/cold regulation. I am especially concerned that the natural habitat of these creatures will be negatively affected by the destruction of this green space and construction and cars/traffic in this space.	Please see the response to Comment 1 regarding wildlife and turtles.	SEPA Checklist Section B.5 and Appendix F
6	In addition to providing habitat and a natural environment for wildlife, the playfield provides a safe, fenced area for neighbors to gather and enjoy walking the path while others enjoy frisbee and other sports during non-school hours. I hope that a safe, fenced walking path will remain around the field for the enjoyment of the school as well as the neighborhood.	As indicated in Section A.11 and B.12 of the SEPA Checklist, the proposed project would include a walking path around the perimeter of the playfield that would be available for community use when not in use by the school.	SEPA Checklist Section A.11 and B.12.
7	In short, there is much to be lost by the addition of more cars/traffic/parking in this wonderful neighborhood green space and I hope you will carefully consider the impact on our human and non-human neighbors.	As noted in Section B.12, the proposed project would renovate the existing play field area to create more usable and functional space for the school and students. This area would also include a new walking path around the perimeter of the field and would continue to be available for community use when not in use by the school.	SEPA Checklist Section B.12

#	Comment	Response	Document Reference
	Crossland, Sherri		
8	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
	Easterberg, Charles		
9	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
10	The facility is too large for the neighborhood, streets and planned parking. Parents drive their kids to school period. No sidewalks or parking.	SPS utilizes their existing school sites in the most efficient manner to serve the needs of the district and does not have additional land available to provide additional capacity for the projected enrollment. Seattle Public Schools has developed educational specifications that provide the best places for students to learn and must also consider the future capacity needs of the district, along with the needs of the existing community. The SEPA Checklist identifies potential impacts that could occur with the project, along with appropriate mitigation measures. See response to Comment #48 for information on parking and transportation.	N/A
	Fox, June		
11	I found the answers to my geotech survey and solar panel question in the SEPA. So only need to know about removal of non-invasive vegetation. The SEPA mentioned the non-natives but did not specify the plan to remove or leave them. Thanks.	As noted in Section B.4, limited landscape areas that would be impacted by construction within exceptional tree stands and other tree stands would be cleared of non-native and invasive species and treated with arborist wood chip mulch for root and soil protection. Existing landscape areas surrounding the existing building would be removed during the construction process for the proposed building and new landscaping areas would be provided on the site. These landscape areas would be planted with a mix of native and/or native adaptive shrubs, ferns and groundcovers.	SEPA Checklist Section B.4
	Hatton, Peter		
12	In a recent video meeting, The School said it would be reaching out to adjacent property owners. I haven't had that contact yet but I would like to talk to someone about: 1. The blackberry bushes at the eastern boundary of my property adjacent to the current road/driveway. I believe those are on SD property.	As noted in Section B.4, limited landscape areas that would be impacted by construction within exceptional tree stands and other tree stands would be cleared of non-native and invasive species and treated with arborist wood chip mulch for root and soil protection. New landscape areas would be provided on the site surrounding the existing building and within proposed parking areas. These landscape areas would be planted with a mix of native and/or native adaptive shrubs, ferns and groundcovers.	SEPA Checklist Section B.4

#	Comment	Response	Document Reference
	2. The landscaping and plantings of that same area where the current road/driveway is to be removed (i.e., the north-west portion of the SD property, adjacent to my property).	SPS has reached out to Mr. Hatton to discuss the removal of blackberry bushes in this area of the site, as well as potential landscaping that would occur with the project.	
	Holman, Wendy (1)		
13	I just sent in some postcards with my comments regarding the John Rogers new school project. I have attended one meeting (last month I believe) on zoom discussing the project and appreciated being able to hear the discussion. I am a neighbor on 41st and am supportive of a new, improved school building. My main concerns include: The increased size of the school, thus requiring zoning code departures (can the designers not design a new school without requesting departures? Make it smaller, include more parking, etc.)	As indicated in Section B.8, the Seattle Municipal Code includes development standards for public schools in residential zones (SMC 23.51B.002), and also includes procedures through which departures from the required development standards of the code can be granted for public school structures (SMC 23.79). Due to the existing site characteristics and project design goals, the project is requesting land use departures for the following: building height, onsite parking, bicycle parking performance standards – secure locations and arrangements of long-term parking, and signage (changing-image reader board). The City's departure process is separate from SEPA. Seattle Public Schools is continuing to coordinate with the City regarding the departures for the project and would comply with the City's requirements for the process.	SEPA Checklist Section B.8.
14	There is currently a City Public Utilities Project happening on our street (41st NE) and it will impact parking (likely take out some). Are you coordinating with that city agency? Although not noted in the plan, some parental parking does happen on our street, and any increase will cause problems.	Seattle Public Utilities (SPU) is completing design work to construct a natural drainage system along a segment of 41st Place NE between NE 107th Street and NE 105th Street in early 2023. The school site does not directly abut 41st Place NE, but SPS will coordinate with SPU as needed for the school's drainage work. The Seattle Public Utilities 90% design plans indicate that project may reduce the on-street parking capacity along the affected segment by about five (5) spaces. The detailed on-street parking utilization study prepared for the John Rogers Elementary School Replacement Project (documented in the associated Transportation Technical Report [Appendix H]) found a total study-area parking supply of 386 spaces midday and evenings on school days. Of these, the study measured 37 spaces along 41st Place NE between NE 105th and NE 107th Streets (total for both sides) with an average of 25 unoccupied spaces mid-morning on school days. A comparison of mid-morning counts on school days and on a non-school day (winter break) did not indicate any school-related demand on 41st Place NE and there was unused parking (on-site and on-street) located closer to the school building during these observations. With the replacement school and the change in site's access configuration, it is possible some school-related demand could occur on 41st Place NE. As described in the referenced *Transportation Technical Report*, demand for on-street parking in the area with the project is likely to increase due to higher numbers of staff and school visitors/volunteers and fewer spaces to be provided in site. The school demand would be partially accommodated by the on-site parking. With recent modifications to the site plan made in response to the City's Land Use Code departures process and other comments (see Appendix H - *Parking Analysis Addendum for Site Plan Modifications*,	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
		Heffron, 2022), the increase in on-street demand is estimated to range from 19 to 37 vehicles. On-street parking within the site vicinity averages 17% occupied on school days, with about 320 unused spaces. The increase in school-day on-street parking demand could be accommodated by unused supply and typical utilization is estimated to remain below 30%, even with the expected loss of five spaces due to SPU's drainage system project.	
15	Concern about safety for children and cars with the plan to use 105th (lower end of field)—anticipate it could be a traffic jam there with the current draft plan.	The proposed site plan and access configuration were developed to accommodate the new replacement school with its larger enrollment capacity consistent with the Institute of Transportation Engineers' Safe Routes to Schools guidance. The proposal would better separate school bus and most family-vehicle operations and create new separated pedestrian and non-motorized access pathways on the site. The access configuration would be similar to comparable school sites with on-site automobile and school-bus loading areas. The site plan and access configuration were also developed with input and guidance from the Seattle Schools Traffic Safety Committee (of which Seattle Department of Transportation (SDOT) staff are members). The proposed site changes are expected to improve safety for all modes of transportation. As presented in the referenced *Transportation Technical Report (Appendix H)*, it is recommended that, prior to the school reopening, the District and school Principal establish a Transportation Management Plan (TMP) to educate families about the access load/unload procedures for the new site layout. The TMP should also encourage school bus ridership, carpooling, bicycling, and supervised walking (such as walking school buses). The plan should require the school to distribute information to families each school year, educating them about drop-off and pick-up procedures, as well as travel routes for approaching and leaving the school.	Transportation Technical Report (Appendix H)
16	Not clear whether the plan has taken into consideration the impacts (both pro/con) the new design would have on the neighborhood. Is anyone assigned to that role?	The SEPA Checklist is intended to identify potential impacts from the proposed project and if necessary, identify potential measures to minimize impacts from the project.	N/A
17	Thank you for the opportunity to provide comments to the current draft. Overall, I'm glad that the community is getting a new school, and want the project to be successful. I love our neighborhood and hope that mine and other neighbor comments will be adequately addressed, so we can all be supportive of the new school.	This comment is noted.	N/A
	Holman, Wendy (2)		
18	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A

#	Comment	Response	Document Reference
19	I am not satisfied that off-campus parking will be adequate. Our street cannot handle more street parking. Have you connected with the City regarding changes they are making on our street?	Please see response to Comment #14.	Transportation Technical Report (Appendix H)
	Jackins, Chris		
20	The District should issue a Determination of Significance (DS) for the project: and provide further detailed environmental review through an Environmental Impact Statement- (EIS). I believe that this project has probable significant adverse environmental impacts, and therefore SEPA regulations require a DS and an EIS.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
21	Please provide me with a copy of the Cultural Resources Assessment and also include a copy in the Checklist. Footnote #13, page 33, states "The Cultural Resources Assessment is on-file with SPS and available upon request."	As indicated in the checklist, the cultural resources assessment is on-file with SPS and available upon request. A copy of the assessment was sent to Mr. Jackins on August 18, 2022.	N/A
22	The proposed project to demolish and replace the school would start in July 2023 and the school would reopen In September 2025. During the construction process, students and staff would be temporarily housed at the John Marshall site (520 NE Ravenna Boulevard) [page 1, A.6] [page 4, A.11]. The proposed three-story building would include 24 classrooms, a gymnasium, kitchen and dining commons, a library and media center, a music room, an art room, learning commons spaces, offices, and other support spaces. The total student capacity would be approximately 540 students in grades Pre-K through 5th Grade. The existing grass playfield would be replaced with a new grass or synthetic turf field area. [pages 4-5, A.11]	This comment partially restates text from the project description of the SEPA Checklist (Section A).	N/A
23	Overview of some of our concerns. Not only does the project have significant: adverse impacts, but there are so many problems that the project does not make sense and is plain wrong for this neighborhood. The District is asking for four departures from the zoning code [page 4. John Rogers presentation posted on DON website]: A. Higher than allowed buildings (55 feet planned, maximum allowed by City zoning code is 35 feet); B. Less than required on-site parking (39 (or 28?) spaces planned, City code requires 145 onsite spaces) C. Less than required secure long-term bicycle parking (19 spaces planned, City code requires 73); D. An electronic changing-image reader board sign (not allowed by City code). Bright electronic night-time signs are not consistent with residential neighborhoods, and many school neighborhoods have successfully rejected allowing such signs.	As indicated in Section B.8, the Seattle Municipal Code includes development standards for public schools in residential zones (SMC 23.51B.002), and also includes procedures through which departures from the required development standards of the code can be granted for public school structures (SMC 23.79). Due to the existing site characteristics and project design goals, the project is requesting land use departures for the following: building height, onsite parking, bicycle parking performance standards – secure locations and arrangements of long-term parking, and signage (changing-image reader board). The City's departure process is separate from SEPA. Seattle Public Schools is continuing to coordinate with the City regarding the departures for the project and would comply with the City's requirements for the process.	SEPA Checklist Section B.8

#	Comment	Response	Document Reference
24	Playground/ recreation open space will shrink by 56,250 sq. ft. or 34% (a third), going from 164,450 sq. ft. to 108,200 sq. ft. [page 31, B.12.b. Environmental Checklist].	This comment partially restates information from Section B.12 of the SEPA Checklist which indicates that playground/recreation open space on the site would be reduced with the proposed project. However, the section also notes that the project would provide new and enhanced hard surface play areas and playground equipment space, new outdoor classrooms and garden space, and renovations to the existing playfield. Despite the reduction in recreation area when compared to existing conditions, the new recreation space and amenities on the site would provide more usable and enhanced recreation opportunities for students at the school.	SEPA Checklist Section B.12
25	Too-large-sized school. This is an example of a standardized, cookie-cutter-sized school with capacity increasing from current enrollment of 262 students to 540 students (and later plans to go to 650) [page 4, A.11; page 2. A.7, Checklist:]. Building square footage will greatly increase, demolishing the long-time 40,350 sq. ft. 1-story school (with portables) to build a new 88,000 sq. ft. 3-story building that is less compatible with the neighborhood. [page 3-4, A.11, Checklist:]	SPS utilizes their existing school sites in the most efficient manner to serve the needs of the district and does not have additional land available to provide additional capacity for the projected enrollment. Seattle Public Schools has developed educational specifications that provide the best places for students to learn (including recreation space) and must also consider the future capacity needs of the district, along with the needs of the existing community. Decisions on development projects for existing schools are based in part of a variety of factors, including: enrollment projections, conditions of existing facilities and the need to provide appropriate facilities for students within the district. The SEPA Checklist identifies potential impacts that could occur with the project, along with appropriate mitigation measures.	N/A
26	Less on-site parking. School day current 61 on-site spaces would shrink to 28 [page 36, B.14.c, Checklist] while student capacity would greatly increase.	As presented in the referenced *Transportation Technical Report (Appendix H)*, the existing school site has two striped on-site parking lots located on the north side of the school with a total parking supply of 35 spaces. Parking also occurs along the eastern side of the school building on asphalt areas that are not striped for parking. Counts of on-site parking were conducted midday when school was in session. The counts indicated 13 vehicles typically park in the staff lot, 3 to 7 vehicles park in the northernmost lot, and 23 to 26 vehicles park along the eastern side of the building. In total on-site school-day parking demand is estimated to range from about 38 vehicles to 46 vehicles. As also described in the referenced technical report, the project would decrease the on-site parking supply. With recent modifications to the site plan made in response to the City's Land Use Code departures process and other comments (see *Parking Analysis Addendum for Site Plan Modifications*, Heffron, 2022), 32 permanent spaces would be provided; the on-site family-vehicle load/unload area (10 spaces) could be used for visitor parking during the school day providing a total supply of 42 daytime spaces. The family-vehicle and school-bus load/unload areas could be used for parking on evenings and weekends for events. In addition, the site plan has been modified to allow the hard-surface play area to be used for occasional event parking (accommodating an estimated 20 vehicles). In total, the site would have 74 parking spaces for event conditions.	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
		The proposed replacement school with the increased staff could generate parking demand of 51 to 69 vehicles—an increase of 10 to 20 vehicles compared to the existing school. Demand is likely to vary somewhat depending on the number of part-time staff and volunteers on site at any one time. The school demand would be partially accommodated by the on-site parking. The increase in on-street demand is estimated to range from 19 to 37 vehicles. On-street parking within the site vicinity averages 17% occupied on school days, with about 320 unused spaces. The increase in school-day on-street parking demand could be accommodated by unused supply and typical utilization is estimated to remain below 30%.	
27	Loss of trees. Large numbers of significant and exceptional trees on the site would be removed, including from exceptional groves. [page 15, B.4.b, Checklist].	This comment partially restates information from Section B.4. This section notes that tree removal would occur in three general locations on the site: the north side of the existing building, the south bioswale area, and the eastern fire lane area. At this stage of the design process the following trees are anticipated for removal: Four non-exceptional trees will be removed between the terraced north parking lots to allow for a pedestrian route and improved drainage to be installed. Two non-exceptional trees at the existing school entry will be removed to accommodate a new bus loop. 18 trees in and around the existing south bioswale area will be removed and a new school entry drive and new stormwater facility will be installed. Ten Black cottonwood trees that are located at the bottom of the hill adjacent to the existing fire lane and are part of exceptional groves will be removed due to presenting a high risk to the school and student gathering spaces. Subsequent to the issuance of the Draft SEPA Checklist, the project arborist completed additional analysis on the project and existing trees, including exceptional trees. The addendum to the arborist report (see Appendix E) recommended that an additional 7 cottonwood trees (including 5 exceptional trees) be removed due to potential high risk. In total, 17 cottonwood trees would be removed from the eastern fire lane area, including 15 exceptional trees. As part of the arborist report addendum analysis, the project arborist also revisited the site to assess the impact of tree removal on the remaining exceptional groves and determined that the potential negative impact from removal of the cottonwood trees would be minimal and it would not jeopardize the health of the exceptional groves. It should also be noted that pursuant to Seattle Director's Rule 16-2008, black cottonwood trees cannot be determined to be exceptional based on size along and only exception if they are part of an exceptional grove and not considered a high risk. All tree removal on the site, including removal of exceptional trees, would comply with the City of Seattle Tree Ordinance and replacement requirements. In particular, along the eastern fire lane area, the replanting plan would include, at minimum, an equal number of native conifers for those exceptional trees that would be removed, including Douglas fir and Western red cedar to revegetate the hill with species that will live longer and provide better stabilization for the hill.	SEPA Checklist Section B.4 and Appendix E

#	Comment	Response	Document Reference
28	Wetlands natural grass field and the layout of the site itself are at risk: A. Wetlands including Thornton Creek, [page 10, B.3_a, Checklist:]. B. A wonderful natural grass field that: is likely to become artificial turf [page 16, B.4.d, Checklist:]. C. The site itself, with plans for a major remake of the topography involving importing 39,000 cubic yards of fill to raise the level of the site including the field. [page 7. B.1.e, Checklist] [page 2, EZ-1 Form, Appendix F).	Section B.3 indicates that the proposed project would not require any work over or within Thornton Creek. A portion of the riparian management area and Limited Riparian Development Area (LRDA) is located within the south area of the project site. Per SMC 25.09.020D.5a, the LRDA is the outer 25 feet of the 100-foot riparian management area where some limited development is allowed; however, development including but not limited to impervious surfaces, must not exceed 35 percent of the LRDA. The proposed project would include a small portion of the new grass playfield with underdrainage, a walking path and fencing, as well as a new school driveway, walkway, and stormwater facility within the LRDA. All proposed development within the LRDA would be below the 35 percent maximum for impervious surfaces as identified in SMC 25.09.020D.5a. Improvements in the south portion of the site would be designed to comply with applicable critical areas regulations regarding Thornton Creek and the associated riparian management area. As noted in Section A.11 and B.4, as project design has progressed the option for synthetic turf has been removed and the proposed project would include a new grass playfield to replace the existing grass field. The new grass field would continue to provide a natural recreation surface at the site.	SEPA Checklist Section A.11, B.3, and B.4
29	Native American cultural resources. No subsurface cultural resource surveys were done at the north end of the site. [page 33, A.13.b, Checklist].	As noted in Section B.13 and Appendix G, most of the north end of the site is covered by impervious surfaces. The small grassy areas where shovel probes would be feasible contain buried utilities and were therefore unsuitable for excavation of shovel probes. Additionally, the project archaeologist observed evidence that the northern edge of the project area has been cut into the glacial hillside, indicating low probability for the presence of Holocene soils or sediments with potential to contain archaeological sites. The absence of Holocene deposits in this area was confirmed by examination of logs from three geotechnical borings in the north end of the project area, which encountered only fill and glacially consolidated sediments. Subsurface, shovel probes were completed on the site as part of the Cultural Resources Assessment at regular intervals in areas free of structures, impervious surfaces, and buried utilities (see Appendix G for details and the locations of shovel probe investigations).	SEPA Checklist Section B.13 and Appendix G.
30	Noise. Construction activities are allowed to exceed the maximum noise levels between 7 AM and 10 PM on weekdays and 9 AM to 10 PM on weekends." [B.7.b(2), pages 21-22]. During construction, workers will be arriving between 6:30 and 6:45 AM". [page 28, section 3.8, Appendix F, Transportation Report]. There would be 3 months of excruciating noise from drilling geothermal wells. [page 21, B.7.b.2; page 23, B.7.b.3, Checklist]. There will be traffic noise from a new access drive from NE 105th street along much of the eastern edge of the site.	As noted in Section B.7.b, the project would comply with provisions of the City's Noise Ordinance (*SMC 25.08*); specifically: construction hours would be limited to standard construction hours (non-holiday) from 7 AM to 10 PM and Saturdays and Sundays from 9 AM to 10 PM. To reduce noise impacts during construction, contractors would comply with all local and state noise regulations. Contractors may also implement the following measures to further reduce or control noise impacts during construction:	SEPA Checklist Section B.7.b

#	Comment	Response	Document Reference
		– Construction would likely occur between 7 AM and 5 PM on weekdays, although, per SMC 25.08, construction is allowed to occur between 7 AM and 10 PM on weekdays and 9 AM to 10 PM on weekends and holidays. – Minimize idling time of equipment and vehicle operation. – Operate equipment only during hours approved by the City of Seattle. – Use well-maintained and properly functioning equipment and vehicles. – Locate stationary equipment away from receiving properties. Noise associated with the construction of the geothermal wells is also noted in the SEPA Checklist. Noise from construction would be temporary and duration of work for the geothermal wells is estimated to be approximately three months. The noise associated with the drilling of the wells would be within local and state regulations. The contractor would provide updates to nearby residents on the progress and duration of activities during the construction of the project, including the geothermal wells.	
31	Earthwork transport. Earthwork transport would take 20 to 28 weeks beginning in Summer 2023, with 3 truckloads per hour (3 in, 3 out) and would be noticeable to residents living adjacent to the site. [page 28, section 3.8, Appendix F, Transportation Report]	As described in the referenced *Transportation Technical Report (Appendix G)*, the early site work would include demolition, removal of portables, site grading, geo-thermal well installation, and foundations and building pad preparation and is anticipated to occur over about 20 to 28 weeks beginning in Summer 2023. The earthwork component of that effort is assumed to be completed over about 18 weeks during that period and is estimated to generate about 25 truckloads per day and an average of about 3 truckloads per hour (3 trucks in and 3 trucks out) on a typical eight-hour construction work day. The District will require the contractor to develop a Construction Transportation Management Plan (CTMP) that will address truck routes and truck staging areas. To the extent possible, these trucks will be directed to use arterials and avoid residential streets.	Transportation Technical Report (Appendix H)
32	Duwamish Tribe. The District should consider performing subsurface cultural surveys.	As indicated in Section B.13 and Appendix G, onsite subsurface investigations were undertaken on April 12, 2022 as part of the Cultural Resources Assessment. Shovel probes were excavated at regular intervals in areas free of structures, impervious surfaces, and buried utilities. The Duwamish Tribe was notified in advance of the onsite investigations in a letter to John Boddy dated April 6, 2002 and were invited to attend, along with other Tribes, including the Muckleshoot, Snoqualmie, Suquamish, and Tulalip. No representatives from the Duwamish or other Tribes were in attendance during onsite investigations.	SEPA Checklist Section B.13 and Appendix G.
33	No public meeting. On other projects, the District has held a public meeting to discuss the Draft Checklist.	Public meetings are not required for SEPA Checklists and are not required as part of the City permit process for this project. While not required by the SEPA Rules, a public comment period was included as part of the issuance of the Draft Checklist to solicit comments from the public, agencies and organizations. The most recent community meeting that was provided as part of the project design process was held on June 2, 2022.	N/A

#	Comment	Response	Document Reference
34	Significant loss of playground recreation / open space. The playground area will shrink by one-third. A. Playground I recreation/ open space will shrink by 56,250 sq. ft., or 34% (a third), going from 164,450 sq. ft. to 108,200 sq. ft. [page 31, B.12.b, Environmental Checklist]. B. On a per-student basis, playground space would shrink to one-third the current size, as the number of students is doubling. Capacity is increasing from current enrollment of 262 students to 540 students (and later plans to go to 650) [page 4, A.11; page 2, A.7, Checklist].	This comment partially restates information from Section B.12 of the SEPA Checklist which indicates that playground/recreation open space on the site would be reduced with the proposed project. However, the section also notes that the project would provide new and enhanced hard surface play areas and playground equipment space, new outdoor classrooms and garden space, and renovations to the existing playfield. Despite the reduction in recreation area when compared to existing conditions, the new recreation space and amenities on the site would provide more usable and enhanced recreation opportunities for students at the school.	SEPA Checklist Section B.12
35	The project as proposed will not meet City zoning code. This indicates that the project will have probable significant adverse impacts. The District is asking for four departures from the zoning code [pages 26, 27, B.8.1] [page 4, John Rogers presentation posted on DON website]: A. Higher than allowed buildings (55 feet planned, maximum allowed by City zoning code Is 35 feet); B. Less than required on-site parking (39 spaces planned, City code requires 145 onsite spaces) (Note: District says it actually plans only 28 daytime spaces, not 39 - See page 36, section B.14.c, Environmental Checklist); C. Less than required secure long-term bicycle parking (19 spaces planned, City code requires 73); D. An electronic changing-image reader board sign (not allowed by City code). Bright electronic night-time signs are not consistent. with residential neighborhoods, and many school neighborhoods have successfully rejected allowing such signs.	As indicated in Section B.8, the Seattle Municipal Code includes development standards for public schools in residential zones (SMC 23.51B.002), and also includes procedures through which departures from the required development standards of the code can be granted for public school structures (SMC 23.79). Due to the existing site characteristics and project design goals, the project is requesting land use departures for the following: building height, onsite parking, bicycle parking performance standards – secure locations and arrangements of long-term parking, and signage (changing-image reader board). The City's departure process is separate from SEPA. Seattle Public Schools is continuing to coordinate with the City regarding the departures for the project and would comply with the City's requirements for the process.	SEPA Checklist Section B.8.
36	Loss of trees. Large numbers of significant and exceptional trees on the site would be removed, including from exceptional groves. [page 15, B.4.b, Checklist.] A. The Checklist states that trees will be removed from three areas, north, southwest, and east, without giving estimated counts. Exceptional trees would be removed from the east area, including at least 10 trees from exceptional groves there (Groves B, C, D). [pages 14-15, B.4.b] B. There are 174 significant trees on-site (trees measuring six inches or great.er in diameter at standard height). [page 1, Arborist. Report, Appendix E] C. "The trees range in size up to 48 inches in diameter." [page 14, B.4.a] D. Six of these 174 trees are also Exceptional individually and 71 trees are Exceptional as being part of Exceptional Groves of trees, which require special protection. There are six Exceptional Groves of trees, labeled A through F going from south to north. ""The City defines an exceptional grove as eight or more trees each with a diameter measuring twelve (12) inches or greater with continuously overlapping canopies.- [page 1, and footnote #2, Arborist. Report, Appendix E]	A portion of this comment partially restates information from Section B.4. The existing exceptional groves consist of cottonwood trees that present a potential hazard to the school. Cottonwood trees are naturally a pioneer species that grow quickly, become weak, drop limbs and fall to become nurse logs for conifers that follow them in the succession process. These tall cottonwoods on a steep slope are leaning towards the school and have the potential to fall on the building and outdoor gathering areas. Subsequent to the issuance of the Draft SEPA Checklist, the project arborist completed additional analysis on the project and existing trees, including exceptional trees. The addendum to the arborist report (see Appendix E) recommended that an additional 7 cottonwood trees (including 5 exceptional trees) be removed due to potential high risk. In total, 17 cottonwood trees would be removed from the eastern fire lane area, including 15 exceptional trees. As part of the arborist report addendum analysis, the project arborist also revisited the site to assess the impact of tree removal on the remaining exceptional groves and determined that the potential negative impact from removal of the cottonwood trees would be minimal and it would not jeopardize the health of the exceptional groves. It	SEPA Checklist Section B.4 and Appendix E

#	Comment	Response	Document Reference
	E. The arborists were not able to provide detailed impacts on trees from the project, because the arborists were not provided with proposed project plans to review. [page 3, Arborist. Report. Appendix E] This seems at odds with the Checklist. Preface assertion that the Checklist analysis is based on plans for the project which are considered adequate for analysis and disclosure of environmental impacts." [page i] F. Removing trees from the Exceptional Groves could cause critical loss of numbers of trees and critical loss of continuously overlapping canopies, leading to the elimination of existing Exceptional Groves of trees, which is a significant impact. G. The Checklist. did not evaluate whether there are any significant tree/ plant associations, as were encountered when the District tried to clearcut groves of trees on the Ingraham High School project. Given the extensive tree cover at John Rogers, such associations seem possible.	should also be noted that pursuant to Seattle Director's Rule 16-2008, black cottonwood trees cannot be determined to be exceptional based on size along and only exception if they are part of an exceptional grove and not considered a high risk. All tree removal on the site, including removal of exceptional trees, would comply with the City of Seattle Tree Ordinance and replacement requirements. A monitoring program will be developed with the arborist to assess risk in the grove every 1-3 years. Slope stabilization planting plan is being developed with the City to speed up the succession process to include more conifer trees and groundcovers. In particular, along the eastern fire lane area, the replanting plan would include, at minimum, an equal number of native conifers for those exceptional trees that would be removed, including Douglas fir and Western red cedar to revegetate the hill with species that will live longer and provide better stabilization for the hill.	
37	Loss of natural grass field. A wonderful natural grass field that is likely to become artificial turf [page 16, B.4.d, Checklist].	As noted in Section A.11 and B.4, as project design has progressed the option for synthetic turf has been removed and the proposed project would include a new grass playfield to replace the existing grass field. The new grass field would continue to provide a natural recreation surface at the site.	SEPA Checklist Section A.11 and B.4
38	Steep slopes. An Environmentally Critical Area (ECA) steep slope area is located in the northeast portion of the site and contains the steepest slopes on the site (approximately 60 percent.)." [page 6, B.1.b]. An ECA steep slope area is also located along the eastern boundary of the site. The south portion of the John Rogers Elementary site is classified as a liquefaction-prone area". [page 25, B.S.h]	This comment partially restates information from Section B.1. As noted in Appendix A, per SMC 25.09, development must be limited such that adverse impacts to potential landslide areas would be avoided (which would include the existing steep slopes to the northeast of the existing building).	SEPA Checklist Section B.1 and Appendix A
39	Water. The presence of wetlands and Thornton Creek increase the risk of significant impacts. Thornton Creek has been channelized in the site vicinity and runs adjacent to a portion of the western boundary and through a portion of the southwest comer of the John Rogers Elementary School Project site. Thornton Creek flows from under 39th Avenue NE approximately 300 feet east through residential backyards towards the site, then turns to flow adjacent to the southwest boundary of the site before crossing onto the site for approximately 60 feet and entering a culvert under NE 105th Street. The portion of the creek within the site area is located outside of the fenced boundary of the developed portion of the site. Beyond the site area, Thornton Creek generally flows to the southeast towards Lake Washington." [page 10, B.3.a.1]. Thornton Creek is considered a Type F stream with an associated riparian management area that extends 100 feet from the top of the bank or ordinary high water mark: (OHWM) [page 10, B.3.a.1]. A portion of the riparian management area and Limited Riparian Development Area (LRDA) is located within the south area of the project site. The proposed project would include a small portion within the LRDA [page 10, B.3.a.2]. A flood-prone area is located along the southwest boundary of the site [page 25, B.8.h].	This comment partially restates information that is included in Section B.3 of the SEPA Checklist. This section also notes that the proposed project would not require any work over or within Thornton Creek. A portion of the riparian management area and Limited Riparian Development Area (LRDA) is located within the south area of the project site. The proposed project would include a small portion of the new grass playfield with underdrainage, a walking path and fencing, as well as a new school driveway, walkway, and stormwater facility within the LRDA. All proposed development within the LRDA would be below the 35 percent maximum for impervious surfaces as identified in SMC 25.09.020D.5a. Improvements in the south portion of the site would be designed to comply with applicable critical areas regulations regarding Thornton Creek and the associated riparian management area.	SEPA Checklist Section B.3

#	Comment	Response	Document Reference
40	Water and sewer connections. It seems that with enrollment more than doubling, there could be some impact. For water and sewer services, "existing domestic water and fire services may need to be modified or relocated and the project may require rerouting of existing side sewer connections to the new building or a new connection could be made [page 41, B.16.b]. At the recent Queen Anne Elementary project, the District lost track of the need for a new sewer connection, and ended up at the last minute removing a protected tree from the adjacent landmarked boulevard to install a connection.	SPS and the design team continue to coordinate with Seattle Public Utilities and other utility purveyors regarding services and proposed design plans for the project. As noted in Section B.16, based on the size of the proposed project, existing domestic water and fire services may need to be modified or relocated. Per the water availability certificate that was provided for the site, if necessary, new water service connections are available from a 6-inch water main located in NE 110th Street and an 8-inch water main in 40th Avenue NE. The proposed project may require rerouting of existing side sewer connections to the new building or a new connection could be made for the proposed building to the existing 8-inch sanitary sewer mainline.	SEPA Checklist Section B.16.
41	Animals. The project is not anticipated to have a substantial impact on wildlife located in the vicinity of the site [page 17, B.5.d]. There are no endangered species known to be in the site vicinity [page 17, B.5.b]. Neighbors often have the opportunity over long periods of time to observe school sites and sometimes have some detailed observations to share about animals in the area. Thornton Creek which is located adjacent to the southwest comer of the site is considered a Type F stream with documented presence of winter Steelhead and coastal Cutthroat Trout. It is also documented as spawning habitat for Sockeye Salmon and rearing habitat for Coho Salmon [page 17, B.5.a]. Rather than being strictly adjacent to the school site, the Checklist elsewhere notes that Thornton Creek runs through a portion of the southwest corner of the John Rogers Elementary School Project site [page 10, B.3.a.1].	This comment partially restates information from Section B.5 of the SEPA Checklist. Please refer to the response to Comment 1, SEPA Checklist Section B.5, and Appendix E for further analysis on wildlife habitat that was completed for the project.	SEPA Checklist Section B.5
42	Noise. Noise is a probable significant adverse impact. The Checklist states that construction activities are allowed to exceed the maximum noise levels between 7 AM and 1O PM on weekdays and 9 AM to 10 PM on weekends [B.7.b(2), pages 21-22]. During construction workers will be arriving between 6:30 and 6:45 AM [page 28. section 3.S, Appendix F, Transportation Report]. There will be traffic noise from a new access drive from NE105th Street along much of the eastern edge of the site [page 2. EZ-1 Form, Appendix F] [page 47, Figure 3, site plan]. There would also be noise associated with the drilling and installation of geothermal wells in the south portion of the site over a three month period [B.7.b(2)&(3), pages 21-23]. This is not just noise from the operation of the diesel engine [page 21, B.7.b.2]. On other District projects installing geothermal wells, the surrounding neighborhoods have been greatly disrupted. including from shaking of homes, such as at Northgate Elementary where I spoke to neighbors who worked from their homes and often found the situation impossible, and at West Woodland Elementary where a night shift nurse's life was made nearly unbearable.	As noted in Section B.7.b, the project would comply with provisions of the City's Noise Ordinance (SMC 25.08); specifically: construction hours would be limited to standard construction hours (non-holiday) from 7 AM to 10 PM and Saturdays and Sundays from 9 AM to 10 PM. To reduce noise impacts during construction, contractors would comply with all local and state noise regulations. Contractors may also implement the following measures to further reduce or control noise impacts during construction: • Construction would likely occur between 7 AM and 5 PM on weekdays, although, per SMC 25.08, construction is allowed to occur between 7 AM and 10 PM on weekdays and 9 AM to 10 PM on weekends and holidays. • Minimize idling time of equipment and vehicle operation. • Operate equipment only during hours approved by the City of Seattle. • Use well-maintained and properly functioning equipment and vehicles. • Locate stationary equipment away from receiving properties. Noise associated with the construction of the geothermal wells is also noted in the SEPA Checklist. Noise from construction would be temporary and duration of work for the geothermal wells is estimated to be approximately three months. The noise associated with the drilling of the wells would be within local and state regulations. The contractor would	Section B.7.b

#	Comment	Response	Document Reference
		provide updates to nearby residents on the progress and duration of activities during the construction of the project, including the geothermal wells. Operational noise, including noise associated with vehicles during student drop off and pick-up is also noted in Section B.7.b.	
43	Light and glare. Glare from building materials (e.g., window glazing or other building materials) could also occur during certain times of day [page 30, B.11.a].	This comment partially restates information from Section B.11 of the SEPA Checklist. As noted in that section, proposed exterior building materials would be consistent with applicable design standards/regulations to ensure that glare impacts would not occur.	SEPA Checklist Section B.11
44	Lead, arsenic and asbestos. The existing building was assessed for asbestos-containing materials (ACM), lead-containing coatings, lead and arsenic in mortar [page 19, B.7.a.1].	This comment partially restates information from Section B.7 of the SEPA Checklist. As indicated in that section, a Hazardous Building Materials Assessment Report was completed for the existing building. Pursuant to that assessment, all hazardous buildings materials would be dealt with in accordance with applicable regulations and standards.	SEPA Checklist Section B.7
45	Views. There will be more tall solid walls to look at, which will obscure other views [pages 27-29, B.10].	Section B.10 of the SEPA Checklist provides a discussion on aesthetic conditions notes that views of and across the site would change to reflect the proposed larger building. Due to the design of the project and existing topography, the proposed building would generally be more visible from areas that are adjacent to the north portion of the site than from areas adjacent to the south portion. However, existing, mature trees within the north and east portions of the site also limit and obstruct some of the views across the site. Views from areas to the east of the site currently contain limited views of the existing building and across the site looking to the west; however, these views of the site are also partially obstructed and limited due to the topography and by existing vegetation and mature trees. With the proposed project, views from the area to the east of the site would change to reflect portions of the proposed taller building, but to the extent that existing, mature trees are retained, they would continue to provide a partial buffer/screen of the building.	SEPA Checklist Section B.10
46	There will be an increase in impervious surfaces. 37% of the school campus is currently covered with impervious surfaces; this would increase to 51% [page 7, B.1.g].	As indicated in Section B.3, the site stormwater design for the project would be consistent with the City of Seattle's 2021 stormwater manual and include water quality facilities for pollution generating impervious surfaces and pollution generating pervious areas. Onsite stormwater management (OSM) measures would also be evaluated and implemented where feasible as required by the City's stormwater manual. Based on existing soils on the site, it is anticipated that infiltration will not be feasible for the majority of the site and as such, non-infiltrating OSM facilities and other alternative approaches would likely be implemented as part of the drainage stormwater design for the project. It is anticipated that the proposed stormwater system will also reuse the existing connections to the onsite 72-inch SPU pipe storm drain and new connections would be made, if necessary. With the	SEPA Checklist Section B.3

#	Comment	Response	Document Reference
		implementation of the proposed stormwater improvements and measures, no significant stormwater runoff impacts would be anticipated.	
47	Major remake of the site topography. The site itself will have its topography changed, involving importing 39,000 cubic yards of fill to raise the level of the site including the field [page 7, B.1.e, Checklist] [page 2, EZ-1 Form, Appendix F]. The largest fill depths on site are located within the proposed hard surface play and parking areas south of the proposed building. The fill depth in this area is anticipated to be approximately 13 feet. Much of the southern half of the site will also be filled to create the new playfield and proposed access drive from NE 105th Street, fill depths in this portion of the site will be up 7 feet [page 2, EZ-1 Form, Appendix F].	This comment partially restates information from the SEPA Checklist and appendices. Proposed grading for the project will comply with applicable City of Seattle standards and regulations and will be reviewed as part of the permit review by the City of Seattle.	N/A
48	Transportation. Traffic and parking are probable significant adverse Impacts. A. Demand for on-street parking in the area is likely to increase due to higher numbers of staff and school visitors/ volunteers and fewer spaces to be provided in site. [page 37, B.14.c] B. The Checklist does not consider traffic and parking impacts to be significant, because the general area can handle the increased parking during the school day. and large events that fill up street parking are relatively infrequent [page 37, B.14.c], and increased delays at area intersections are not expected to overly back up traffic. C. Nearby neighbors often receive the brunt of parking and traffic Impacts. day after day and they are right to believe that the impacts are significant. Nearby to the school is where vehicles wind up day in and day out. Regularly, there will be no nearby on-street parking spaces. and vehicles will regularly wait longer at intersections. D. Despite more than doubling the enrollment, on-site parking would decrease, the school day current 61 on-site spaces (20+15+26) would shrink to 28. [page 36, B."14.c, Checklist] This is against City code. a. The District is applying for a departure from zoning requirements for on-site parking. b. 39 onsite spaces are planned, while City code requires 145 onsite spaces. [page 4, John Rogers presentation posted on Dept. of Neighborhoods website] c. Note: The District says it actually plans only 28 daytime spaces. not 39. [page 36. B.14.c, Checklist] d. The large gap between City code requirements and planned onsite spaces indicates a significant impact. E. The largest event - Curriculum Night - Is likely to cause heavy on-street parking within the study area (within 800 feet) [page 37, B.14.c].	A. Please refer to the responses to Comments #14 and #26 related to potential on-street parking impacts. B. As described in the referenced *Transportation Technical Report (Appendix H)*, with the additional traffic and pedestrian activity generated by the school with a larger enrollment capacity all of the study-area intersections are forecast to operate at LOS B or better overall in 2025. The project is forecast to shift traffic to the south side of the site at NE 105th Street with the new access configuration and is expected to change delay at several study-area intersections. Some intersections and movements are forecast to experience reductions in delay while intersections along NE 105th Street are forecast to experience increases in delay. The project and the associated changes in intersection delay would not be considered significant adverse impacts to study area traffic operating conditions. C. As documented in the referenced *Transportation Technical Report (Appendix H)*, the roadways and intersections that would be affected by increases in traffic and non-motorized activity generated by the larger replacement school would operate at levels that are acceptable to the City of Seattle. Similarly, with the forecasted school-related increases in on-street parking, utilization is projected to remain at or below 30% on school days, well below the level considered full (85%) by the City. Based on the analysis and findings presented, the school-related traffic and on-street parking increases would not represent significant adverse impacts. D. Please see response to Comment #25. The land use code specifically allows for departures as described by the City of Seattle's website: *Seattle, unlike other jurisdictions, does not have a "School Zone". Instead, the City allows schools in all zones, subject to the development standards (setback, height, lot coverage, etc.) of the underlying zone. Since most schools are in residential neighborhoods and are often zoned "single family", this can present problems. Many existing school sites in Seattle were established years ago and do not meet the current zoning requirements. Additionally, older school buildings are much*	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
		smaller than those now being built or planned. As a result, in most cases where a school is being renovated or expanded, it will not meet the underlying zoning requirements. *The land use code contains provisions whereby the Seattle School District can request exemption from the provisions of the land use code.* The potential for traffic and parking impacts are evaluated based on the ability of the surrounding transportation system to accommodate the added demand within the standards established by permitting jurisdictions. The effort by the District to seek a departure for less than required parking, which is explicitly provided for in the City's land use code, does not indicate or constitute a significant impact. E. As documented in the referenced *Transportation Technical Report (Appendix H)*, the school is expected to continue hosting evening events periodically throughout the school year. The largest events (such as Curriculum Night) could generate demand of about 270 vehicles, which could be accommodated by on-site and on-street supply with utilization expected to remain at or below 75%.	
49	Earthwork transport. Earthwork transport would involve 3 truckloads per hour (3 in,3 out) and would be noticeable to residents living adjacent to the site. [page 28. section 3.S, Appendix F. Transportation Report]. It would occur over about 20 to 28 weeks beginning in Summer 2023 [page 28, section 3.S, Appendix F. Transportation Report].	Please see response to Comment #31.	Transportation Technical Report (Appendix H)
50	Traffic. There will be a net increase of 630 trips per day (315 in, 315 out) [page 3S,B.14.f]. The project is expected to add some delay to study-area intersections [page 39, B.14.f]. The existing school is served by two full-size school buses and two smaller Special Education (SPED) buses; no change to the number of buses is anticipated with the project [page 39, B.14.f]. More than doubling the enrollment without affecting the number of school buses seems questionable - an impact from an increase in buses seems likely.	Parts of this comment restate text from the *Transportation Technical Report (Appendix H)*. As is common Seattle school expansions and additions, the District is planning for increases in student population within the existing enrollment areas (e.g., when young families with children replace older families without children). In those cases, it is common for the number of students that live outside a school's walk area to be accommodated by unused seats on existing school buses. For this project, SPS estimates that no new school buses would be required, even if the school were enrolled to its planned capacity.	Transportation Technical Report (Appendix H)
51	The Checklist notes that there could be use by community groups of the lunchroom and gymnasium [page 27. section 3.4.2, Appendix F. Transportation Report]. Is the proposed gym adult-size? This has occurred at other elementary schools, and is meant at least partly for adult use, and the larger gym size eats up outdoor play space (look at, for example, Loyal Heights and Bagley). Will the gym be covered by the joint use agreement with the City, which prioritizes adult scheduled use?	The gymnasium is sized according to the Seattle Public Schools Educational Specifications for Elementary Schools and can fit a high school sized basketball court. Similar to other SPS gymnasiums and facilities, the proposed gymnasium would be covered by the joint use agreement between SPS and the City of Seattle and would be available for community use when it is not used for school functions.	N/A
52	The three measures proposed to address the impacts don't really change things very much [pages 39-40, B.14.h]. Construction Transportation Management Plan (CTMP). This Includes things like efficient truck routes and street sweeping. Transportation	As described in section 4.3 of the referenced Transportation Technical Report (Appendix H), based on the findings of the transportation analysis, the measures listed in the comment were recommended to reduce the traffic and parking impacts associated with construction	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
	Management Plan (TMP). Information about drop-off and pick-up procedures. Update right-of-way and curb-side signage.	and operations of the John Rogers Elementary School Replacement Project. They have been incorporated into the proposal.	
53	Parking use of the playground area. Parking to the east of the existing building seems to connect up with the asphalt playground. Many schools use their playgrounds for parking for school events. The Checklist seems to make no mention of this. The project apparently will no longer provide vehicle access to the playground. This would mean that school events would have greater impact on street parking.	Seattle Public Schools has revised the proposed John Rogers Elementary School site plan in response to the City's Land Use Code departures process and other comments. Figure 3 of the SEPA Checklist shows the updated site plan. The revised site plan now includes three more parking spaces than shown previously and would allow use of the hard-surface play area for occasional special event parking. With the revised site plan, the project would expand the existing northern staff parking lot from 20 to 22 spaces. It would provide 5 spaces in the lot accessed from the school-bus load/unload loop and 5 spaces accessed from the family-vehicle load/unload area for a total of 32 permanent parking spaces. In addition, 10 spaces in the on-site family-vehicle load/unload area could be used for visitor parking during the school day. In total, the revised site plan would provide 42 parking spaces for school-day use (an increase of 3 spaces compared to site plan presented in the *Draft SEPA Checklist* and referenced *Transportation Technical Report*). For occasional evening or weekend events, the school-bus load/unload area (12 spaces) and the hard-surface play area (estimated to accommodate about 20 vehicles) could be used in addition to the school-day parking described above. The event-parking within the hard surface play area would be used infrequently for all-school after-hours events. In total, the updated site plan provides 74 parking spaces for event conditions (an increase of 23 spaces compared to the previous site plan and analysis).	Transportation Technical Report (Appendix H)
54	Building height. The new building will be higher than allowed by the zoning code. The Checklist notes that the existing school building is 1-story, and that the new building will be 3-story [page 27, B.10.a]. The current building is 20 feet tall and the new building will be much taller at 55 feet [page 27, B.10.a].	As indicated in Section B.8, the Seattle Municipal Code includes development standards for public schools in residential zones (SMC 23.51B.002), and also includes procedures through which departures from the required development standards of the code can be granted for public school structures (SMC 23.79). Due to the existing site characteristics and project design goals, the project is requesting land use departures, including a departure for building height. The City's departure process is separate from SEPA. Seattle Public Schools is continuing to coordinate with the City regarding the departures for the project and would comply with the City's requirements for the process.	SEPA Checklist Section B.8
55	Historic and cultural preservation. The John Rogers Elementary building was constructed in 1956. The Checklist notes that the City of Seattle Landmarks Preservation Board "Voted to deny the nomination" of the school for landmark status. [page 32, B.13.a] The Checklist does not disclose what position the District took on the nomination - the District has been asking that nominations of its schools be denied. In this case, the nomination report [Appendix F] listed an "Acting Chair" for the Landmarks Board; this may be because the current Chair has had to recuse himself because he has been working on contracts for	As indicated in Section B.13 of the SEPA Checklist, consistent with the City of Seattle Landmark Preservation Board process, Seattle Public Schools submitted a Landmark Nomination form to the City of Seattle for the existing school building. In August 2021, the Landmark Nomination was denied by the Landmark Preservation Board by a vote of 8 to 1. The Landmarks Preservation Board meeting was noticed and open to the public.	SEPA Checklist Section B.13

#	Comment	Response	Document Reference
	Seattle School District projects and could be considered to favor denying the nomination because of this monetary connection. a. As a practical matter Landmarks Board review is not a guarantee for avoiding adverse impacts and loss of architecture, history. and culture. b. At City landmark Cleveland High School, gorgeous interior features were acknowledged as important, and Cleveland staff were assured they would be saved. But the District made entreaties to the Landmarks Board, and the Landmarks Board said that it did not want to overburden the District with formal controls. These interior features were carted off during the "renovation"" and never seen again. c. In the past, the District has asserted that the City Landmarks Board does not have jurisdiction over the School District. d. The School District sued the Landmarks Board to override controls on the Wilson-Pacific school site and demolish all the landmarked buildings (leaving a few murals as a token to the Native American heritage of the site). As recent projects came before the Landmarks Board, it turned out that the Landmarks Board Chair had been working on Seattle School District projects (such as Rainier Beach High School). e. Landmark Coe Elementary on Queen Anne burned down during its renovation. f. These examples show that significant adverse impacts to historic resources are more probable than is being acknowledged in the Checklist. Further study in an EIS and consideration of alternatives that would dial back the size of the project could help protect these resources.		
56	The Checklist notes that SPS is participating in consultation and review with DAHP [Washington State Department of Archaeology and Historic Preservation] as part of the separate Governor's Executive Order 21-02 process, which includes early outreach and consultation with DAHP and local Tribes... [page 33, B.13.a]. Families, neighbors, and the community often have fond connections to their schools, and this history is important to preserve. The District and the Checklist need to take further steps to offer information in the Checklist about this history.	As part of the design process, SPS and the design team held community meetings and created a School Design Advisory Team (SDAT) for the project to solicit input and feedback from the community on the design for the project. The SDAT process is intended to allow each school community to have input on the design process for their school building. SDATs typically include school staff, parents and community members that participate in several meetings/workshops with the design team to collaborate on the design. The most recent community meeting that was held as part of the project design process occurred on June 2, 2022. The Cultural Resources Assessment (Appendix G) also includes a description of cultural/archaeological background of the site, as well as the historic setting for the site and surrounding area.	N/A
57	The Checklist acknowledges that it produced a cultural resources assessment for the project; a copy of this assessment should be included as an appendix to the Checklist. Footnote #13, page 33, states the Cultural Resources Assessment is on-file with SPS and available upon request. We appreciate that the District has developed an inadvertent discovery plan (IDP) which should include notification of local tribes including the Duwamish Tribe [B.13.b, page 34]. Unlike many other Checklists, the John Rogers Checklist	Cultural resources assessments contain confidential information about the locations of archaeological sites, this information is exempt from public disclosure under RCW 42.56.300. As indicated in the Checklist, a copy of the assessment (redacted version) is available from SPS upon request.	SEPA Checklist Section B.13 and Appendix G.

#	Comment	Response	Document Reference
	did not seem to make an explicit reference to Washington state's assessment of the "risk for containing pre-contact-era cultural resources". The District should consider performing subsurface cultural surveys.	The Washington State Department of Archaeology and Historic Preservation's predictive mapping tool provides a general, high-level prediction of the potential for cultural resources which helps to determine whether site-specific investigations are warranted for a site. Site specific investigations provide a more detailed, specific review of an individual site and its potential for cultural resources. As noted in Section B.13 and Appendix G, site specific subsurface investigations were undertaken on April 12, 2022 as part of the cultural resources assessment. Shovel probes were excavated at regular intervals in areas free of structures, impervious surfaces, and buried utilities. The Duwamish Tribe was notified in advance of the survey in a letter to John Boddy dated April 6, 2002 and were invited to attend along with other Tribes, including the Muckleshoot, Snoqualmie, Suquamish, and Tulalip. No representatives from the Duwamish or other Tribes were in attendance during onsite investigations.	
58	The project seems at odds with regard to the character of the surrounding area, including its Native American history. An attempt by the District to show respect to Indian Tribes appears on page 2 of the District/ Dept. of Neighborhoods zoning departures presentation. But the attempt leaves out any mention of the Duwamish Tribe, which is at odds with the District's own policy as expressed In the October 12, 2016 School Board Resolution 2016/17-1 supporting Treaty rights and benefits for the Duwamish Tribe. This raises doubts about the Checklist's properly weighing impacts.	As part of the proposed project, SPS is participating in consultation and review with DAHP as part of the separate Governor's Executive Order 21-02 process which includes early outreach and consultation with DAHP and local Tribes. As noted in Section B.13, SPS sent multiple correspondence communications to the Tulalip, Suquamish, Snoqualmie, Muckleshoot, and Duwamish Tribes. To date, SPS has received responses from the Duwamish, Suquamish, Snoqualmie and Tulalip Tribes and is continuing the consultation process.	SEPA Checklist Section B.13
59	Cramming in over-development creates a less-livable city. The School District and the City have been selling off and filling up open spaces. For example, Thornton Creek and Loyal Heights Elementary Schools have recently lost large chunks of outdoor field and playground space. To attempt to mitigate the loss of open space, the remaining open space is being scheduled for more intensive use, which creates further impacts. We need to keep some spaces that are not constantly packed with scheduled events. An EIS can and should explore alternatives, such as retaining and acquiring more open space.	SPS utilizes their existing school sites in the most efficient manner to serve the needs of the district and does not have additional land available to provide additional capacity for the projected enrollment. Seattle Public Schools has developed educational specifications that provide the best places for students to learn (including recreation space) and must also consider the future capacity needs of the district, along with the needs of the existing community. The SEPA Checklist identifies potential impacts that could occur with the project, along with appropriate mitigation measures.	N/A
60	No public meeting. On other projects, for decades, the District has held a public meeting to discuss the Draft Checklist. Why is the John Rogers community not being provided such a meeting? The District started dropping these meetings in late 2019; It had nothing to do with the coronavirus.	Public meetings are not required for SEPA Checklists and are not required as part of the City permit process for this project. While not required by the SEPA Rules, a public comment period was included as part of the issuance of the Draft Checklist to solicit comments from the public, agencies and organizations. The most recent public meeting held as part of the project design process occurred on June 2, 2022.	N/A
61	When publishing Final Checklists after public review of draft Checklists, the District has sometimes been choosing to not reproduce actual public comments, but rather summarizing the comments instead and responding to the summary of comments. Some of the summaries have been inaccurate. It would be better to have the Final Checklist Include actual copies of public comments received.	Seattle Public Schools considered these comments in making a final SEPA determination for the project and has reproduced the comments from each letter as part of this summary matrix.	N/A

#	Comment	Response	Document Reference
	Jonson, Alexis		
62	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
	Kelly, Kathy		
63	I participated in the public meeting of June 1 and am excited about the changes to Rogers Elementary School. I appreciate the opportunity to comment. Here are my suggestions: 1) There's a City Public Utilities project happening in late 2022 that will affect your planning. SPU will be installing a section of the South Thornton Creek Natural Drainage System on 41st Place NE resulting in less car parking but a new sidewalk which could improve safety for students accessing the school. See www.seattle.gov/utilities/thorntonnds or email arnel.valmonte@seattle.gov	Please see response to Comment #14.	N/A
64	2) Access to the school grounds from 105th Avenue needs to be thought through better. Right now, 105th is a 2-way street but barely. And there are several parking spaces on 105th at the south end of the school that are back-in angle parking only which is fairly dangerous, there's a utility pole, a set of mailboxes and a fire hydrant that could perhaps be co-located more closely or integrated better into the new access plan if you think about using those parking spaces in the new design. Maybe there should be certain hours for school access and other hours for unrelated parking.	The proposed site plan and access configuration were developed to accommodate the new replacement school with its larger enrollment capacity consistent with the Institute of Transportation Engineers' Safe Routes to Schools guidance. The proposal would better separate school buses and family-vehicles, and create new separated pedestrian and non-motorized access pathways on the site. The access configuration, including the proposed access on NE 105th Street, is similar to comparable school sites with on-site automobile and school-bus loading areas. The site plan and access configuration were developed with input and guidance from the Seattle Schools Traffic Safety Committee (of which Seattle Department of Transportation (SDOT) staff are members). The width, configuration, and background volume of neighborhood traffic of NE 105th Street is comparable to or better than found at and around many other Seattle elementary schools. The configuration of and changes to the on-street parking and utility infrastructure (poles) is determined by the City. Any changes will be implemented as part of frontage improvements as required by SDOT through the Street Improvement Permit (SIP) process. If desired by the school, some of the back-in angle spaces on the north side of NE 105th Street adjacent to the site could be considered for signage as short-term load/unload spaces during peak arrival and dismissal periods. However, that change has not been specifically assumed or requested at this time. As presented in the referenced *Transportation Technical Report (Appendix H)*, it is recommended that, prior to the school reopening, the District and school Principal establish a Transportation Management Plan (TMP) to educate families about the access load/unload procedures for the new site layout. The TMP should also encourage school bus	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
		ridership, carpooling, bicycling, and supervised walking (such as walking school buses). The plan should require the school to distribute information to families each year, educating them about drop-off and pick-up procedures, as well as travel routes for approaching and leaving the school. It should also instruct staff and parents not to block or partially block any residential driveways with parked or stopped vehicles.	
65	3) It seems totally impractical to me that you would have a driveway onto the school property from 105th for student drop-off. I envision a traffic jam on 105th as parents wait to cross the oncoming lane on 105th to turn into the driveway.	Please see response to Comment #64 above.	Transportation Technical Report (Appendix H)
66	4) There are pull-outs of sorts along 105th at the south end of the school grounds. For cars going west, they usually pull onto the parking spaces (not parking, just pulling over to let their students out) and then pulling back onto 105th to proceed. For cars going east, there is a narrower pull-out used for this purpose but then students have to cross 105th on foot there as they tend not to walk the half block away from the school grounds entry to cross the street. Very dangerous! That crosswalk should be reconsidered or another one added.	As further described in response to Comment #64 above, the recommended Transportation Management Plan (TMP), is expected to address family-vehicle load/unload procedures as well as non-motorized (pedestrian and bicycle) access from NE 105th Street. It will discourage families from dropping off or picking up students at locations that cause students to cross roadways mid-block. As noted in the comment, there are marked pedestrian crosswalks located to the west and east of the school site (at 40th Avenue NE and at 41st Place NE). SDOT has generally not supported placement of new mid-block crosswalks and none are proposed as part of the school replacement project.	Transportation Technical Report (Appendix H)
67	5) The creek along 105th Avenue has significance as part of the Thornton Creek revitalization efforts that you will want to be aware of if you aren't already. I understand there are new bridges to be installed adjacent to the school grounds within the near future. This could present opportunities for creating safer access for students on foot.	The comment regarding Thornton Creek revitalization efforts is noted.	N/A
68	6) The creek along 105th Avenue also has historic significance. There was a Duwamish fishing weir on the stretch of the creek that runs parallel to 105th. This could be an educational resource for teachers and students and the community in the neighborhood. There was a footpath from there to Lake Washington, too. Check with local historian and author, David M Buerge, for more information and maps. Email David.M.Buerge45@gmail.com	The trail to Lake Washington is discussed in the Cultural Resources Assessment (Appendix G) on page 12 and a historic map depicting the trail is also included in the report.	SEPA Checklist Appendix G.
69	7) May I suggest that you look wider and broader for access solutions? I walk the neighborhood as the precinct committee officer for 46-2318, I see opportunities for easy car access (without having cars cross a lane to turn in to campus, or having to turn around at a dead end) by making new short footpaths for students from car drop off points on a nearby through street. See for example Alton Ave NE which runs north-south all the way between 105th and 110th where foot paths could be created for access to Rogers on 107th across the T top of dead-end 41st Place NE (where there's already a foot path to the school but the gate is always locked), or on 109th. I believe there is a program now at the City to increase sidewalks in north Seattle. Perhaps you could tap into that program to enhance student safety and access.	As described in the referenced *Transportation Technical Report (Appendix H)*, as part of the City's *Seattle Transportation Plan* process (launched in March 2022), SDOT is reviewing and may in the longer-term expand its school-streets program that closes neighborhood streets around some schools to pass-through traffic, including parents. This program has a goal of reducing traffic congestion in front of schools, encouraging families to walk or bike to school, and/or park a few blocks away and walk, dispersing the vehicular traffic impacts of the school and added enrollment. The suggested example in this comment of Alton Avenue N would be consistent with that approach and was considered in the proposed school's access configuration. Pedestrian access from NE 109th Street (east of the site) is proposed	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
		to be enhanced. It is important to note that all site access must consider safety and security elements.	
	Leach, Molly		
70	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
71	Taking down trees will have a serious impact to wildlife and soil.	As noted in Section B.4 of the SEPA Checklist, all tree removal on the site, including removal of exceptional trees, would comply with the City of Seattle Tree Ordinance and replacement requirements. In particular, along the eastern fire lane area, the replanting plan would include, at minimum, an equal number of native conifers for those exceptional trees that would be removed, including Douglas fir and Western red cedar to revegetate the hill with species that will live longer and provide better stabilization for the hill.	SEPA Checklist Section B.4
	Lee, KC*		
72	Water: Since you plan to manage the drainage of the project property, if you accomplish it by elevating, the natural water flow will be blocked and coming through the church property. Especially, as you plan to move the main entrance driveway to southeast, near our property, the construction of the driveway usually alters the foundation with firm material, and it'll tend to block the waterways underground. If you block the natural water flow there, the water will come our way, in my opinion. When you plan the water drainage in the project, please consider the neighbor's situation also. I've briefly mentioned the stormwater swale in place now. One of our elders remembers when it's first planted with small trees after 2006. Now, they are well grown (marked Tree ID # from 284 to 297) in a few years, which proves the water is well supplied there. Now, in your new project, if you block that area for water flow, it's likely to be redirected to our church property. We cannot afford to add more water flow than now if you don't plan the drainage well from the beginning of the project. Please consider the water drainage plan alongside your east end of the project property so that it won't overflow to our property.	The new access from NE 105th Street will be built above existing grade having minimal impact to subsurface flow. Surface flow will be managed by collecting hard surface and routing it away from the adjacent property. The limited area between the access drive and the adjacent property will be managed with swales and catch basins located at existing grade. Any surface flow from the adjacent property will continue to be collected along this property line. The proposed project would not direct stormwater offsite to the adjacent church property and would not result in water backing up onto the church property. As described in SEPA Checklist Section B.3, the site stormwater design for the project would be consistent with the City of Seattle's 2021 stormwater manual and include water quality facilities for pollution generating impervious surfaces and pollution generating pervious areas. Onsite stormwater management (OSM) measures would also be evaluated and implemented where feasible in accordance with City requirements. Based on existing soils on the site, it is anticipated that infiltration will not be feasible for the majority of the site and as such, non-infiltrating OSM facilities and other alternative approaches would likely be implemented as part of the drainage stormwater design for the project. It is anticipated that the proposed stormwater system will also reuse the existing connections to the onsite 72-inch SPU pipe storm drain and new connections would be made, if necessary. With the implementation of the proposed stormwater improvements and measures, no significant stormwater runoff impacts would be anticipated.	SEPA Checklist Section B.3

#	Comment	Response	Document Reference
73	Tree removal: As mentioned, please confirm your tree removal plan for Tree ID #600, #599 and #598. Especially, #600's root is strong enough to break up the surface of ours now, which means it can break up your pavement when you have a new access driveway near that tree.	These three cottonwood trees are not anticipated to be removed. We appreciate your comment about their roots. As noted in the comment, root management will be necessary and root barriers will be installed to protect the new sidewalks and driveways.	N/A
74	Fence: You've mentioned that the fence replacement plan is on the way. Please discuss with us before you fix your plan.	This comment is noted. SPS will coordinate with the adjacent owners when replacing the fence and will continue the process of neighborhood outreach with adjacent property owners.	N/A
75	We would like to be more informed as this project progresses because we're adjacent to the project boundaries. Now since you have my email address and phone number, please feel free to communicate with us whenever you have any update on the project.	All commenters on the draft SEPA Checklist will be informed as the SEPA process progresses for the project.	N/A
	Lord, Mary		
76	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
	Mack, Tammi		
77	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
	O'Brien, Eric		
78	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
79	The project is sneaking a larger, poorly and inadequately planned project under the radar. No!	SPS utilizes their existing school sites in the most efficient manner to serve the needs of the district and does not have additional land available to provide additional capacity for the projected enrollment. Seattle Public Schools has educational specifications that provide the best places for students to learn and must also consider the future capacity needs of the district, along with the needs of the existing community. The design process has included coordination with the John Rogers Elementary School Design Advisory Team and	N/A

#	Comment	Response	Document Reference
		community meetings as part of the design process. The SEPA Checklist identifies potential impacts that could occur with the project, along with appropriate mitigation measures.	
	Pasley, Jonathan		
80	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
	Saunto, Stephen		
81	After reviewing the draft SEPA checklist, I have numerous concerns and nearly all of them are driven by the scale of the project and the lack of information related to how the size of the replacement school and related facilities was established. The public cannot make a judgement on the reasonableness of the proposed project without first being convinced the specified need has been accurately identified. Therefore, I would ask you to provide access to the study(s) that point to a dramatic increase in enrollment at John Rogers and how that projected change relates to other elementary schools in the area.	SPS develops enrollment projections to determine future use and need for their schools and anticipates the need for additional capacity to serve the projected enrollment. Seattle Public Schools has educational specifications that provide the best places for students to learn and must also consider the future capacity needs of the district, along with the needs of the existing community. Decisions on development projects for existing schools are based in part of a variety of factors, including: enrollment projections, conditions of existing facilities and the need to provide appropriate facilities for students within the district. The design process has also included coordination with the John Rogers Elementary School Design Advisory Team and community meetings. The SEPA Checklist identifies potential impacts that could occur with the project, along with appropriate mitigation measures.	N/A
82	In closing, I would like you to understand the level of concern I have for this project by focusing on just one of many requirements cited in the SEPA checklist and that is the school district's apparent position that the community should support a project that is predicated on altering the existing property to such an extreme degree that the importation of tens of thousands of cubic yards of earth is required. That single aspect of the proposal calls into question whatever level of analysis the school district has done up to this point.	Proposed grading for the project will comply with applicable City of Seattle standards and regulations and will be reviewed as part of the permit review by the City of Seattle.	N/A
	Sherwood, Monira		
83	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A
	Stockdale, Erik*		
84	My overriding concern is the shift of vehicle trips for parent drop-off traffic from NE 110th south to NE 105th. NE 110th has a signal at 35th Ave NE. On the other hand, NE 105th does not have a signal at 35th. There will be hundreds of additional vehicles using 105th that	The referenced *Transportation Technical Report (Appendix H)* describes the anticipated shift in traffic to NE 105th Street from the NE 110th and NE 109th Street access points due to the proposed site reconfiguration. This shift is expected to add new delay to those study	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
	currently do not drive that way. Traffic at 35th /105th will be significant. I mentioned that it is difficult to turn left at 35th from 105th during traffic hours without inching into the street to see around parked vehicles, only to then interfere with vehicles turning left onto 105th from southbound 35th. I can't stress enough how bad the traffic will be at that location when you add hundreds of vehicles trying to drop or pick up students.	area intersections along NE 105th Street, including at 35th Avenue NE. However as shown, that intersection is still forecast to operate at LOS A overall with the side-street movements expected to experience the increase in delay, but remain operating at LOS E or better. These conditions are expected for a relatively short period of time each day—typically the 10 to 20 minutes just before and just after school. Typically, the largest increases in delay at stop-controlled intersections is caused by side-street left-turn movements. Due to the location and boundaries of the school's attendance area, a relatively small portion of school-generated trips are expected to be destined to and from the south on 35th Avenue NE (making left turns). The largest portions of the school's enrollment area are located to the north, northwest, and southeast of the school site. The project is forecast to add about 60 trips in the morning peak hour and 50 trips in afternoon peak hour to the westbound approach of NE 105th Street at 35th Avenue NE—mostly right turns. As also noted in the referenced report, the City of Seattle tolerates LOS E/F conditions for side-street movements at non-arterial unsignalized locations where traffic control measures (such as conversion to all-way-stop-control or signalization) are not warranted or desirable. SDOT does not generally support traffic control changes such as signalization for non-arterial side streets since they can attract cut-through traffic on neighborhood streets. The increased volumes associated with the school would occur for a short duration (about 20 minutes before and after school) and combined with non-school traffic on this street, are not expected to cause the intersection to meet applicable signal warrants. Since there is a signalized arterial alternative to access the 35th Avenue NE corridor just to north at NE 110th Street, SDOT is unlikely to support signalization at NE 105th Street. As part of the Transportation Management Plan (TMP) that will be prepared prior to the school's re-opening, family drivers can be directed to egress the site area using the signal at the NE 110th Street/35th Avenue NE intersection, which would reduce delays for those using NE 105th Street.	
85	The Traffic study contains a notable gem of insincere SEPA doublespeak that should be edited and removed from final documents, as highlighted below: *As shown, all of the study-area intersections are forecast to operate at LOS B or better overall in 2025 with the proposed school replacement project. The added vehicular traffic, increases in pedestrian activity around the school during peak hours due to the larger enrollment capacity, and the shift in traffic to the south side of the site at NE 105th Street with the new access configuration is expected to change delay at several study-area intersections. Some intersections and movements are forecast to experience reductions in delay as drivers shift to access on the south portion of the site. Intersections along NE 105th Street are forecast to experience increases in delay. The largest increase in delay for*	See the response to Comment #84 above. It is acknowledged that increases in delay and degradation in stop-controlled side-street levels of service would be impacts to those who regularly use those roadways and intersection at the same time as the school's morning arrival and afternoon dismissal periods. However, based on the traffic analysis measures consistently applied within the City of Seattle for development projects, including for school projects, the impacts predicted for the John Rogers Elementary School Replacement project would not be considered significant. As described in response to Comment #83 above, the City of Seattle tolerates LOS E/F conditions for non-arterial side-street movements at unsignalized	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
	forecast at the NE 105th Street 35th Avenue NE intersection during the morning peak hour. East-west movements are forecast to degrade to LOS E with the added and shifted school traffic. However, drivers could find alternative routes if they find these delays excessive and this change in delay would not be considered a significant adverse impact. All other unsignalized movements would continue to operate at LOS D or better during both peak hours. As is typical in school areas during peak conditions—some congestion around the school would likely occur for about 20 minutes before and after school. However, the project would not result in significant adverse impacts to study area traffic operating conditions. Of course, drivers will find the significant delays at 35th/105th intersection excessive, and of course they will look to modify their driving behavior as a result. A change in behavior like this is stressful and significantly inconvenient for area residents. A project-induced traffic impact like this will increase resident frustrations and will tear at the fabric of our quality of life. It is disingenuous and dishonest for a consultant to – conveniently – claim that this magically translates to "not be considered a significant adverse impact." Absent legitimate mitigation measures, the SEPA documentation should clearly call this what it is – a significant adverse impact from the project.	locations, and the intersection at NE 105th Street/35th Avenue NE is not likely to meet warrants for a traffic signal. Nevertheless, mitigation measures were identified to help reduce the transportation-related impacts on the surrounding community. One of those measures is the development of a Transportation Management Plan (TMP), that would encourage school bus ridership, carpooling, bicycling, and supervised walking (such as walking school buses) to reduce automobile trips generated at the school.	
86	If you spend any amount of time on 105th you will note the number of people who walk in the road, even on the sections of roadway that have a sidewalk. This is a testament to the relatively low traffic volume on the street compared to 110th. I mentioned there are two blocks south of the Meadowbrook Pond (between36th and 39th) that do not have access to a sidewalk. This is a particularly dangerous area for pedestrians that I don't believe has been properly evaluated for the increase in traffic that the project will induce. There will be a significant increase in vehicle-pedestrian conflicts in this two block stretch that will no doubt statistically increase the risk of severe harm or fatality to pedestrians. Please ask your risk management attorneys to evaluate the liability the school district faces for not evaluating this adequately. I really don't want to be the one to say "I told you so" after the project when someone is hit in the road.	There is a trail located just north and parallel to NE 105th Street in the Meadowbrook Pond facility between 36th and 39th Avenues NE that offers off-street non-motorized access. The City of Seattle Department of Transportation (SDOT), in partnership with Seattle Public Schools (SPS), has a Safe Routes to School program that designed to improve safety in areas around schools and to encourage more kids to walk and bike. That program has resulted in the implementation of traffic calming measures (in 2016-2017) and walkway improvements (2017-2018) around John Rogers Elementary Schools. SPS will continue to coordinate with SDOT and the associated Seattle Schools Traffic Safety Committee to identify improvement needs and measures to enhance pedestrian safety around schools including at John Rogers Elementary in consideration of the access and circulation changes planned with the replacement project. In addition and as described in the referenced *Transportation Technical Report (Appendix H)*, as part of the City's *Seattle Transportation Plan* process (launched in March 2022), SDOT is reviewing and may in the longer-term expand its school-streets program that closes neighborhood streets around some schools to pass-through traffic, including parents. This program has a goal of reducing traffic congestion in front of schools, encouraging families to walk or bike to school, and/or park a few blocks away and walk, dispersing the vehicular traffic impacts of the school and added enrollment. This type of program, implemented by SDOT, could also be implemented along NE 105th Street consistent with that approach.	Transportation Technical Report (Appendix H)

#	Comment	Response	Document Reference
87	I sincerely hope you and your project team consider these concerns and look for mitigation measures. For example, please consider having some of the parents (by grade, perhaps) access the school via 110th and not direct all parent drop offs to 105th. Please address the sight visibility problems at 35th/105th. Given my limited time today, that's all the creative suggestions I can come up with at this point.	Please refer to the Response to Comment #64 for information about the site access and circulation design considerations. The design was developed to separate school buses (planned to access the site at NE 109th Street) from most family-vehicle trips. The vehicular access from NE 110th Street is proposed to serve the staff parking lot. The school design was also developed with consideration for staff supervision of students arriving and departing the site as well as accessibility requirements. SDOT is the agency responsible for addressing sight-line obstructions at existing City intersections. As part of the Street Improvement Permit (SIP) process for the John Rogers Elementary School replacement, SDOT staff was informed of this public comment and concern about potential existing sight-line obstructions at the NE 105th Street / 35th Avenue NE intersection.	Transportation Technical Report (Appendix H)
	Wherry, Diane*		
88	I believe that the John Rogers Elementary School Project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of environmental review of this project.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public Schools reviewed the SEPA Environmental Checklist and supporting documentation (including mitigation measures), considered comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur.	N/A

* Indicates that the comment letter was received after the close of the public comment period.