Northgate Elementary School Project

Addendum to the Final SEPA Checklist

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

Vince Gonzales
Project Manager
vrgonzales@seattleschools.org

While the Northgate Elementary School Project Final State Environmental Policy Act (SEPA) Checklist Addendum 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 – Northgate Elementary School Site Vicinity Map
  Figure 1 is a vicinity map that shows the Northgate Elementary School campus and the surrounding neighborhood in the site vicinity. The school campus site is outlined in red on the map.

- Figure 2 – Northgate Elementary School Aerial Map
  Figure 2 is an aerial map of the Northgate 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 Report
  Appendix A consists of the Geotechnical Report that was prepared by GeoDesign, Inc. The report presents the results of the subsurface information review, subsurface exploration, geotechnical conclusions, and engineering recommendations. Subsurface exploration and testing results, plan drawings, vibration monitoring results 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 proposed 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 – Arborist Report
  Appendix D consists of the Arborist Report and Tree Inventory that was prepared for the project by Tree Solutions, Inc. The report provides an inventory of the existing trees on the project site. Trees on neighboring properties are also documented if they extend over the property line or may be affected by construction access. An analysis of construction impacts is provided, as well as recommendations and tree protection measures. A Table of Trees is included as part of the report which describes the characteristics and measurements for each tree on the site. A map documenting the location of each tree is also provided.

- Appendix E – Good Faith Inspection Letter
  Appendix E consists of the Good Faith Inspection Letter for the project, which was prepared by NOVO Laboratory and Consulting Services, Inc. The letter describes the results of the inspection of the existing building which included the testing of suspect asbestos-containing materials, collection of paint chip samples for lead paint, inspection of fluorescent lamps for PCB containing ballasts and mercury containing light tubes.

- Appendix F – Landmark Nomination Determination and Cultural Resources Assessment Report
  Appendix F consists of the Landmark Nomination Determination by the City of Seattle and the Cultural Resources Assessment Report for the project that was prepared by Perteet. 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 redacted version of the report is available upon request from Seattle Public Schools.

- Appendix G – Transportation Technical Report
  Appendix G consists of the Transportation Technical Report for the project that was prepared by Heffron Transportation, Inc. The report provides a description and analysis of background transportation conditions for the area surrounding the school, 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. The document includes level of service definitions and parking utilization study data as appendices to the report. Two transportation addendum memos are also provided, including one which provides additional information on planned bus load/unload areas, and one which provides updated analysis as it relates to the loss of use of the adjacent church parking lot.

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

This concludes the description of the Final SEPA Checklist Addendum figures and appendices for the Northgate Elementary School Project.

DATE: July 11, 2021

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

FROM: Fred Podesta, SEPA official

SEPA Environmental Review History:

Seattle Public Schools (SPS) issued a final SEPA checklist on Nov. 3, 2020, and a State Environmental Policy Act Determination of Nonsignificance (SEPA DNS) on Nov. 20, 2020/reissued on Dec. 10, 2020. The proposal was appealed, and an appeal hearing was held on Jan. 28, 2021. The Superintendent upheld the SEPA Determination upon recommendation of the Hearing Examiner.

The final SEPA checklist discusses the potential environmental impacts that could result from construction of the project. A draft of the checklist was released for public comment initially from June 11, 2020 to July 16, 2020. Comments received informed revisions to the final SEPA checklist on which the DNS is based. The responses to written comments received are summarized in the SEPA Public Comments and Seattle Public Schools Responses, included as Appendix H to the SEPA checklist.

SPS determined that the final SEPA checklist dated Nov. 3, 2020, met our environmental review needs for the current proposal to replace Northgate Elementary School on the same site. 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 DNS.

SEPA Addendum:

Comments were received from the Washington State Department of Archaeology and Historic Preservation (DAHP) outside of the SEPA process and will be addressed outside of the SEPA process. The SEPA checklist has been updated to incorporate the additional information. New or changed information is provided in underlined text. The SEPA Addendum is informational in nature. There is no new comment or appeal period required for a SEPA Addendum, pursuant to WAC 197-11-625.

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

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

WAC 197-11-970 Determination of Nonsignificance (DNS)
WAC 197-11-625 Addendum

ADDENDUM
STATE ENVIRONMENTAL POLICY ACT
DETERMINATION OF NONSIGNIFICANCE (DNS)
NORTHGATE ELEMENTARY SCHOOL PROJECT

Date of issuance: July 11, 2021 (with addendum)
Lead agency: Seattle Public Schools
Location of proposal: Northgate Elementary School, 11725 1st Ave. NE, Seattle, WA
(NW Qtr, Section 29, Township 26, Range 4)

Description of proposal – Reconstruct the existing Northgate Elementary School on the same site. The proposal includes the development of a new two-story school building on the north portion of the site with approximately 95,000 gross square feet of building space. During construction, the existing school would continue operations with students and staff on site. The proposed new building would include 36 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 252 students (includes existing portables) to approximately 650 students, including up to 40 preschoolers. Bus loading/unloading would occur along the west side of 1st Avenue NE in front of the building. Parent vehicle loading/unloading would occur along N 120th Street. The existing parking lot adjacent to 1st Avenue NE would be replaced with a new parking lot with 26 parking stalls; an additional four parking stalls would be located within the service area adjacent to the building. Upon completion of the new school building, the existing building would be demolished, and a new playfield and recreational areas would be constructed. The new playfield would be in the south portion of the site and surrounded by a perimeter trail. Additional recreation space would include hard surface play areas, soft surface areas with play equipment, a covered play structure, nature play areas, an outdoor learning classroom, a learning garden, a library courtyard, and an early learning/preschool play area.

Description of new information: Comments were received from Washington State Department of Archaeology and Historic Preservation (DAHP) outside of the SEPA process related to a process for state funded projects described in Governor's Executive Order 21-02. The comments indicated that DAHP considers the existing building as potentially eligible for listing in the National Register of Historic Places (NRHP). Changes made to the SEPA checklist Section B.13 document the comments and process to address the comments. As part of the state funding process, SPS and DAHP will continue consultation and prepare a Memorandum of Understanding that identifies appropriate measures, such as photo documentation, to minimize any potential effects from the demolition of the building.

The lead agency for this proposal has determined that it will not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). 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: Vince Gonzales, Phone: 206-252-0151) and online at: http://www.seattleschools.org/sepa

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal prior to Dec. 28, 2020 (at least 15 days from the issuance date listed above). This DNS may be appealed by written notice setting forth specific factual objections received no later than Dec. 28, 2020 (at least 15 days), sent to:

Superintendent

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

Per WAC 197-11-625, there is no comment or appeal period for a SEPA Addendum.

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

Date: July 11, 2021 **Signature:** Fred Podesta

FINAL ENVIRONMENTAL CHECKLIST

for the proposed

Northgate Elementary School Project

prepared by

November 2020; <u>Updated July 7, 2021</u>

EA Engineering, Science, and Technology, Inc., PBC
GeoDesign, Inc.
Tree Solutions, 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 ***Northgate Elementary School Project*** and to identify measures to mitigate those impacts. The ***Northgate Elementary School Project*** would replace the existing, approximately 39,300 gross square foot (gsf) school building with a new, approximately 95,000 gsf school building. The new building would be located in the north portion of the site and would be constructed while students and staff remain in the existing building. Once operational, the existing building would be demolished and replaced with a new play field and recreation area. The proposed project would increase the student capacity of the school from an existing capacity of approximately 231 students (approximately 252 students including portable capacity) to a new capacity of approximately 650 students.

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. A Draft Environmental Checklist was issued on June 11, 2020 and included a request for public comments until July 16, 2020. This Final Environmental Checklist responds to comments on the Draft Environmental Checklist and 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 Updated Final Environmental Checklist Addendum provides additional information regarding comments that were received outside of the SEPA process from the Washington State Department of Archaeology and Historic Preservation (DAHP). Changes are noted in underlined text and are primarily located in Section A.10 and B.13.

This document is intended to serve as SEPA review for site preparation work, building construction, and operation of the proposed development comprising the ***Northgate Elementary School Project.*** Analysis associated with the proposed project contained in this Environmental Checklist is based on Schematic Design plans for the project, which are on-file with Seattle Public Schools. While not construction-level detail, the schematic 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 39) contains the signature of the proponent, confirming the completeness of this Environmental Checklist.

Project-relevant analyses that served as a basis for this Environmental Checklist include: the *Geotechnical Engineering Report* (GeoDesign, 2019), the *Greenhouse Gas Emissions Worksheet* (EA Engineering, 2020), the *Good Faith Building Inspection Letter* (NOVO Laboratory & Consulting, 2019); the *Tree Inventory and Arborist Report* (Tree Solutions, Inc., 2020), the *Cultural Resources Assessment* (Perteet, 2020), and the *Transportation Technical Report* (Heffron Transportation, Inc., 2020). Responses to public comments on the Draft Environmental Checklist as also included in this document.

[1] Chapter 43.21C. RCW

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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:

Northgate Elementary School Project

2. Name of Applicant:

Seattle School District No. 1 (Seattle Public Schools)

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

Vince Gonzales
Project Manager
Seattle Public Schools
2445 – 3rd Ave. S.
MS 22-334
Seattle, WA 98124-1165
206-252-0151

4. Date Checklist Prepared

November 3, 2020; Updated July 7, 2021

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 ***Northgate Elementary School Project*** that is analyzed in this Final Environmental Checklist involves demolition, site preparation work, construction, and operation of the project. Site preparation and construction could begin in approximately June 2021 with building occupancy in approximately September 2023 and completion of site/playground improvements in December 2023. It should be noted that the existing school building would remain operational during the construction process and students and staff would remain onsite. Once the new school

building is operational, the existing building would be demolished to allow for completion of the site/playground improvements.

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

   No future plans for further development of the project site are proposed. However, if additional capacity is needed beyond 650 students in the future, the District may decide to add portables to the site to accommodate additional students. If portables are added to the site in the future it may require additional SEPA environmental review.

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

   - *Geotechnical Engineering Report* (GeoDesign, 2019);
   - *Greenhouse Gas Emission Worksheet* (EA Engineering, 2020);
   - *Tree Inventory and Arborist Report* (Tree Solutions, 2020);
   - *Good Faith Building Inspection Letter* (NOVO Laboratory & Consulting, 2019);
   - *Landmark Nomination Determination* (City of Seattle, 2020);
   - *Cultural Resources Assessment* (Perteet, 2020)[2];
   - *Transportation Technical Report* (Heffron Transportation, 2020) and Addendum;
   - *Construction Best Management Practices (Seattle Public Schools, 2020).*

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 ***Northgate Elementary School Project*** site.

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

    City of Seattle

    - *Department of Construction and Inspections*

      Permits/approvals associated with the proposed project, including:
      - Demolition Permit
      - Master Use Permit
      - Grading/Shoring Permit
      - Building Permit
      - Mechanical Permits
      - Electrical and Fire Alarm Permits

[2] The Cultural Resources Assessment is on-file at the Seattle Public Schools offices.

- 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, on-site parking, off-site bus loading, bicycle parking, and electric message board*)

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

King County
- Plumbing Permit
- Sewer Treatment Capacity Charge Approval
- Health and Food Services

Puget Sound Clean Air Agency
- Air Quality Permit – Demolition

Washington State Department of Ecology
- National Pollutant Discharge Elimination System (NPDES) 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 ***Northgate Elementary School Project*** site is located within Seattle's Northgate neighborhood (see **Figures 1** and **2**). The school campus is generally bounded by N 120th Street to the north, 1st Avenue NE to the east, N 117th Street to the south, and Corliss Avenue N and single family residences to the west.

The existing single-story Northgate Elementary School building is located in the south portion of the site and contains approximately 39,300 gross square feet (gsf) of building space including 18 classrooms, a gymnasium, a cafeteria, a library, and other offices and common space. Six portable classroom buildings are also located on the campus, including five portables in the north portion of the campus and one portable in the south portion of campus. A playground, hard surface play area and a field are located to the north of the existing building; an additional play area is also centrally located in the middle of the U-shaped building. A parking lot with approximately 28 parking stalls is located to northeast of the existing building, adjacent to 1st Avenue NE; an additional lot with 4 parking stalls is located further to the south (a total of 32

parking stalls on the site). The school has an existing capacity for approximately 231 students (approximately 252 students when including the existing portable buildings onsite[3]). Enrollment for the most recent school year (November 2019) was approximately 217 students in grades K-5; an additional approximately 40 students are enrolled in preschool at the school.

Proposed Project

The proposed ***Northgate Elementary School Project*** is intended to address school capacity issues and upgrade the quality of the student learning environment at the school. The proposed project would include the development of a new two-story school building on the site with approximately 95,000 gsf of building space. The new building would be located in the north portion of the existing site (see **Figure 3**). During the construction process, the existing school would continue operations and students and staff would remain on the site. To accommodate construction of the new building, five of the existing portable classroom buildings would be relocated to the southern portion of the site. Upon completion of the new building, these portable classroom buildings would be removed from the site.

The proposed new building would include 36 classrooms; a music room; an art/project lab; a gymnasium; a dining commons area; learning commons areas; offices; and, other associated support and building infrastructure spaces. The proposed project would increase the student capacity of the school from an existing capacity of approximately 231 students (approximately 252 students when including the existing portable buildings) to a new capacity of approximately 650 students, including up to approximately 40 preschool students. The project would be funded by the BEX V levy.

Bus loading/unloading would occur along the west side of 1st Avenue NE in front of the school building. Parent vehicle loading/unloading would occur along N 120th Street. The existing parking lot that is adjacent to 1st Avenue NE would be replaced with a new parking lot with space for approximately 26 parking stalls (including two ADA accessible stalls); an additional four parking stalls would located within the service area adjacent to the building (total of 30 parking stalls). Fire lane access to the building would be provided from the west side of the site, via Corliss Avenue N.

Upon completion of the new school building, the existing building would be demolished and a new play field and recreational areas would be constructed for the site. The new playfield would be located in the south portion of the site and would be surrounded by a perimeter trail. Additional recreation space would also be provided, including hard surface play areas, soft surface areas with play equipment, a covered play structure, nature play areas, an outdoor learning classroom space, a learning garden, a library courtyard, and an early learning/preschool play area.

[3] It should be noted that the majority of the portable buildings are currently used for special education, English language learners (ELL), and office/admin uses.

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 ***Northgate Elementary School Project*** site is located at 11725 1st Avenue NE within Seattle's Northgate neighborhood (NW Quarter of Section 29, Township 26, and Range 4). The school campus is generally bounded by N 120th Street to the north, 1st Avenue NE to the east, N 117th Street and single family residences to the south, and Corliss Avenue N and single family 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 majority of the ***Northgate Elementary School Project*** site is generally level and is divided into two relatively level terrace areas which separate the site into an upper (north) area and a lower (south) area. The school campus generally slopes from northwest to southeast with an overall grade change of approximately 30 feet for the entire site.

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

According to the City of Seattle's Environmentally Critical Areas (ECA) Maps, small portions of the school campus where the existing playfield meets the hardscape play area contain slopes that are approximately 40 percent or greater and are classified as an environmentally critical area (*City of Seattle, 2020*). These areas are generally associated with retaining walls that were built as part of the original construction of the existing school which included re-grading of the site and constructing concrete retaining walls up to 12.5 feet high to establish two relatively level terrace areas – the upper area containing the playfield and the lower area containing the hard surface play area and existing building. Based on the geotechnical review of the site, the steep slope areas mapped on the City's ECA GIS map would not be considered geologic environmentally critical areas (see **Appendix A** for 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 by GeoDesign, Inc. and included 16 site exploration borings. Borings were completed to depths ranging from 6.5 to 41.5 feet below ground surface (bgs). The soils encountered were generally similar across the site and consisted of fill from previous site grading overlaying glacially consolidated deposits consisting of glacial till and advance outwash (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. According to the City of Seattle's Environmentally Critical Areas (ECA) Maps, there are no potential slide areas or liquefaction-prone areas on the site or adjacent to the site (*City of Seattle, 2020*).

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

Approximately 15,600 cubic yards of material would be excavated from the site during construction activities and approximately 2,600 cubic yards of structural fill would be imported to the site. The specific source of fill material is not known at this time but it 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 45 percent of the school campus is currently covered with impervious surfaces, including buildings, paved play areas, walkways, parking areas and other impervious surfaces. The site of the proposed new building is currently generally comprised of grass field areas, hardscape play areas and parking areas.

With the completion of the addition project, approximately 75 percent of the campus would be covered with impervious surfaces. New impervious surfaces would primarily consist of the proposed new building, hardscape play areas, walkways and parking 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:

- Comply with the recommendations provided in the Geotechnical Report (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; and,
- Compete earthwork during dry weather and site conditions, if possible.

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.

During construction, the ***Northgate Elementary School 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, as described above under the Earth discussion, with the implementation of TESC measures and BMPs for the project, it is anticipated that air quality emission impacts would not 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. Seattle Public Schools maintains an anti-idling policy for buses which minimizes potential emissions. 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 (**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 project would be approximately 99,321 $MTCO_2e$[4]. Based on an assumed building life of 62.5 years,[5] the proposed building addition project would be estimated to generate approximately 1,589 $MTCO_2e$ 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 1st Avenue NE, N 120th Street, Corliss Avenue N and N 117th Street. There are no known 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 dust, unless reasonable precautions are employed). Additional mitigation measures to minimize air quality impacts during construction are identified in **Appendix B**.

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[4] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent and is a standard measure of amount of CO2 emissions reduced or sequestered.

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

- Operation of the proposed project would continue to comply with Seattle Public Schools anti-idling policy for school buses.

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.

There is no surface water body on or in the immediate vicinity of the ***Northgate Elementary School Project*** site. The nearest surface water body is Haller Lake, which is located approximately 1,200 feet to the northwest of the project site (see **Figure 1**).

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 will not require any work over, in, or adjacent (within 200 feet) to any water body.

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 proposed project site does not lie within a 100-year floodplain and is not identified as a flood prone area on the City of Seattle Environmentally Critical Areas map (*City of Seattle, 2020)*.

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. Groundwater investigations were conducted as part of the geotechnical borings on the site; however, no groundwater was observed in any of the exploratory borings (maximum depth of 41.5 feet bgs). Publicly available logs of boring activities in the site vicinity were also reviewed and the static groundwater table was not encountered in logs up to 51.5 feet bgs. It is possible that limited zones of shallow perched water could be encountered elsewhere on the site, particularly during wetter months. Construction dewatering may be required during development of the project and could be accomplished with ditches and sumps (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 45 percent of the Northgate Elementary campus is comprised of impervious surfaces, including existing buildings and paved surfaces (parking areas, play areas, walkways, etc.). The site of the proposed new building is generally comprised of grass field areas, hard surface play areas and portable buildings. Existing stormwater drainage systems on the campus collect stormwater

from the existing building, parking lots, and hardscape play areas and convey the water to the public stormwater drainage system in in N 117th Street and 1st Avenue NE. An existing off-site stormwater system also enters the site near the northeast corner and cross under the eastern portion of the existing playfield before connecting with the public stormwater systems in N 117th Street.

With the proposed ***Northgate Elementary School Project***, approximately 75 percent of the campus would be comprised of impervious surfaces. The site stormwater design for the project would be compliant with the City of Seattle's 2017 storm water manual. Since the project would add more than 10,000 sq. ft. of impervious surface, the project would require detention and flow control for stormwater. A detention system would be installed under the proposed play field at the south end of the site with a flow control structure at the downstream end. The site would continue to discharge to the public stormwater main in NE 117th Street and 1st Avenue NE. The project would also need to provide onsite stormwater management BMPs to the maximum extent feasible. BMPs could include but would not be limited to bioretention, porous pavements, roof rainwater reclamation and other low impact development strategies. Certain landscape areas (particularly in the southwest and east portion of the site) would be designed as rain gardens and bioretention planters would also be utilized to collect water from the building rooftop.

The existing off-site stormwater system that enters the northeast corner of the site would also be relocated into the 1st Avenue NE right-of-way.

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 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, include the City's Stormwater Code (*SMC 22.800*), including the provisions of stormwater BMPs.

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 tree inventory and assessment (**Appendix D**) was completed for the project. Approximately 43 trees of regulated size (six-inches or greater in diameter at standard height) are located on the school campus, including Norway maple, Vine maple, Flowering cherry, Japanese red pine, Colorado spruce, Pacific madrone, Saucer magnolia, Flowering crabapple, Scots pine, Mugo pine, Japanese snowbell, Douglas fir, European white birch, Bitter cherry, and Western hemlock. The trees range in size from 6 inches in diameter to 34 inches in diameter.

Four of the trees on the school campus meet the City of Seattle's criteria for an exceptional tree (*City of Seattle Director's Rule 16-2008*). These trees include a Western hemlock, a Pacific madrone, a Japanese red pine, and a Vine maple.

In addition, 14 trees adjacent to the project site were also assessed and inventoried. Of these trees, seven were estimated to be exceptional trees (see **Appendix D** for details).

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

Based on schematic design plans, a total of approximately 22 existing onsite regulated trees are proposed to be removed as part of project construction, several of which have been recommended for removal by the project arborist due to poor health and structural conditions. Regulated trees that would be removed include Norway maple, Flowering cherry, Flowering crabapple, Japanese snowbell, and

Douglas fir; an exceptional Vine maple (Tree 419) has also been recommended for removal by the project arborist due to its declining health. In addition, 11 trees that are below regulated size would be removed within the proposed development area.

All other trees on the school campus (including the exceptional trees on the eastern edge of the site and the majority of the trees along N 120th Street) would be retained and protected during construction by following tree protection measures that are outlined in **Appendix D**.

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 ***Northgate Elementary School Project***. The landscape for the school would be designed to achieve low water use and low maintenance requirements with an emphasis on native plants and drought resistant ornamental plants. Existing mature trees would also be retained to the extent feasible. Those trees that would be retained would be protected during construction by following the tree protection measures that are outlined in **Appendix D**. Certain landscape areas, particularly in the southwest and east portions of the site will be designed as rain gardens and act as natural infiltration, pollutant removal and wildlife habitat; bioretention planters will also be incorporate to collect water from the roof top areas.

Consistent with City of Seattle regulations, new replacement trees would also be provided on the site at a 1:1 ratio to replace those trees that would be removed as part of the construction process; trees removed from the public right-of-way would be replaced at a 2:1 ratio.

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 giant hogweed, 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,**
mammals: deer, bear, elk, beaver**, other:** **squirrels**, **raccoons**, **rats**, **mice**
fish: bass, salmon, trout, herring, shellfish**, other:** **None**.

Birds and small mammals tolerant of urban conditions may use and may be present on and near the ***Northgate Elementary School 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. It should also be noted that Bald Eagle, Osprey, and ducks have been observed at Haller Lake (approximately 0.25 miles to the north of the project site).

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

The following are listed threatened or endangered species that could 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, bull trout, grey wolf and north american wolverine[6]. 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 itself is not specifically identified as a migration route or wildlife habitat area by the City of Seattle. However, 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 throughout the school campus. New trees would also be planted on site to replace those trees that

[6] U.S. Fish and Wildlife Service. IPaC. https://ecos.fws.gov/ipac/location/index. Accessed February 2020.

would be removed during 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.

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 and natural gas are the primary source of energy that would serve the proposed ***Northgate Elementary School Project*** and would generally be utilized for lighting, electronics, and heating.

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. Geothermal heat wells would be included as part of the project to provide additional energy efficiency for the new building.

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. There are no records of any contaminated soils or contaminated sites on or in the vicinity of the Northgate Elementary campus (*Washington State Department of Ecology, 2020*). 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 regulated building materials investigation was completed for the site to include inspections for asbestos-containing materials (ACM), lead-containing paint, heavy metals-containing construction materials, and fluorescent lamps (see **Appendix E**). Samples for ACM were taken throughout the building and ACM was identified in some samples, including hard mudded pipe fittings, flexible cloth vibration joints, window glazing compound and sealants, and floor tile. All impacted ACM and assumed ACM would be removed and disposed of in accordance with applicable regulations prior to any demolition or construction activities.

Lead-containing paint was identified in the kitchen area, main corridor, two classrooms, the west wing exterior and one of the portable buildings. Since the project will disturb lead-containing paint, the contractor will need to perform an initial lead exposure assessment and lead awareness training in accordance with Washington State Department of Labor and Industries and the US Occupational Safety and Health Administration regulations.

Polychlorinated Biphenyl (PCB) light ballasts and fluorescent light tubes were also identified in the building and would need to be disposed of in accordance with applicable Washington State Department of Ecology and local regulations.

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 lead-based paint and ACM. All impacted ACM and assumed ACM would be removed and disposed of in accordance with applicable regulations prior to any demolition or construction activities. The contractor will also perform an initial lead exposure assessment and lead awareness training in accordance with the regulations.

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 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 regulated building materials investigation for the project (see **Appendix E**), all impacted ACM and assumed ACM would be removed and disposed of in accordance with applicable regulations prior to any demolition or construction activities. The contractor will perform an initial lead exposure assessment and lead awareness training in accordance with applicable regulations. All PCB light ballasts and fluorescent light tubes would also be disposed of in accordance with applicable regulations.

b. Noise

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

Traffic noise associated with adjacent roadways (N 120th Street, 1st Avenue NE, Corliss, Avenue N, N 117th Street, and Interstate-5) is the primary source of noise in the vicinity of the project site. Existing noise in the site vicinity is not anticipated to adversely affect the proposed ***Northgate Elementary School 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 6 to 8-week duration and wells would be generally located along the northeast and northwest sides 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.

As noted previously, the existing school would remain operational during the construction process and noise from construction activity would be noticeable for students and staff during the school day. Existing school uses and residential land uses (particularly those that are immediately adjacent to the site) would be the most sensitive noise receptors and could experience occasional noise-related impacts during 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 existing zoning of 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. 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.

Long-Term Noise

The proposed ***Northgate Elementary School 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 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:

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 will 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 approximately 80 geothermal wells. The duration of this work is estimated to be two to 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 Northgate Elementary School campus is comprised of the existing one-story building which is located on the south portion of the campus and adjacent to 1st Avenue NE (see **Figure 2** for an aerial photo of the site). An existing surface parking lot is located to the northeast of the existing building and contains space for approximately 28 vehicles. Existing play areas, a playground, and a field are located in the north portions of the campus.

The proposed ***Northgate Elementary School Project*** would include the construction of a new two-story school building in the north portion

of the site in areas that are currently comprised of play field areas, hard surface play areas and portable buildings. Subsequent to the construction of the new building, the existing building would be demolished and a new recreational area would be developed in the south portion of the campus to include a play field, hard surface play area, covered play area, soft surface play area and learning gardens (see **Figure 3** for the site plan of the project).

Adjacent land uses north, south, east and west of the school campus are generally comprised of one- and two-story single family residences. The Saint Andrew Kim Korean Catholic Church is also located to the east of the site, beyond 1st Avenue NE; further to the east is I-5.

The site would continue to be utilized as a school and would not be anticipated to affect current land uses on adjacent properties.

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 single-story Northgate Elementary School currently contains approximately 39,300 gsf of building space including classrooms, a library, a cafeteria, administrative and support space, and a gymnasium. Six portable buildings are also located on the campus, including five portables to the north of the existing building and one portable to the south. The existing portables range in size from approximately 770 gsf to 900 gsf (total portable building space on the site is approximately 5,250 gsf).

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

The existing building would remain operational during the construction of the new building in the north portion of the site and five of the existing portable classroom buildings would be relocated to the south of the existing building; the other existing portable building would be demolished. Subsequent to construction of the new building, the existing building would be demolished, along with two of the portable buildings; the remaining three portable buildings would be removed from the site.

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

The site is currently zoned as Single-Family Residential (SF 7200). Public schools are a permitted use in the SF 7200 zone.

The surrounding areas to the north, south, east and west, are also currently zoned as Single-Family Residential (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, 2018*).

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, according to the City of Seattle's Environmentally Critical Areas (ECA) Maps, small areas on the western portion of the school campus contain slopes that are approximately 40 percent or greater and are classified as an environmentally critical area *(City of Seattle, 2019).* However, these areas are generally associated with retaining walls that were built as part of the original construction of the existing school which included re-grading of the site and constructing concrete retaining walls up to 12.5 feet high to establish two relatively level terraced areas. Based on the geotechnical review of the site, the steep slope areas mapped on the City's ECA GIS map would not be considered geologic environmentally critical areas (see **Appendix A** 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 ***Northgate Elementary School Project*** would not provide any residential opportunities. Development of the project would create new classroom space that would increase the student capacity for the school from an existing capacity of approximately 231 students (approximately 252 students when including the existing portable buildings) to a new capacity of approximately 650 students.

It is anticipated that the proposed project would also provide space for up to approximately 10 new employees (an increase from 62 existing employees to 72 employees with the project).

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 size and configuration of the site, the project would require land use departures for building height, on-site parking, off-site bus loading, bicycle parking, and an electric message board[7]. 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.

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

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 ***Northgate Elementary School 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.

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 height of the existing one-story school is approximately 23 feet tall at its tallest point of the building (gymnasium portion of the building). The proposed addition would be up to two-stories tall with a mechanical penthouse on the rooftop (approximately 42 feet tall). The exterior building materials for the proposed ***Northgate Elementary School Project*** would include concrete masonry, metal panel, aluminum, and glass.

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

The proposed project would increase the amount of building area on the site and views of the site would reflect the increased school building size and site improvements. The proposed building would be most visible from areas that are proximate to the north, northwest and northeast boundaries of the school campus (see **Figure 3** for a site plan).

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[8]. No public view protection sites are located on or adjacent to the proposed project site.

View protection from City-designated Scenic Routes is also encouraged[9] but there are no scenic routes in the vicinity of the site.

Views of designated historic structures are also a consideration[10]. However, there are no designated landmarks or historic structures on or adjacent to the project site.

There are no designated views of the Space Needle on or adjacent to the project site[11].

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

No significant impacts are anticipated with regard to aesthetics and no mitigation measures are proposed.

11. Light and Glare

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

Short-Term Light and Glare

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.

Long-Term Light and Glare

Under the proposed ***Northgate Elementary School Project***, there would be an increase in light and glare with the proposed building due to the greater size of the building. However, light and glare sources on the site would remain similar to the existing conditions and would

8 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.

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

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

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

primarily consist of interior and exterior building lighting, parking lot lighting, and pedestrian walkway lighting, as well as lights from vehicles travelling to and from the site. Exterior building lighting would be designed to focus light on the site and minimize impacts to adjacent properties.

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:

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. Exterior building lighting would be designed to focus light on the site and minimize impacts to adjacent properties.

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 change substantially with the proposed project and the amount of light would not be anticipated to result in a significant impact.

12. Recreation

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

Existing recreation areas at Northgate Elementary School are generally located in the northern portion of the campus and include a grass play field, a hard surface play area, and a soft surface play area with play equipment; a smaller play area with play equipment is also located in the south portion of the site between the U-shaped building. In total, the site contains approximately 159,690 sq. ft. of recreation space, the majority of which is contained in the existing grass field. However, it should be noted that the school primarily uses the hard surface play area for student recreation and the existing grass field is infrequently utilized by the school because it is difficult for staff to supervise students in that area. Community use of the existing grass field also occurs during non-school hours.

There are several additional parks in the vicinity of the project site (within approximately 1.0 mile), including:

- Northacres Park is located approximately 0.30 miles to the northeast of the site
- Hubbard Homestead Park is located approximately 0.35 miles to the southeast.
- Mineral Springs Park is located approximately 0.60 miles to the southwest.
- Pinehurst Playground is located approximately 0.65 miles to the east of the site.
- Jackson Park Golf Course is located approximately 0.75 miles to the northeast

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

Development of the proposed project would result in the displacement of the existing grass field, soft surface play area and hard surface play area in the north portion of the site to accommodate the proposed new building; portions of the existing play area in the south portion of the site would also be displaced due to the relocation of existing portable buildings to this area during construction.

Subsequent to construction of the new building, the existing building would be demolished and new recreation space would be constructed in the south portion of the site including a play field and trails. Additional recreation areas would also be provided on campus, including a hard surface play area, a soft surface play area, a covered play area, a preschool/early learning play area, and outdoor learning gardens. In total, approximately 77,700 sq ft of recreation area would be provided on the site.

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

The proposed project would result in a reduction in overall recreation space on the campus but would increase the variety and type of recreation opportunities that would be available on the campus when compared to the existing conditions. The reduction in overall recreation space area is primarily due to the relocation of the grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and perimeter trail that would be located in the south portion of the site. Additional recreation areas would also be provided on the campus, including new hard surface play areas, a new covered play area, new

learning gardens, new nature play areas, and a soft surface play area with new play equipment. The proposed project would also provide a separate preschool/early learning play area that would be designed to provide specific recreation opportunities and enhanced safety for younger students. As with other school playground/field facilities, the proposed recreation spaces on campus would be available for community use when they are not in use by the school or reserved for another scheduled use (e.g., Seattle Parks and Recreation uses).

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 Northgate Elementary School is not listed on any national, state or local preservation registers. As part of the planning process for the proposed project, Seattle Public Schools submitted a Landmark Nomination form to the City of Seattle for the existing school building. In March 2020, the Landmark Nomination was denied by the City's Landmark Preservation Board (see **Appendix F**).

According to the Washington State Department Archaeology and Historic Preservation's (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD), the closest listed structure is Dunn Gardens which is located approximately 1.6 mile to the northwest and is listed on the Washington Heritage Register (WHR) and the National Register of Historic Places (NRHP).

Subsequent to the issuance of the Final Checklist and DNS for the project, DAHP provided comments[12] to SPS through a separate process related to Governor's Executive Order 21-02[13]. The comments indicated that DAHP considers the building as potentially eligible for listing in the National Register of Historic Places (NRHP). A determination that a building is eligible for listing in the National Register is primarily honorific, especially considering the building was determined not to be eligible for listing as a City of Seattle Landmark by the City's Landmark Preservation Board, which uses similar criteria to that of the NHRP. Unlike listing in the National Register, designation

[12] While DAHP was notified of both the Draft Checklist and Final Checklist and DNS by SPS, it did not provide any comments related to the building or project during the SEPA process.

[13] Executive Order 21-02 relates to projects that are receiving state funding and may include potential historic or cultural resources that could require additional considerations.

under the Seattle Landmarks Ordinance carries with it regulatory authority. Because the building was denied for nomination as a landmark, demolition is not considered a significant adverse impact, since eligibility (or listing) on the national register is not regulatory and does not prohibit demolition. As such, SMC 25.05.675.H provides that, "[i]f the project is rejected for nomination [as a city landmark], the project shall not be conditioned or denied for historical preservation purposes."

Nevertheless, although mitigation is not required under SEPA, as part of the separate Executive Order 21-02 process, SPS will continue consultation and review with DAHP through a Memorandum of Understanding that will identify appropriate measures, such as photo documentation, to minimize any potential effects from the demolition of the building.

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.

The project site is not located within an area that is designated as the Government Meander Line Buffer area in the City of Seattle and only properties located within that area are required to prepare an archaeological investigation as part of the SEPA and MUP processes. A review of Washington Information System for Architectural and Archaeological Records Data (WISAARD) indicates that the site and surrounding areas are considered a moderate to high potential for archaeological resources based on the WISAARD predictive model.

However, a cultural resources assessment was completed for the project site (*Perteet, 2020)* and 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. Onsite investigations were conducted on the project site, including a pedestrian survey of the site and eight subsurface shovel probe investigations within the existing grass field area in the north portion of the site. Based on geotechnical investigations, field surveys, and subsurface investigations, the site shows indications that prior grading and development activity has removed any natural Holocene deposits that may have once been present and likely removed any historic deposits that could have been located on the site, As a result, it is anticipated that there is a low potential for encountering archaeological materials in the project site and no further archaeological assessments are recommended at this time (*Perteet, 2020*).

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 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, 2020*). 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.

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, 2020*) included the preparation of an Inadvertent Discovery Plan (IDP) which would be utilized as necessary during project construction. Although no impacts to historic or cultural resources are anticipated with the proposed project, the following measure will be implemented to minimize impacts from a potential inadvertent discovery of cultural resources:

- Although archaeological resources are not anticipated on the site, an inadvertent discovery plan (IDP) has been prepared as part of the cultural resources assessment that details procedures that would be followed in the event that pre-contact or historic period cultural resources are encountered during construction, including contacts with local tribes (Duwamish, Muckleshoot, Snoqualmie, Stillaguamish, Suquamish, and Tulalip Tribes) in the event of an inadvertent discovery.

During an appeal of the Determination of Nonsignificance of the Northgate Elementary School Replacement Project, the Hearing Examiner upheld the DNS and found that the "record establishes that the project site likely does not contain any cultural resources that would be adversely impacted by the proposal." The Examiner then explained that, while it is not necessary to conduct additional investigation, SPS is encouraged to conduct an additional soil profile evaluation at the project site to address concerns raised at the hearing. The local tribes listed above have been invited to observe the excavation of a lengthy utility trench to examine the stratigraphy of the project site during this work. The excavation of the trench is scheduled to occur during the

week of July 12th. In addition, as noted in Section 13a, SPS is conducting further consultation and review with DAHP as part of the Executive Order 21-02 process and will identify appropriate measures to minimize any potential effects from the proposed project on the potential historic eligibility of the existing building, as necessary.

14. Transportation

A Transportation Technical Report for the ***Northgate Elementary School Project*** was prepared by Heffron Transportation, Inc. (*Heffron Transportation, May 21, 2020*), along with two addendums (*Heffron Transportation, August 19, 2020*; and *Heffron Transportation, October 28, 2020*). Information from the technical report is summarized in this section. See **Appendix G** for the full technical report and addendums.

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.

Northgate Elementary School is located at 11725 1st Avenue NE in Seattle. It is bounded by N 120th Street to the north, 1st Avenue NE to the east, N 117th Street to the south, and Corliss Avenue N to the west. The site has two small surface parking lots—one on the north and one on the east. The north lot has 28 spaces and is accessed from an entry driveway on N 120th Street and an exit driveway on 1st Avenue NE. A small visitor parking lot with four spaces is located on the east side of the building with two one-way driveways (entry on the north and exit on the south) on 1st Avenue NE. There is also a gated driveway on 1st Avenue NE aligned along the north side of the main school building which allows for vehicular access to the hard surface play area where some maintenance access and employee parking occasionally occurs.

The project would replace the 28-space north parking lot with a 26-space parking lot and a single two-way access driveway on 1st Avenue NE. Vehicular access from N 120th Street would be eliminated. South of the parking lot access on 1st Avenue NE, a delivery/service driveway would provide access to four employee parking spaces (total of 30 parking spaces on the site); the service yard and loading dock would also allow occasional evening event parking (for about 29 vehicles) to occur on the hard-surface play area. During evening events, approximately 59 onsite spaces could be available for use. A gated emergency-access driveway would be provided on Corliss Avenue N.

The project would provide a curb-side passenger-vehicle drop-off/pick-up lane along the site's N 120th Street frontage. The main on-street school-bus load/unload zone would be relocated from N 117th Street to the west side of 1st Avenue NE, adjacent to the new school building. Although not currently expected or required, SPS has requested to retain the option of using the N 117th Street frontage as an additional

school bus load/unload zone, if needed in the future. The project would improve frontages along 1st Avenue NE, N 120th Street, N 117th Street, and Corliss Avenue N.

Neighborhood vehicular and pedestrian circulation patterns to and from the site would change slightly with the revised site layout.

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 about 0.3 mile from the site to the west on Meridian Avenue N. Stops for both northbound and southbound buses are located just north of N 120th Street and at N 115th Street. These stops are served by Metro Routes 316, 345, and 346. Route 316 provides weekday service for peak commute directions only (southbound in the morning and northbound in the evening) between Meridian Park and Downtown Seattle. Route 345 provides all day, daily service between Shoreline Community College, Northgate Transit Center (TC), and Downtown Seattle. Route 346 provides all day, daily service between Aurora Village TC, Northgate TC, and Downtown Seattle.

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

The project would decrease the on-site parking supply from 32 spaces to 30 spaces (for staff and visitors). Delivery access and the loading dock would continue to be accessed from 1st Avenue NE, which would also provide access to four of the employee daily parking spaces and temporary on-site event parking for about 29 vehicles on the hard-surface play area. The site would provide a total of 59 event parking spaces.

The proposed new on-street bus load/unload area would increase on-street parking capacity by 11 vehicles when not limited to school buses (e.g. evenings and non-school days). In existing conditions parking is currently prohibited along most of this frontage. This revised layout would allow for on-street parking when not limited to school buses (e.g. evenings and non-school days). Parking conditions along the school's remaining frontages (some currently prohibit parking or have time restrictions on school days), would not substantially change with the project.

On-street parking within the site vicinity averages between 16 percent and 19 percent occupied (pre-COVID occupancy), depending on the time of day with between 190 and 250 unused spaces. The increase in school-day, on-street parking demand could be accommodated by the unused supply in the site vicinity, with a typical utilization estimated

below 37 percent. This also accounts for the recent elimination of school use of the nearby St. Andrew Kim Korean Catholic Church parking lot.

The school has historically been using the parking lot at the nearby St. Andrew Kim Korean Catholic Church, however SPS was recently notified that school staff and parents are no longer permitted to use the church parking lot during the day for staff parking, student drop-off/pick-up, or for the occasional evening events. This change in church lot use will occur whether the school is redeveloped or not. The parking demand described above reflects the elimination of the church parking lot from the available supply.

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 proposal would provide frontage improvements as required by SDOT. The project would improve all frontages, including replacing the curb, planter strip, and providing a widened sidewalk along 1st Avenue NE to accommodate the school bus load/unload space. The sharrows along 1st Avenue would remain. Curbs, gutters, planter strips, and 6-foot sidewalks would be installed along the other frontages. A curb-side passenger-vehicle drop-off/pick-up lane along the site's N 120th Street frontage would be provided.

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. However, it is acknowledged that Sound Transit's Northgate Link Extension is currently under construction with a new light-rail station planned to open at the Northgate Transit Center (about a mile to the southeast) in 2021. Sound Transit's Lynnwood Link Extension will continue the line to the north opening in 2024 with a future station planned at N 130th Street (about a mile to the northeast) by 2031.

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 non-passenger vehicles). What data or transportation models were used to make these estimates?

The traffic analysis conducted for this SEPA Checklist reflected conditions with the new school and increased enrollment capacity up to 650 students (a net increase of about 400 students compared to fall

2019 enrollment). Based on daily trip generation rates published for elementary schools by the Institute of Transportation Engineers, the added capacity at Northgate Elementary School is expected to generate a net increase of about 760 trips per day (380 in, 380 out). The peak traffic volumes are expected to occur in the morning just before classes begin (between 7:15 and 8:15 a.m.) and in the afternoon around dismissal (between 2:00 and 3:00 p.m.). During the morning peak hour, the project is anticipated to generate approximately 322 net new trips (178 in, 144 out). During the afternoon peak hour, the project would generate approximately 174 net new trips (86 in, 88 out).

The number of school-bus trips is expected to increase from three to four full-size buses. Other truck trips expected to serve the site include deliveries of food and supplies, trash and recycling pick-up, and occasional maintenance. Overall, school buses and small trucks are likely to represent about 3% of the total daily traffic (see **Appendix G** for further details).

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.

The school-replacement project is proposed to begin construction during the summer of 2021. During construction, the students and staff would remain onsite. Existing designated on-street passenger-vehicle load/unload areas for students around the site may be temporarily unavailable during different phases of construction and communication and signage will be provided to school families as restrictions are put in place throughout construction. Construction personnel may park on site or on-street in the site vicinity. The existing onsite day-time school demand would also be displaced to on-street parking in the surrounding neighborhood (about 15 vehicles). Although parking demand displaced from the lot and generated by construction workers would likely be noticeable to local residents, the parking occupancy on the surrounding roadways was below 20% occupied during weekdays with 190 or more unused spaces. The unused supply is expected to accommodate the temporary added demand during the two-year construction period.

Earthwork transport during construction is estimated to require an average of 64 truck trips per day (32 in, 32 out) and just over 8 truck trips per hour (4 in, 4 out) over an estimated 25 to 30 days, which may

be noticeable to residents living adjacent to the site, but would not result in significant impacts to traffic operations.

Because construction would occur while students remain at Northgate Elementary School, it is recommended that the contractor and SPS develop a Construction Transportation Management Plan as described below.

- **Construction Transportation Management Plan (CTMP):** The District will require the selected contractor to develop a CTMP that addresses traffic and pedestrian control during school construction. It would define truck routes, lane closures, walkway closures, and parking or load/unload area disruptions, as necessary. Pedestrians (including students) would be routed around or directed to avoid construction areas using temporary walkways, fencing, and signage. To the extent possible, truck movements (including earthwork transport and deliveries of materials to the site) would not occur during morning arrival or afternoon dismissal periods for the school and 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. The CTMP would identify parking locations for the construction staff and/or displaced on-site school parking demand.

With the replacement school operating at its proposed capacity, it is expected to add small amounts of delay to several of the study area intersections and turning movements during morning and afternoon peak hours; however, all of the study-area intersections are forecast to continue operating at LOS B or better overall, with all movements operating at LOS C 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. Some vehicle queuing is expected in the northbound direction along Corliss Avenue N and in the eastbound direction on N 120th Street during peak times. Specifically, vehicle queuing at the eastbound approach to the N 120th Street / 1st Avenue NE intersection—the approach forecast to be most affected by increased school traffic—was evaluated. During the morning school arrival peak, the 95th percentile vehicle queue (which would only be exceeded 5 percent of the time) is estimated to increase from one vehicle without the project, to three vehicles with the project. During the afternoon dismissal peak, the 95th percentile queue is expected to remain at about one vehicle. Traffic operations are expected to be acceptable at all study intersections surrounding the school during peak conditions.

School-day parking demand may increase by about 10 to 40 vehicles but is likely to vary depending on the number of part-time staff and

volunteers on site at any one time. The increase would be partially accommodated by the onsite parking lot and increased on-street demand is estimated to range from 12 to 47 vehicles including 11 to 17 vehicles that would be relocated from the adjacent church lot on school days. On-street parking within the site vicinity was consistently below 20 percent occupied on school days with more than 190 unused spaces. The increase in school-day on-street parking demand could be accommodated by unused supply, and typical utilization is estimated to range from 20 percent to 26 percent.

Occasional evening events are expected to draw larger attendance and result in increased use of the unused on-street parking supply which could accommodate the increased demand. However, the largest events (such as Curriculum Night) could cause on-street parking demand to reach 85 percent utilization (up from 75 percent with current levels of use of the adjacent church parking lot).

The school replacement project would not result in significant adverse impacts to traffic operations or parking. However, because the site would be reconfigured to accommodate a larger enrollment capacity and would change access, parking, and load/unload areas around the site, several measures will serve to minimize traffic and parking-effects on the surrounding neighborhood.

- **Transportation Management Plan (TMP):** Prior to the occupancy of the new school, the District and school principal will establish a TMP to educate families about the access load/unload procedures for the site layout. The TMP will also encourage school bus ridership, carpooling, and supervised walking (such as walking school buses – a organized group of students led by an adult walking to/from school). 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, and respecting crossing guards. It will also instruct staff and parents not to block or partially block any residential driveways with parked or stopped vehicles.

- **Engage Seattle School Safety Committee:** The District will continue the ongoing engagement with the Seattle School Safety Committee (led by SDOT) to review the new access for pedestrian and bicycles and determine if any changes should be made to crosswalks, traffic control, crossing guard locations, or to help encourage pedestrian and non-motorized flows at designated crosswalk locations.

- **Develop Neighborhood Communication Plan for School Events:** The District and school administration will develop a neighborhood communication plan to inform nearby neighbors of large events each year. The plan will be updated annually (or as events are scheduled) and will provide information about the

dates, times, and rough magnitude of large-attendance events. The communication will be intended to allow neighbors to plan for the occasional increase in on-street parking demand that could occur with large events. The school Principal will continue to coordinate event schedules to avoid concurrent large evening events at the school and St. Andrew Kim Korean Catholic Church.

In addition, SPS will explore options for a formal agreement with the Archdiocese and St. Andrew Kim Korean Catholic Church that would allow occasional evening use of the church lot for the largest school events. If this shared-parking agreement is not possible, when the school reaches 90 percent of its enrollment capacity, the school will modify the largest events (including Curriculum Night) to reduce total peak parking demand, by separating it into two sessions or into two nights based on grade levels, similar to other SPS elementary schools.

- **Update right-of-way and curb-side signage:** The District will work with SDOT to confirm the locations, restrictions, and durations for curb-side parking and load/unload zones adjacent to the school.

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 ***Northgate Elementary School Project*** would add student capacity to the school, 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 the Northgate area to preclude the need for additional public facilities/services.

16. Utilities

a. Circle utilities currently available at the site: <u>electricity</u>, natural gas, <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 with the exception of natural gas.

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.

Electrical (Seattle City Light) and telephone/internet would continue to be provided to the school and Seattle Public Schools would coordinate with each purveyor regarding service for the proposed project. Electricity for the project would also be supplemented with the use of geothermal wells on the site.

Water service, sewer service and stormwater are provided by Seattle Public Utilities. Water service for the ***Northgate Elementary School Project*** would be provided through a new four-inch domestic water service and six-inch fire service connection that would ultimately connect to the eight-inch water main in N 120th Street.

Sewer service would be provided through a new six-inch side sewer line that would connect to the existing eight-inch sewer main located in 1st Avenue NE.

Stormwater from the site would be collected and routed to a proposed detention system under the proposed play field. A flow control structure would be installed at the downstream end of the detention system to control stormwater flows from the site system to the public stormwater main in N 117th Street and 1st Avenue NE. Certain landscape areas (particularly in the southwest and east portion of the site) would be designed as rain gardens and bioretention planters would also be utilized to collect water from the building rooftop.

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:

Vincent R. Gonzales

Name of Signee:

Vince Gonzales

Position and Agency/Organization:

Project Manager, Seattle Public Schools

Date:

November 3, 2020; Updated July 7, 2021

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Figures

Project Site

Note: This figure is not to scale.

North

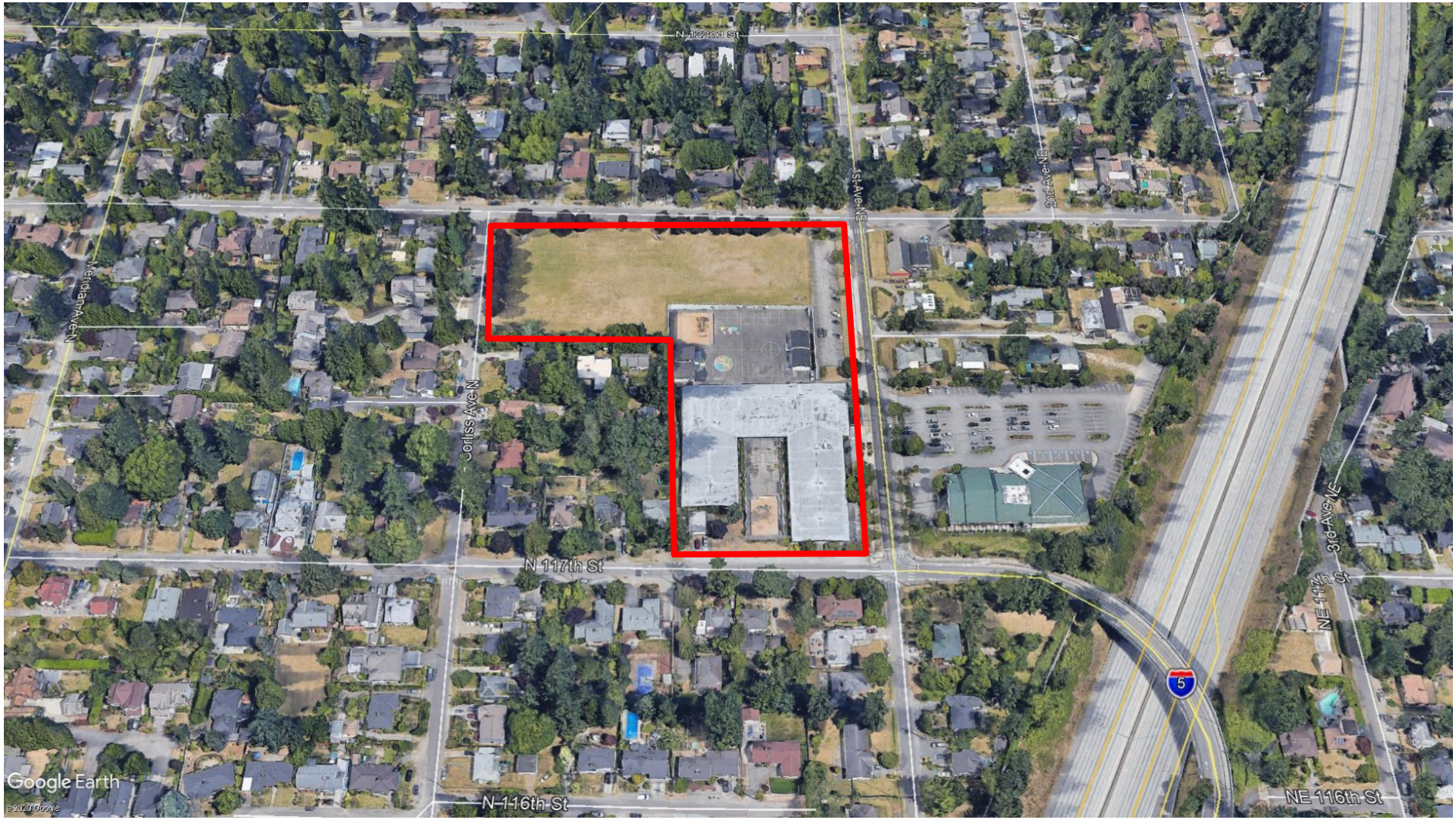
Source: Google Maps and EA Engineering, 2020

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

Figure 1

Vicinity Map

Northgate Elementary School Project
Environmental Checklist



Project Site

Note: This figure is not to scale.

North

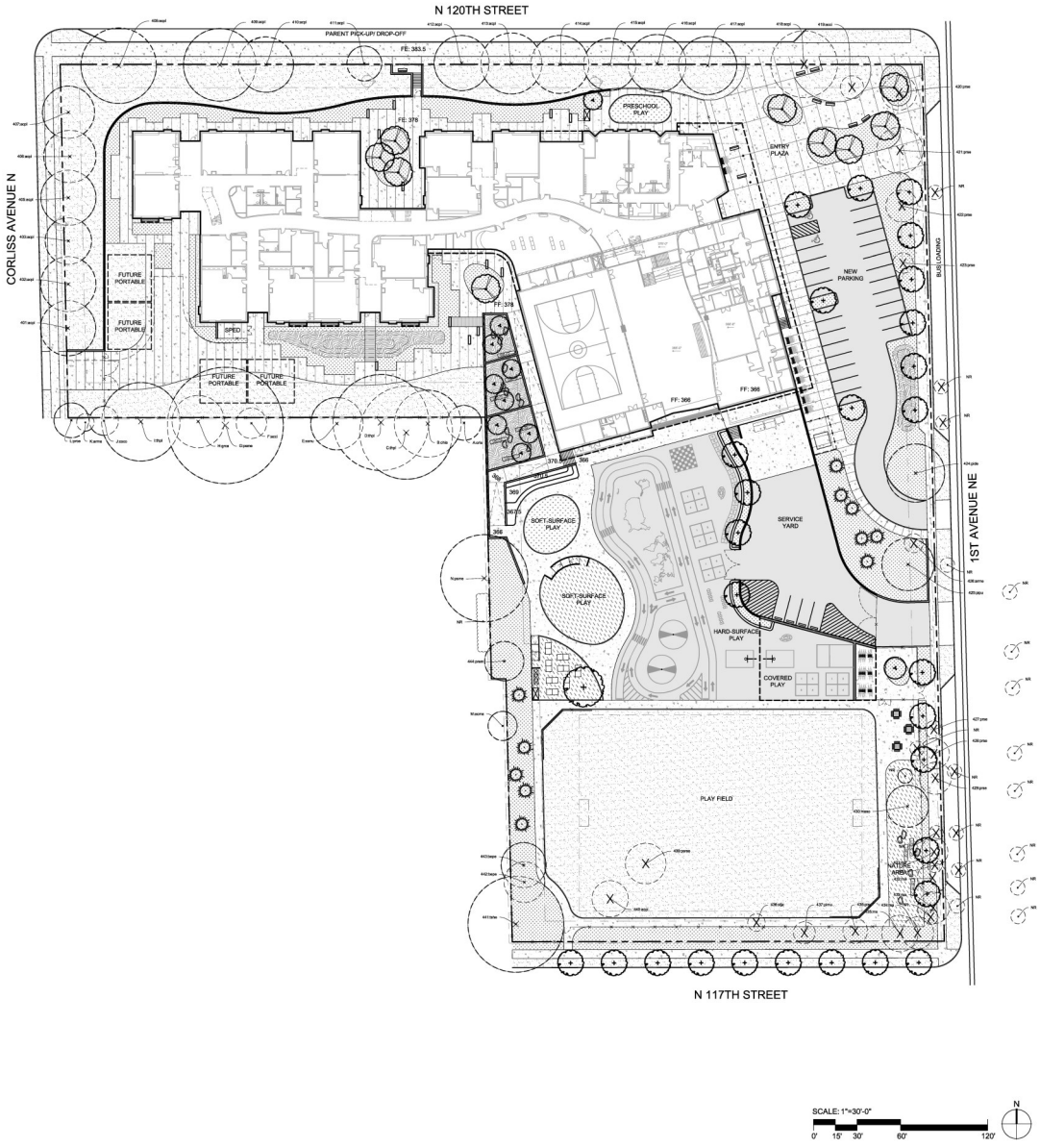
Source: Google Maps and EA Engineering, 2020

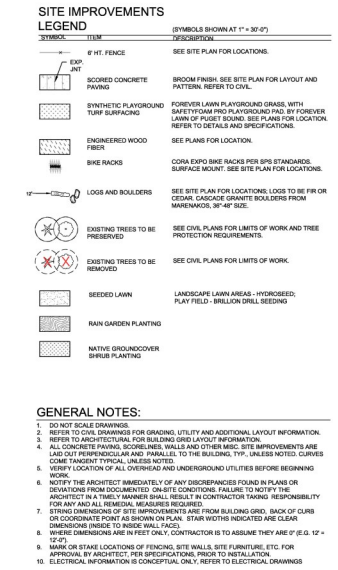
EA Engineering, Science, and Technology, Inc., PBC

Figure 2

Aerial Map

Northgate Elementary School Project
Environmental Checklist





Source: NAC Architecture, 2020

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

Figure 3

Site Plan

Appendix A

GEOTECHNICAL REPORT

GeoDesign Inc
An NV5 Company

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Northgate Elementary School
11725 1st Avenue NE
Seattle, Washington

For
Seattle Public Schools
October 19, 2020

GeoDesign Project: SeattlePS-11-01

GeoDesign Inc
An NV5 Company

October 19, 2020

Seattle Public Schools
2445 Third Avenue S
Seattle, WA 98134

Attention: Vincent Gonzales

Report of Geotechnical Engineering Services
Northgate Elementary School
11725 1st Avenue NE
Seattle, Washington
GeoDesign Project: SeattlePS-11-01

GeoDesign, Inc. is pleased to submit this report of geotechnical engineering services for the proposed replacement of the existing Northgate Elementary School at 11725 1st Avenue NE in Seattle, Washington. This report has been prepared in accordance with our proposal dated May 30, 2019. Our proposal was approved and included in contract number P1613 dated July 1, 2019.

We appreciate the opportunity to be of service to you. Please contact us if you have questions regarding this report.

Sincerely,

GeoDesign, Inc.

Kevin J. Lamb, P.E.
Principal Engineer

JTW:KJL:kt
Attachments
One copy submitted (via email only)
Document ID: SeattlePS-11-01-101920-geor.docx

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AC	asphalt concrete
ACI	American Concrete Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
ATB	asphalt-treated base
ATPB	asphalt-treated permeable base
BGS	below ground surface
BMP	Best Management Practice
g	gravitational acceleration (32.2 feet/second^2)
GIS	geographic information system
GPS	global positioning system
GSP	General Special Provisions
H:V	horizontal to vertical
HMA	hot mix asphalt
Hz	hertz
IBC	International Building Code
LID	low-impact development
MCE	maximum considered earthquake
OSHA	Occupational Safety and Health Administration
PCC	portland cement concrete
pcf	pounds per cubic foot
pci	pounds per cubic inch
PG	performance grade
PIT	pilot infiltration test
PPV	peak particle velocity
psf	pounds per square foot
psi	pounds per square inch
PVC	polyvinyl chloride
SFZ	Seattle fault zone
SPT	standard penetration test
UST	underground storage tank
WSDOT	Washington State Department of Transportation
WSS	Washington Standard Specifications for Road, Bridge, and Municipal Construction (2020)

1.0 INTRODUCTION

This report presents the results of GeoDesign's geotechnical investigation for the replacement of the existing Northgate Elementary School located at 11725 1st Avenue NE in Seattle, Washington.

The proposed project is similar to past school modernization projects and will include replacing the existing school buildings and re-developing the site. We understand there is a desire to use the existing school buildings during construction of the new school buildings prior to building demolition for full site re-development.

We understand the preferred location of the new school is in the current playfield area on the north or upper portion of the site. The proposed finish floor elevation of the classroom areas will be approximately 378 feet. The gymnasium and commons building may also be located on the northwest portion of the site in the existing playfield area with a finish floor elevation of 378 feet. Alternatively, the gymnasium and commons building may be located on the south side of the new main building and extend into the lower portion of the site, where the existing hardscape play area and existing school buildings are located with a finish floor elevation of approximately 366 feet. The proposed school will likely consist of a one- to three-story classroom and administration building with a one-story gymnasium and commons building. Associated facilities on the property will consist of parking, a service yard, playgrounds, and playfields.

The location of the site relative to surrounding physical features is shown on Figure 1. Existing conditions and approximate exploration locations are shown on Figure 2. Explorations logs and laboratory test results are presented in Appendix A. The preliminary site plan of the proposed school development is presented in Appendix B. Previous topography information and grading plans from as-built drawings for the existing school are presented in Appendix C.

Acronyms and abbreviations used herein are defined above, immediately following the Table of Contents.

2.0 PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to gather and review available subsurface information, conduct field explorations to evaluate subsurface conditions at the site, and provide geotechnical conclusions and engineering recommendations for the proposed campus improvements. Our scope of work included conducting a site reconnaissance, drilling and sampling 16 borings, performing laboratory testing, and completing engineering analyses to develop the geotechnical conclusions and recommendations presented in this report. Specifically, we performed the following:

- Reviewed the original plans for the existing school and reviewed geotechnical and geologic information for the site and adjacent areas
- Coordinated and managed the field explorations, including public and private utility locates and scheduling of contractors and GeoDesign staff.

- Drilled 16 borings to depths between 6.5 and 41.5 feet BGS to evaluate the subsurface conditions at the site.
- Completed laboratory analyses on select disturbed soil samples collected from the explorations to determine certain index properties of the on-site soil.
- Performed engineering analysis and evaluated data derived from the subsurface investigation and laboratory testing program.
- Provide this geotechnical report that summarizes our findings and provides recommendations to support design of the new school campus.

GeoDesign's scope of work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil. An infiltration study is planned as Task 2 of our contract and can be completed as necessary to support design of infiltration LID elements once the facility layout is finalized.

3.0 EXISTING INFORMATION

We reviewed available as-built plans provided by Seattle Public Schools for the existing school. The existing school was constructed in 1956. Prior to 1956 a group of single-room classroom buildings (portables) were located along North 120th Street on the north side of the property along with AC pavement and covered walkways between them. A septic tank and drain field were located south of the portables. In addition, a residential house and garage were present on the northeast portion of the site. The portables and the residential house appear to have been removed as part of the 1956 construction of the existing school.

Construction of the existing school included re-grading the site and constructing concrete retaining walls up to approximately 12.5 feet high to establish two relatively level terrace areas on the site. The upper area on the north side of the site is used as a playfield and the lower area includes the school buildings and a hardscape play area. Grading plans indicated that the thickness of fill is greatest along the east-central side of the project area and extends up to 8 feet deep.

The plans indicate that the main school building is supported on shallow foundations designed with an allowable bearing capacity of 4,000 psf. The as-built plans indicate a finished floor elevation of 360 feet and that existing footings are embedded as much as 8 feet below the finished floor to extend through the fill to the underlying dense glacial till material. Historical topographic and grading plans are presented in Appendix C.

Retaining walls support the grade change between the lower developed area and the upper playfield areas. The as-built retaining wall details indicate the foundations for the retaining walls along the west property line extend in front of the wall up to approximately 8 feet and for the walls adjacent to the field and parking area the foundations extend up to 10 feet behind the wall. The as-built plans show the existing AC play area consists of 1.5 inches of AC over 3 inches of crushed rock. A septic drain field is shown beneath the existing hardscape play area, but was likely abandoned when the school was hooked up to the sanitary sewer utility.

A boiler room is present along the north end of the existing building on the east side of the covered play area. An approximately 4,000-gallon fuel UST and 294-gallon diesel UST are shown on the plans in the hardscape area north of the boiler room. We understand the 4,000-gallon UST was decommissioned in place; the decommissioning report did not indicate if the 294-gallon UST was mitigated. Since the UST was decommissioned in place, information was not available regarding potential petroleum-impacted soil around the USTs.

4.0 SITE CONDITIONS

4.1 GENERAL

Northgate Elementary School is located within the Northgate residential neighborhood at 11725 1st Avenue NE. The property is generally L-shaped and is approximately 5.7 acres in size (Figure 2). The site is bordered on the north by North 120th Street, on the east by 1st Avenue NE, on the south by North 117th Street and residential houses, and on the west by residential houses and Corliss Avenue North. Surficial conditions were determined from observations during several visits to the site, and subsurface conditions were evaluated by completing subsurface explorations.

4.2 SURFACE CONDITIONS

The site is currently developed with the existing Northgate Elementary School. The ground surface slopes down from northwest to southeast across the site with an elevation change of approximately 30 feet. Concrete retaining walls up to approximately 12.5 feet high are present along the north and west sides of the existing grass hardscape play area in the central portion of the property to support a grade change up the grass playfield area to the north and west. South of the hardscape play area are the school buildings and a partially covered hardscape play area. AC parking is present along the west edge of the property. Gravel parking and a bus drop off area are currently located on the south end of the property.

4.3 SUBSURFACE CONDITIONS

Subsurface conditions were explored across the site by drilling 16 borings (B-1 through B-16) to depths between 6.5 and 41.5 feet BGS. The exploration locations are shown on Figure 2. A description of the field explorations and the exploration logs are presented in Appendix A.

Subsurface conditions are generally similar across the site and typically consist of fill from previous site grading overlying glacially consolidated deposits consisting of glacial till and advance outwash. Subsurface conditions observed are consistent with geologic maps of the area (Boot et al., 2009). Glacial till deposits in this area are typically composed of sandy silt to silty sand with variable amounts of gravel, cobbles, and occasional boulders. Advance outwash deposits in this area are typically composed of sand with variable amounts of silt, gravel, and cobbles.

The materials encountered in the explorations are described below.

4.3.1 AC Pavement

AC pavement is present at boring locations completed in the east parking lot, the hardscape play area north of the main building, and the south hardscape courtyard. The pavement section encountered in these borings (B-8 through B-14) consists of approximately 1 inch to 2.5 inches of AC over 2 to 5 inches of aggregate base crushed rock.

4.3.2 Fill

Fill was encountered from the ground surface or directly beneath the pavement in all borings to depths between 2 and 14.5 feet BGS. The fill is thickest behind the existing concrete retaining walls (borings B-5, B-6, B-7), in the southern courtyard area (boring B-13), and in the parking lots along the east side of the site (borings B-8 and B-14). Fill thicknesses observed in each boring are shown on Figure 2. As-built grading plans and original topography for the existing school are presented in Appendix C.

The fill typically consists of silty sand with gravel and sandy silt with gravel that appears to be locally derived. Based on SPT blow counts, the fill is generally loose to medium dense and the fine-grained fill is generally medium stiff. Fill at boring B-13 contains some construction debris consisting of brick fragments and charred wood. Wood fragments are also present in the fill at borings B-5 and B-14. Moisture contents of the fill at the time of our explorations varied from 5 to 18 percent at the time of our explorations.

Based on a review of as-built drawings, the thick fill deposits near boring B-12 are likely associated with the excavation required to install the nearby approximately 4,000-gallon fuel UST that was decommissioned in place.

4.3.3 Glacial Till

Glacial till is present beneath the fill at all the exploration locations. The glacial till consists of silty sand with gravel and sandy silt with gravel. Occasional cobbles and boulders are present in the glacial till. Auger refusal was encountered in B-11 due to a boulder at 14 feet BGS. Based on SPT blow counts, the silty sand with gravel is dense to very dense and the sandy silt with gravel is very stiff to hard. Moisture contents of the glacial till varied from 4 to 22 percent at the time of our explorations.

4.3.4 Advance Outwash

Advance outwash is present below the glacial till in borings B-12, B-13, B-15, and B-16 starting at depths between 18 and 23 feet BGS and extending to the maximum depth explored of 41.5 feet BGS. The advance outwash consists of very dense, silty sand with trace to minor amounts of gravel. The fines content of select samples ranges from 13 to 14 percent. Moisture contents of the advance outwash varied from 7 to 10 percent at the time of our explorations

4.4 GROUNDWATER

Groundwater was not observed during our explorations to the maximum depth explored of 41.5 feet BGS. We reviewed publicly available logs of borings completed in the general project area available at https://fortress.wa.gov/ecy/wellconstruction/map/WCLSWebMap/WellConstructionMapSearch.aspx.

Logs of the available borings completed in the project vicinity extend to depths of up to 51.5 feet BGS and do not indicate a static groundwater table within the depths explored.

Zones of perched water may be encountered during construction near the contact between the fill and underlying dense glacial till deposits as commonly observed in the local area.

4.5 SEISMICITY

Washington State is situated at a convergent continental margin and is susceptible to subduction zone, intraplate, and shallow crustal source earthquakes. We reviewed published geologic maps for the site vicinity (Johnson et al., 1999; Sherrod et al., 2004) to evaluate seismic hazards. The site is approximately 9.6 miles north of the SFZ, which is a result of shallow crustal faulting.

The SFZ represents a 2- to 4-mile-wide zone, extending from the Kitsap Peninsula near Bremerton to the Sammamish Plateau. Within the SFZ are several east- to west-trending fault splays of the Seattle fault (Johnson et al., 1999). The Seattle fault is thought to be a reverse fault, with the south side "shoved up." The SFZ is considered an active major fault and is capable of producing earthquakes of Magnitude ~7 with associated surface rupture and ground motions, posing a significant hazard to the Puget Sound Region (Sherrod et al., 2004). Geologic evidence indicates at least three episodes of movement on the fault within the last 10,000 years, with the most recent earthquake with surface rupture approximately 1,100 years ago (Nelson et al. 2000).

5.0 LABORATORY TESTING

Laboratory tests were conducted on specific soil samples selected from the explorations to assist in the characterization of certain physical parameters of the soil. Index tests that were performed included the determination of natural water content, fines content analysis, and grain-size distribution analysis. All tests were conducted in general accordance with appropriate ASTM standards (ASTM, 2016). A discussion of laboratory test methodology and test results are presented in Appendix A. Test results are also displayed where appropriate on the exploration logs presented in Appendix A.

6.0 GEOLOGIC ENVIRONMENTALLY CRITICAL AREAS

Seattle Municipal Code Subsection 25.09.012.A.3.b.5. defines a Steep Slope Erosion Hazard Area as an incline of 40 percent within a vertical elevation change of at least 10 feet. The City of Seattle online GIS database indicates four areas in the northwest corner of the hardscape play area are mapped as Steep Slope Erosion Hazard Areas. All of the areas are located against and behind the existing concrete retaining wall that extends around the west and north sides of the hardscape play area. The slope behind the retaining wall and the area in which the features are indicated in the GIS database are all generally flat. Based on our review and site reconnaissance, the areas mapped on the GIS database are not geologic environmentally critical areas.

We understand that the concrete retaining wall will remain or will be rebuilt to establish new grades. The exposed short slope to the south of the concrete retaining wall appears to have an

incline of less than 40 percent and is not mapped as a steep slope. Based on a review of the as-built plans for the existing school, the slope and retaining wall appear to have been engineered for construction of the existing school.

Evidence of past landslide activity, such as scarps, hummocky terrain, and/or bowed trees, was not observed anywhere on the school property or adjacent areas. We did not observe any springs or groundwater seepage on the slope.

Other slopes on site do not meet the definition of Steep Slope Erosion Hazard Areas. No other areas on site meet the definition of Geologic Hazard Areas and Steep Slope Erosion Hazard Areas in accordance with Seattle Municipal Code Chapter 25.09 – Regulations for Environmentally Critical Areas.

7.0 DESIGN RECOMMENDATIONS

7.1 GENERAL

Based on our review of available information; the development history of the site; and the results of our explorations, laboratory testing, and analyses, it is our opinion that the site is suitable for construction of the proposed school and associated facilities.

- Variable thicknesses of loose to medium dense fill mantles the site to depths up to approximately 14.5 feet BGS. The fill deposits appear to be associated with grading for the original school and construction of the concrete retaining walls. The thickest deposits are associated with the wedge of fill used to backfill behind the retaining wall between the hardscape play area and the grass playfield. The fill varies in degree of compaction from loose to medium dense. The wedge of fill behind the existing retaining wall will not provide suitable foundation support. Ground improvement measures will be required for foundations that are located within approximately 15 feet of the existing retaining wall.
- Site layout plans were preliminary at the time of this report and include an option to construct the gymnasium and commons building with a below-grade portion at the northern end of the building. The building would extend south of the existing retaining wall and the finish floor elevation would be similar to that of the existing hardscape play area. This option would mitigate the loose fill behind the existing retaining wall where the gymnasium and commons would be constructed.
- Shallow spread footing foundations bearing on a subgrade prepared as recommended below will provide adequate support for the proposed buildings. Over-excavation and replacement of loose fill below foundation elements will be required in some areas to provide a stabilized base for supporting the foundations.
- The building floor slabs can be supported on grade, provided the subgrade is prepared as recommended below.
- Near-surface soil consists generally of silty sand with a fines content generally in excess of 15 percent and will be susceptible to deterioration during wet weather. We anticipate that the on-site soil will be usable for fill during the dry summer months when moisture conditioning can be performed, provided deleterious materials are removed.

- Based on our explorations, significant groundwater seepage is not anticipated during excavation for foundations. However, based on soil conditions, zones of perched water are anticipated during excavation, particularly during periods of wet weather.
- Retaining walls are anticipated to accommodate below-grade building components. Based on the preliminary plan, we anticipate cuts will generally be less than approximately 12 feet. Temporary cuts can be completed using cut slopes, temporary sheeting or shielding, cantilevered soldier pile shoring, or soil nails and shotcrete facing.
- The Puget Sound area is a seismically active region. The dense, glacially consolidated material underlying the site is not susceptible to amplified earthquake ground motions and is not susceptible to liquefaction or lateral spreading. We did not observe evidence of faults on the site in the explorations or on geologic maps of the area and have concluded that the probability of surface rupture is low. We have provided appropriate seismic design recommendations based on the 2015 IBC criteria.
- Based on our experience, the glacial till soil across the site will have low permeability characteristics. Slightly higher infiltration rates may be feasible in the advance outwash deposits below the glacial till. Advance outwash deposits were encountered in three borings in the center and south portions of the site below depths of 18 to 23 feet BGS. Small scale PITs should be completed when the location of proposed infiltration facilities are known. Soil samples for water quality treatment potential can be collected at the time of PITs.

Our specific recommendations and design guidelines for development of the site are presented in the following sections. These should be incorporated into the design and implemented during construction of the proposed development.

7.2 SEISMIC DESIGN CRITERIA

Moderate to high levels of earthquake shaking should be anticipated during the design life of the buildings, and it should be designed to resist earthquake loading in accordance with the appropriate code-based methodology described in either the 2015 IBC or ASCE 7-16 2018 . The recommended seismic design parameters are presented in Table 1.

Table 1. IBC Seismic Design Parameters
2015 IBC and (ASCE 7-16 2018)

Seismic Design Parameter	Short Period	1 Second Period
MCE Spectral Acceleration	S_s = 1.260 g (1.281 g)	S_1 = 0.491 g (0.446 g)
Site Class	C	
Site Coefficient	F_a = 1.0 (1.2)	F_v = 1.3 (1.5)
Adjusted Spectral Acceleration	S_{MS} = 1.260 g (1.537 g)	S_{M1} = 0.643 g (0.669 g)
Design Spectral Response Acceleration Parameters	S_{DS} = 0.840 g (1.024 g)	S_{D1} = 0.428 g (0.446 g)

Based on our subsurface exploration, literature review, and experience, a summary of the seismic hazards in the area and their associated impact at the site are as follows:

- **Amplification:** Areas subject to amplification are typically soft soil overlying stiff soil or bedrock. Based on our explorations and available geologic maps, the site is underlain by glacially consolidated deposits. In our opinion, this material has a low potential for site amplification.
- **Liquefaction/Settlement:** Based on the results of the site explorations, the site is mostly underlain by dense glacial deposits; groundwater was not observed above the dense glacial deposits. In our opinion, the potential for liquefaction is low for the site.
- **Lateral Spreading:** Areas subject to lateral spreading are typically gently sloping or flat sites underlain by liquefiable sediments adjacent to an open face (such as riverbanks or bay fronts). Liquefied soil adjacent to open faces may "flow" in that direction, resulting in lateral displacement and surface cracking. There is no potential for the site to be affected by lateral spreading.
- **Fault Surface Rupture:** We did not find evidence of faults through the site or on maps of the area. We conclude that the potential for fault surface rupture at the site is low over the life of the structure.

7.3 FOUNDATION SUPPORT – SHALLOW SPREAD FOOTINGS

7.3.1 General

Conventional shallow spread footings bearing on undisturbed, glacially consolidated material or on an improved subgrade will provide adequate support for the anticipated building loads.

Fill, composed of silty sand or sandy silt with variable amounts of gravel, was encountered across the site to depths between 2 and 14.5 feet BGS at the boring locations. Explorations on the upper grass terrace (B-1 through B-4) encountered fill to depths between approximately 2.5 and 7 feet BGS. The borings on the upper grass terrace behind the existing retaining walls (B-5 through B-7) encountered fill to depths between 9.5 and 14.5 feet BGS. The fill is generally loose and is not suitable for foundation support.

Grading plans were not available at the time of this report. Preliminary plans indicate two building layouts are being considered. The amount of over-excavation and subgrade improvement measures necessary for foundation construction will depend on location as the depth of fill varies across the site.

The majority of the new campus facility is located on the upper terrace, north of the existing school and retaining wall location, as shown in Appendix B. The proposed main building occupying the north and west portions of the site has a planned finish floor elevation of 378 feet and the south portion of the school, the gymnasium, and commons area has a planned finish floor elevation of 366 feet. The south wall between the gymnasium and main building will be a new retaining wall up to approximately 12 feet in height. The new retaining wall is to the north of the existing retaining wall, which will need to be removed for site grading. The site grading and removal of the existing retaining wall should result in removal of the loose fill encountered behind the existing wall.

We anticipate that site grading may remove portions of the loose fill across the site but that loose fill will still be present in other areas. Ground improvement consisting of over-excavation and replacement of the loose fill in some areas of the site will be necessary to provide a stable subgrade beneath foundation elements. Final building layout will have an impact on the anticipated amount of over-excavation to remove loose fill soil. We recommend that GeoDesign review final grading plans.

Over-excavations beneath foundation elements should be backfilled with stabilization material as discussed in the "Subgrade Preparation" section. Over-excavations should also extend 6 inches laterally beyond the edges of the foundations for each foot excavated below the planned bottom of footing.

7.3.2 Dimensions and Capacities

Continuous and isolated spread footings should be at least 18 and 24 inches wide, respectively. The bottom of exterior footings should be at least 18 inches below the adjacent exterior grade for frost heave protection, and interior footings should be at least 12 inches below the top of the slab.

Foundations supported on properly compacted structural fill, placed as a result of over-excavation of unsuitable soil, overlying dense glacial till may be designed for an allowable bearing pressure of 3,000 psf. This is a net bearing pressure; the weight of the footing and overlying backfill can be ignored in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads and may be increased by one-third for short-term loads, such as those resulting from wind or seismic forces.

At the brace frame footing locations we anticipate that dense/hard, glacially consolidated material will be encountered, except at the northeast corner area of the main building area. At the northeast brace frame locations over-excavation of up to 3 feet may be required to expose the glacially consolidated material.

For the brace frame foundations supported on the dense/hard glacial till, or a maximum 4-foot-thick layer of controlled density fill or crushed rock aggregate, we recommend using an allowable bearing pressure of 6,000 psf. Controlled density fill should have a minimum unconfined compressive strength of 150 psi and the crushed rock aggregate should consist of stabilization material that consists of either WSS 9-03.9(2) – Permeable Ballast or WSS 9-13.7(2) – Backfill for Rock Wall compacted to a dense, firm, and unyielding condition.

7.3.3 Resistance to Sliding

Wind, earthquakes, and unbalanced earth loads will subject the proposed structures to lateral forces. Lateral loads on footings can be resisted by passive earth pressure on the sides of the structures and by friction on the base of the footings. An allowable passive resistance may be calculated as a triangular equivalent fluid pressure distribution, using an equivalent fluid density of 300 pcf, provided the footings are cast directly against properly placed and compacted structural fill and the footing is above the groundwater table.

Adjacent floor slabs, pavement, or the upper 12-inch depth of adjacent, unpaved areas should not be considered when calculating passive resistance. For footings in contact with granular backfill, a coefficient of friction equal to 0.35 may be used. A safety factor of 1.5 has been applied to the recommended sliding friction and passive pressure.

7.3.4 Settlement

Based on our analysis, total post-construction static (consolidation-induced) settlement for conventional and semi-rigid foundation systems should be less than ¾ inch, with differential settlement of up to ½ inch.

7.4 CONCRETE SLAB ON GRADE

Satisfactory subgrade support for floor slabs at the existing site grade will require over-excavation to a depth of 8 inches below the bottom of the proposed slab, scarifying the exposed subgrade, and compacting it to a dense and unyielding condition. An 8-inch-thick layer of floor slab base rock as defined in the "Fill Materials" section, should then be placed to establish the bottom of floor slab elevation. A 4-inch-thick layer of capillary break material should be placed over the floor slab base rock.

Where concrete slabs are designed as beams on an elastic foundation, the properly prepared subgrade should be assumed to have a modulus of subgrade reaction of 200 pci.

A vapor barrier product (such as Vapor Block BB-10 or VB-15) should be placed directly over the floor slab base rock. Edges of the vapor barrier, between adjoining pieces, should be properly sealed.

We recommend that exterior slabs, such as those for walkways, be structurally independent from the foundation of the structures. This will allow minor movement of the slabs to occur as a result of vehicular loading, tree root growth, seasonal soil shifting, and other factors, while reducing the potential for slab cracking around the perimeter. Interior slabs may be tied to the foundation system of the structures.

7.5 BELOW-GRADE WALLS AND RETAINING WALLS

7.5.1 General

The following recommendations should be used for the design of retaining walls or below-grade walls that are used to accommodate grade changes, including temporary shoring or shielding. Our retaining wall design recommendations are based on the following assumptions: (1) the walls consist of conventional, cantilevered or embedded building walls, (2) the walls are less than 12 feet in height, (3) the backfill is drained and consists of imported granular material, and (4) the backfill has a slope flatter than 4H:1V. Re-evaluation of our recommendations will be required if the retaining wall design criteria for the project varies from these assumptions.

Walls located in level ground areas should be founded at a depth of 18 inches below the adjacent grade. If the ground descends in front of the wall up to 2H:1V, a minimum embedment depth of 4 feet is required.

7.5.2 Design Parameters

Lateral earth pressures for design of retaining structures should be estimated using an equivalent fluid density of 35 pcf, provided the walls will not be restrained against rotation when backfill is placed. If the walls will be restrained from rotation (i.e., basement walls internally braced by first floor slab), we recommend using an equivalent fluid density of 55 pcf. Walls are assumed to be restrained if top movement during backfilling is less than H/1,000, where H is the wall height.

Static lateral earth pressures acting on walls should also be increased to account for seismic loading. The seismic pressure should be estimated as follows:

- For yielding retaining walls and active soil conditions, a value of six times the height of the wall: 6H (psf)
- For rigid, non-yielding walls and at-rest soil conditions, a value of nine times the height of the wall: 9H (psf)

The height of the wall used in the above equations should be measured from the finished ground surface in front of the wall to the top of the wall. The seismic pressure for cantilever retaining walls should be applied as a uniform rectangular pressure from the top of the wall to the elevation of the finished ground surface in front of the wall and the resultant should be applied at 0.6H of the exposed wall height.

The recommended lateral earth pressures do not account for surcharges. If surcharges (e.g., building foundations, vehicles, terraced walls, etc.) are located within a horizontal distance from the back of a wall equal to twice the height of the wall, additional pressures will need to be accounted for in the wall design. Our office should be contacted for appropriate wall surcharges based on the actual magnitude and configuration of the applied loads.

These recommendations are based on the assumption that adequate drainage will be provided behind below-grade walls and retaining structures, as discussed below. The values for soil bearing, frictional resistance, and passive resistance presented above for foundation design are applicable to retaining wall design.

7.5.3 Drainage

Positive drainage should be provided behind below-grade walls and retaining walls by placing a minimum 1.5-foot-wide zone of free-draining backfill directly behind the wall. The free-draining backfill should meet the criteria for WSS 9-03.12(4) – Gravel Backfill for Drains. The free-draining backfill zone should extend from the base of the wall to within 2 feet of the finished ground surface. The top 2 feet of fill should consist of relatively impermeable or native soil to prevent infiltration of surface water into the wall drainage zone.

A minimum 4-inch-diameter, perforated drainpipe should be installed within the free-draining material at the base of each wall. The drainpipe should consist of smooth-walled, perforated or slotted PVC pipe. The pipes should be laid with minimum slopes of 0.5 percent and routed to a suitable discharge location. The pipe installations should include a cleanout riser with cover located at the upper end of each pipe run. The cleanouts could be placed in flush-mount access

boxes. We recommend against discharging roof downspouts into the perforated pipe providing wall drainage. Collected downspout water should be routed to appropriate discharge points in separate pipe systems.

For exterior walls where seepage at the face of a wall is not objectionable, the walls can be provided with weep holes to discharge water from the free-draining wall backfill material. The weep holes should be a minimum of 3 inches in diameter and spaced approximately every 8 feet center-to-center along the base of the walls. The weep holes should be backed with galvanized heavy wire mesh to help prevent loss of the backfill material.

7.5.4 Retaining Wall Backfill

Backfill should be placed and compacted as recommended for structural fill and retaining wall select backfill, with the exception of backfill placed immediately adjacent to walls. Backfill adjacent to walls should be compacted to a lesser standard to reduce the potential for generation of excessive pressure on the walls. Backfill located within a horizontal distance of 3 feet from the retaining walls should be compacted to approximately 92 percent of the maximum dry density, as determined by ASTM D1557. Backfill placed within 3 feet of the wall should be compacted in lifts less than 6 inches thick using hand-operated tamping equipment (such as a jumping jack or vibratory plate compactor). If flatwork (slabs, sidewalk, or pavement) will be placed adjacent to the wall, we recommend that the upper 2 feet of fill be compacted to 95 percent of the maximum dry density, as determined by ASTM D1557.

7.5.5 Settlement

Settlement of up to 1 percent of the wall height commonly occurs immediately adjacent to the wall as the wall rotates and develops active lateral earth pressures. Consequently, we recommend that construction of flatwork adjacent to retaining walls be postponed at least four weeks after construction, unless survey data indicates that settlement is complete prior to that time.

7.6 PAVEMENT DESIGN – DENSE AC

7.6.1 General

We anticipate dense AC pavement will be used to construct access/driveway roadways. We understand that the access roadway will be subjected to light truck traffic or bus traffic and that the parking areas will be subjected primarily to automobile traffic. The exposed subgrade should be prepared as recommended in the "Subgrade Preparation" section.

The dense AC should be Class B PG 58V-22, with ½-inch aggregate, gradation, and asphalt requirement in accordance with the specifications provided in WSS 9-03.8(6) – HMA Proportions of Materials and compacted to 91 percent of the maximum specific gravity of the mix, as determined by ASTM D2041. Minimum lift thickness for ½-inch HMA is 1.5 inches. Asphalt binder should be performance graded and conform to PG 58V-22. The aggregate base material should meet the specifications for aggregate base rock provided in the "Structural Fill" section. The subgrade should be compacted to at least 95 percent of the maximum dry density, as determined by ASTM D1557.

These recommendations are based on general assumptions regarding anticipated traffic and assume adequate subgrade and drainage conditions. Pavement materials and placement should conform to the WSS (2020). We recommend the following pavement sections.

7.6.2 Access Roadway

We recommend a pavement section consisting of 4 inches of AC over 6 inches of 1¼-inch-minus crushed rock in accordance with WSS 9-03.9(3) – Crushed Surfacing. Alternatively, an applicable pavement section using ATB would consist of 4 inches of ATB and 4 inches of AC.

7.6.3 Parking Areas

In areas limited to automobile traffic only, we recommend a pavement section consisting of 2.5 inches of AC over 4 inches of 1¼-inch-minus crushed rock in accordance with WSS 9-03.9(3) – Crushed Surfacing. Alternatively, an applicable section using ATB would consist of 3 inches of ATB and 2.5 inches of AC.

7.7 PERMEABLE PAVEMENT

We understand porous HMA or pervious PCC pavement may be incorporated into the project to address stormwater management. Provided below are recommendations for the use of permeable pavement in walkway or parking areas.

7.7.1 Recommended Pavement Section

Appropriate permeable pavement sections composed of pervious PCC or permeable HMA, based on the assumed traffic loading for parking areas, are provided in Table 2.

Table 2. Permeable Pavement Sections

Layer	Porous HMA Section (inches)	Alternate Porous HMA Section (inches)
Permeable HMA		
Porous Asphalt Wearing Layer	2[1]	3[1]
ATPB	3	--
Choker	--	2 maximum
Storage Aggregate	6 minimum	10 minimum
Pervious PCC		
Pervious Concrete Slab	7	--
Storage Aggregate	5 minimum	--

1. For driveway areas the recommended thickness shown in the table should be increased by a minimum of 1 inch.

The use of a choker course is provided under "Alternate Porous HMA Section" in Table 2. A choker course layer will facilitate grading; without it the exposed storage aggregate is susceptible to rutting under the dump trucks and may require hand grading during paving operations. The thickness of the storage aggregate layer is a minimum thickness required for structural support of the pavement. The thickness may need to be increased based on hydraulic storage requirements.

7.7.2 Subgrade Preparation

The subgrade for permeable pavement can be sloped up to approximately 2 percent but should be relatively flat, if possible, to prevent uneven ponding of water within the storage aggregate. On sloping sites the subgrade can be stepped and the lowest step should be flat or sloped back into the hill 1 to 2 percent to help decrease downslope seepage from the storage aggregate layer.

The native subgrade should be protected to limit construction traffic over it. If construction traffic is routed over the exposed subgrade, prior to placing the storage aggregate, it should be scarified to a depth of 12 inches and compacted to a firm condition under the direction of the geotechnical engineer. We recommend compacting the exposed subgrade to between 90 and 92 percent of the maximum dry density, as determined by ASTM D1557.

If soft areas are identified during subgrade preparation or areas deflect under construction equipment traffic, the material should be excavated and replaced with storage aggregate.

Utilities within the parking area should be backfilled with storage aggregate or alternatively clean sand and gravel fill meeting WSS 9-03.12(2) – Gravel Backfill for Walls. Trench dams should be placed intermittently to prevent lateral flow from concentrating within the pipe bedding. The trench dams can be constructed using native silty sand and gravel, controlled density fill, or lean-mix concrete.

Exposed subgrades will be moisture sensitive and deteriorate under construction traffic loading during wet conditions. If earthwork construction is expected to extend into the wet season, we recommend limiting the size of the work area and stabilizing the exposed surface by placing the storage aggregate to protect the subgrade. Construction traffic should be minimized or restricted from trafficking over the permeable pavement subgrade.

A geotextile should be placed between the storage aggregate and the underlying subgrade for separation. Beneath the roadway a heavy-duty geotextile with high permittivity and flow rate should be used, as specified in the "Permeable Pavement Materials" section.

After subgrade preparation measures are completed, the infiltration rate of the prepared subgrade should be verified through in situ infiltration tests using small-scale PITs or large-diameter ring tests in accordance with test procedures provided in Puget Sound Partnership (2012). A minimum of four tests should be completed and they should be spread around the site. We can provide an average short-term rate that the verification tests should meet after we complete in situ infiltration tests to support the design of LID BMP elements.

7.7.3 Permeable Pavement Materials

7.7.3.1 Pervious PCC

Pervious concrete typically consists of a near-zero-slump concrete consisting of portland cement, coarse aggregate with little to no fines, various admixtures, and water. The design of the mix should conform to ACI 522.1-08 specification (ACI, 2013). We recommend a maximum of ½-inch aggregate for roadway applications; however, other aggregate sizes may be preferred depending on the desired surface texture.

7.7.3.2 Porous HMA

AC used for porous asphalt pavement should be designed as a ½- to ¾-inch, nominal, open-graded HMA. Selection of the preferred aggregate size should be based on the desired surface texture and the required layer thickness limitations. Approximate "broad band" gradations for recommended aggregate gradation for porous asphalt are provided in Table 3.

Table 3. Porous HMA Gradation (3/8 inch)

Sieve Size	3/8 inch Percent Passing	½ inch Percent Passing	¾ inch Percent Passing
1 inch	--	--	99 – 100
¾ inch	--	100	85 – 96
½ inch	99 – 100	90 – 98	55 – 71
3/8 inch	90 – 100	55 – 90	--
#4	22 – 40	10 – 40	10 – 24
#8	5 – 15	0 – 13	6 – 16
#200	0 – 3	0 – 3	0 – 3
Recommended Maximum Layer Thickness (inches)	2.5	3	4

The actual mix design should be completed under the direction of a competent mix design technician familiar with the WSDOT mix design procedures. The asphalt binders to construct porous asphalt pavement should be PG 70-22ER.

The preferred and recommended asphalt binder is PG 70-22ER (polymer modified); however, its availability can be limited because some of the local asphalt suppliers limit their on-hand binder to PG 64-22. PG 70-22ER is available but is typically stocked by asphalt suppliers for a specific project, which requires pre-ordering it so that it is available when needed. Suppliers prefer a project size of approximately 600 tons of asphalt in order to use a complete tanker volume of the binder. Its availability and use is further restricted to the warm months of the year because of its stiffness, so it is not readily available between October and May. Projects specifying PG 70-22ER should be scheduled accordingly and specifications should address supplier availability.

The binder should be between 6.0 and 6.5 percent of the pavement section by weight of total (dry aggregate) mix.

Warm-mix asphalt technology with a proper mix design and appropriate additives can be used to construct the porous asphalt. Use of the warm-mix additives may require a longer "curing" time for the asphalt prior to allowing cars to traffic over the surface.

Compaction of the porous asphalt should consist of approximately two to four complete passes by an 8-ton, dual-steel roller compactor working in static mode only. Compaction of the porous

asphalt should be to a target air voids content of 15 to 18 percent (82 to 85 percent of maximum theoretical [Rice] density). A nuclear density gage should be used to monitor compaction.

We recommended that porous asphalt specifications are prepared in conformance with those approved by the APWA-WA Construction Materials Committee. The specifications have now been integrated into the WSDOT Local Agency GSPs and are now available at http://www.wsdot.wa.gov/partners/apwa/Division_5_Page.htm.

7.7.3.3 Choker Aggregate

Imported granular material used as choker aggregate beneath permeable pavements should be clean crushed rock that meets a No. 57 size gradation according to AASHTO M 43, as provided in Table 4.

Table 4. Permeable Pavement Choker Aggregate (AASHTO No. 57)

Sieve Size	Percent Passing
1½ inches	100
1 inch	95 – 100
½ inch	25 – 60
No. 4	0 – 10
No. 8	0 – 5

The percent fracture should be a minimum of 75 percent and a minimum of two fracture faces.

Alternatively, aggregate for bituminous surface treatment [WSS 9-03.4(2) – Grading and Quality], 5/8-inch or 3/4-inch washed crushed rock, which is available from local suppliers, will also be suitable. The aggregate should have at least two mechanically fractured faces.

7.7.3.4 Storage Aggregate

Imported granular material used as storage aggregate beneath pervious pavement should be clean crushed rock or crushed gravel and sand that meets a No. 2 or No. 3 size gradation according to AASHTO M 43 or clean crushed rock that conforms to WSS 9-03.9(2) – Permeable Ballast. Recommended gradations for acceptable storage aggregate are provided in Table 5.

Table 5. Storage Aggregate

Sieve Size	AASHTO No. 2 Percent Passing	AASHTO No. 3 Percent Passing	WSS 9-03.9(2) – Permeable Ballast Percent Passing
2 ½ inches	100	100	90 – 100
2 inches	35 – 70	90 – 100	65 – 100
1 ½ inches	0 – 15	35 – 70	--
1 inch	--	0 – 15	40 – 80
¾ inch	0 – 5	--	--
½ inch	--	0 – 5	--
No. 4	--	--	0 – 5

"Rail ballast" or "clean ballast" products available from local quarries will typically meet the AASHTO gradation criteria. The percent fracture should be greater than 75 percent to improve interlocking between fragments, and the aggregate should have a minimum WSS degradation value of 30. We anticipate that the storage aggregate gradations specified above will have between 35 and 40 percent voids compaction in the field.

The storage aggregate should be placed in one lift and compacted to a firm and unyielding condition. Over-compaction and construction traffic should be avoided.

7.7.4 Subgrade Geotextile

A layer of geotextile fabric should be placed as a barrier between the native soil subgrade and the pavement storage aggregate. Beneath drive lanes a heavy-duty geotextile, such as Mirafi RS380i, should be used and equivalent products should conform to WSS 9-33.2(1) – Geotextile Properties, Table 4, Permanent Erosion Control, High Survivability, Woven and Table 5, Class A. Elsewhere the geotextile should conform to the specifications for non-woven separation material provided in WSS 9-33.2(1) – Geotextile Properties, Table 3, Geotextile for Separation. The geotextile should be installed in conformance with the specifications provided in WSS 2-12 – Construction Geosynthetic.

8.0 SITE DEVELOPMENT

8.1 GENERAL

The campus area is essentially developed with existing school buildings, retaining walls, AC-paved parking area, and hardscape areas. Site preparation will generally include demolition of the existing building area and site grading to the required subgrade elevations.

8.2 SITE PREPARATION

Site preparation activities will include demolishing the existing buildings, utilities, and pavement; removing vegetation and undesirable material; site grading; and subgrade preparation. Recommendations for these activities are discussed in the following sections.

8.2.1 Removal of Existing Paving, Building Slabs, Foundations, and Utilities

We understand the existing structures and areas to be improved will be demolished to prepare the site for construction of the new campus. The existing improved surfaces (which include AC and PCC pavement) along with building slabs and foundations should be removed as necessary for construction. Removal of existing pavement should be completed or scheduled so that it can be left in place during construction for as long as possible to protect the underlying subgrade from deterioration during wet weather.

Grinding the existing AC paving material in place and stockpiling it for use on site outside of building areas is possible, provided the material meets the applicable requirements indicated in the "Fill Materials" section for "on-site recycled AC pavement." The thickness of the AC encountered at the boring locations within paved areas varies from 1 inch to 2.5 inches.

PCC pavement and rubble from demolished floor slabs, sidewalks, foundations, or walls can be crushed and processed on site and may be used as fill in future paved and floor slab areas, provided the material meets the applicable requirements indicated in the "Fill Materials" section.

Existing building foundations should be removed. Voids or depressions created during removal of foundations that will be below planned finish grades should be filled with material appropriate for the location (i.e., structural fill and within all building, pavement, and hardscape areas). As-built drawings for the existing school indicate that some existing footings extend to depths up to 8 feet below existing finish floor, likely to extend to the undistributed glacial till below the original ground surface. As-built drawings detailing the existing retaining wall should be included in the construction documents as the foundation is fairly large and may require significant effort to remove.

Existing utilities that will be abandoned should be removed or abandoned in place by filling with a flowable mixture of PCC and sand grout. Excavations resulting from the removal of existing utilities should be backfilled and properly compacted in accordance with the appropriate specifications for the location.

8.2.2 Subgrade Preparation

After demolition, site grading should be completed to the required elevations. Based on the results of our explorations, we anticipate variable soil conditions will be exposed across the site consisting of loose to medium dense fill or dense glacial till.

Over-excavation and replacement of the loose to medium dense fill will be necessary to provide adequate support for building foundations, as discussed in the "Foundation Support – Shallow Spread Footings" section. A geotextile fabric meeting the specifications provided in WSS 9-33.2 – Geosynthetic Properties should be placed at the bottom of over-excavations when wet soil conditions are encountered.

Subgrade preparation beneath floor slab, dense AC pavement, and hardscape areas should consist of scarifying to a depth of 12 inches, moisture conditioning, and compacting the subgrade. The subgrade should be compacted to 95 percent of the maximum dry density, as determined by ASTM D1557. Based on soil moisture contents observed in samples collected

from the explorations, this will require moisture conditioning of the subgrade. Soil moisture should be maintained within 2 percent of the optimum moisture content to achieve the required compaction.

The exposed subgrade will consist of silty sand and gravel and sandy silt with gravel with a high fines content. The subgrade will be moisture sensitive and will deteriorate under construction traffic loading during wet weather.

If earthwork construction is expected to extend into the wet season, we recommend stabilizing the building area and a surrounding 15-foot perimeter by either over-excavating the area and constructing a 12-inch-thick gravel pad or stabilizing with cement-amended soil overlain by 4 inches of crushed rock.

8.2.3 Site Grading

Fill required to increase site grades in improved areas should consist of structural fill as defined in the "Fill Materials" section. The use of on-site excavation spoils as structural fill will be dependent on the material composition and weather conditions. We anticipate that some of the on-site material will be suitable for use but will be limited to use during the dry season. It will be prudent to provide a 12-inch-thick cap of imported structural fill over areas where on-site soil is used as fill to protect it against deterioration during wet weather.

Fill in unimproved areas, with slopes less than 3H:1V, may consist of common fill or on-site excavation spoils. Common fill placed in landscape of unimproved areas should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and compacted to not less than 90 percent of the maximum dry density, as determined by ASTM D1557.

8.2.4 Subgrade Verification

Exposed subgrades should be evaluated by a representative from GeoDesign to verify conditions are as anticipated and will provide the required support. Where pavement or hardscaped areas will be constructed, the exposed subgrade should be evaluated by proof rolling. The subgrade should be proof rolled with a fully loaded dump truck or similar heavy, rubber tire construction equipment to identify soft, loose, or unsuitable areas. Beneath foundations and during wet weather, subgrade evaluation should be performed by probing with a foundation probe. If soft or loose zones are identified, these areas should be excavated to the extent indicated by the engineer or technician and replaced with structural fill or stabilization material.

8.3 EXCAVATION

8.3.1 Shallow Excavation

The soil at the site can be excavated with conventional earthwork equipment. Excavations should stand vertical to a depth of approximately 4 feet, provided groundwater seepage is not observed in the trench walls.

Open excavation techniques may be used to excavate utility trenches with depths greater than 4 feet, provided the walls of the excavation are cut at appropriate cut slopes determined by the contractor. Approved temporary shoring is recommended where sloping is not possible. If a conventional shield is used, the contractor should limit the length of open trench. If shoring is

used, we recommend that the type and design of the shoring system be the responsibility of the contractor, who is in the best position to choose a system that fits the overall plan of operation and the subsurface conditions. All excavations should be made in accordance with applicable OSHA, local, and state regulations.

8.3.2 Excavations Adjacent to Foundations

Utility excavation should be planned to avoid excavation within the zone of influence beneath foundation elements. The zone of influence generally extends downwards from the foundation edges at a 1.5H:1V inclination. Excavations within this area should be avoided, if necessary, or they should be backfilled with controlled density fill and should be completed before installing the foundation.

8.3.2 Excavation Dewatering

We anticipate perched groundwater will be encountered in excavations based on the conditions observed in the borings. Perched water was is anticipated in the fill material overlying the dense glacial till, particularly during periods of wet weather. We recommend that the contractor be responsible for selecting the appropriate temporary dewatering systems.

8.4 VIBRATION MONITORING

Due to the proximity of residential structures, we anticipate that there is a high likelihood that vibration monitoring may be warranted during heavy earthwork construction to proactively address potential complaints or claims associated with construction-induced ground vibrations. We recommend a proactive approach with neighborhood stakeholders to educate them on potential construction impacts and associated perceptible ground vibrations before construction begins. Humans can perceive ground vibrations that can be bothersome, but are at levels below levels that could potentially cause architectural damage and far below levels that could cause structural damage. A proactive approach will educate them on what to expect with the work and provide them with information on who to contact to address any issues that may develop.

To establish a baseline prior to construction we completed a baseline study during our geotechnical explorations. We used an Instantel MiniMate Plus and triaxial geophone to help determine if there are any noticeable vibrations not caused by construction at the predetermined locations. The vibration monitor was placed at two locations near the adjacent residential properties; the approximate locations are shown on Figure 2.

The PPV of background activities that was measured at the test locations was 0.015 inches per second (0.381 millimeters per second). The test results are presented in Appendix D. These baseline readings can be used during construction if vibration monitoring is needed.

Research and empirical studies have been used to establish several standards that define PPV threshold values for limiting the potential for cosmetic or structural damage for various types of structures. The threshold values are dependent on the type of vibration, whether it is a transient source (such as blasting), or whether it is a continuous of frequent intermittent source (such as vibratory plate compactors, vibratory pile driving, or vehicular traffic). The ground vibrations anticipated during the construction activities at Northgate Elementary School will generally fall into the continuous/frequent intermittent source category, typically due to vibratory compactors.

A synthesis of various published vibration criteria and international standards that are used to limit the potential for structure damage, based on continuous or frequent intermittent vibration sources, is presented in Table 6.

Table 6. Vibration Limits for Structural Damage (from Jones and Stokes, 2004)

Structure Category	PPV (inches per second)
Modern industrial/commercial buildings	0.5
New residential structures	0.5
Older residential structures	0.3
Historic and some old buildings	0.25
Fragile buildings	0.1
Extremely fragile historic building, ruins, ancient monuments	0.08

The synthesis includes United States and international standards and provides PPV guidelines for use in evaluating the effect of ground vibrations on structural integrity. The PPV listed provides the threshold value above which there is a recognized potential for damage to be caused by ground vibrations.

The German DIN 4150 Part 3 Standard was included in the synthesis of published standards shown in Table 7. The DIN 4150 standard also recognizes that the potential for vibration-induced damage is also dependent on the frequency of the vibration and provides additional criteria based on the frequency of the vibration.

Table 7. German DIN 4150 Part 3 Standard

	Type of Structure	PPV at Foundation (inches per second)		
		< 10 Hz	10 – 50 Hz	50 – 100 Hz
1	Industrial/commercial buildings	0.80	0.80 – 1.60	1.60 – 2.0
2	Residential houses	0.20	0.20 – 0.60	0.60 – 0.80
3	Sensitive and historic structures	0.12	0.12 – 0.30	0.30 – 0.40

The DIN 4150 guidelines are based on empirical studies and experience and are defined as "safe limits" up to which no damage due to vibration effects has been observed for a particular class of building. "Damage" is defined by DIN 4150 as to include minor non-structural damage.

8.5 FILL MATERIALS

We anticipate fill material will be required for site grading, backfilling over-excavations, pavement support, installation of utilities, and drainage. The recommended fill materials are discussed below.

8.5.1 On-Site Soil

On-site materials encountered in our explorations include fill, glacial till, and advance outwash. The on-site soil has high fines content and is sensitive to changes in moisture content and will deteriorate when exposed to wet weather.

We anticipate that some of the excavation spoils can be used as structural fill, provided construction is completed during the dry season, moisture conditioning is performed, and deleterious material (such as wood, organic matter, and man-made materials) is removed. The use of on-site soil as fill should be subject to review and approval by GeoDesign. During the wet season exposed native material will deteriorate. We recommend capping the on-site material with at least 12 inches of structural fill, hardscape base course, or stabilization material.

The on-site material free of man-made material may be used as common fill in non-structural areas, such as planter areas or unimproved areas. Moderate moisture conditioning efforts of the on-site soil may be required, depending on the weather, in order to achieve proper compaction.

8.5.2 On-Site Recycled AC Pavement

We anticipate that the on-site AC material can be milled in place for use as fill beneath paved areas outside of building areas. The AC should be milled to the approximate gradation for the type of fill it is substituted for and be used and mixed in accordance with the specifications provided in WSS 9-03.21(1)E – Table on Maximum Allowable Percent (By Weight) of Recycled Material.

8.5.3 On-Site PCC Debris

The concrete debris generated on site can be processed through crushers and also used as fill beneath paved or floor slab areas, provided it meets the required gradation criteria for the specified fill material. PCC debris should not be used beneath foundations or in landscaped areas. The debris should be milled to the approximate gradation for the type of fill being substituted and used in accordance with the specifications provided in WSS 9-03.21(1)E – Table on Maximum Allowable Percent (By Weight) of Recycled Material. For example, if the debris is being used as base course beneath paved areas, it should be milled to the specified gradation of the base course.

8.5.4 Off-Site Recycled Fill Materials

Off-site-generated recycled material should not be used on site without approval from the geotechnical engineer and acceptance by the school district. The use of recycled material will be subject to performance criteria, gradation requirements, and hazardous material testing in conformance with WSS 9-03.21(1) – General Requirements. Recycled material is not recommended for use beneath building foundations or floor slabs. Provided performance, gradation, and hazardous material testing results are acceptable, recycled material may be suitable for use beneath hardscape areas outside of the building footprints.

8.5.5 Structural Fill

Structural fill placed for general site grading in improved areas should consist of clean, free-draining granular soil (sand and gravel) that is free from organic matter or other deleterious and man-made materials, with a maximum particle size of approximately 3 inches and a

maximum fines content of 5 percent by dry weight passing the U.S. Standard No. 200 sieve. The use of granular, free-draining material will increase the workability of the material during the wet season and the likelihood that the material can be placed and adequately compacted.

Imported granular material used for structural fill should be naturally occurring pit- or quarry-run rock, crushed rock, or crushed gravel and sand and should meet the specifications provided in WSS 9-03.14(1) – Gravel Borrow, with the exception that the percentage passing the U.S. Standard No. 200 sieve does not exceed 5 percent by dry weight. Structural fill should be placed in lifts with a maximum uncompacted thickness of 12 inches and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

8.5.6 Common Fill

Fill placed in areas of the site where structural support is not required (such as planters, landscaped areas, and detention ponds) is defined as "common fill." Common fill may contain a higher concentration of fines and organic matter than structural fill but should be free of man-made material. Imported common fill should meet the specifications provided in WSS 9-03.14(3) – Common Borrow. On-site materials used for common fill should have an organic matter content less than 20 percent. Fill placed in non-structural areas should be compacted to a minimum of 90 percent of the maximum dry density, as determined by ASTM D1557.

8.5.7 Hardscape and Pavement Base Course

Imported granular material used as aggregate base for pavement and beneath hardscape areas should consist of 1½-inch-minus material meeting the specifications provided in WSS 9-03.9(3) – Crushed Surfacing, with the exception that the aggregate should have less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve and at least two mechanically fractured faces. The imported granular material should be placed in lifts with a maximum uncompacted thickness of 12 inches and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

8.5.8 Trench Backfill

Trench backfill for utility trenches should consist of and be compacted in accordance with the specifications for structural fill in improved areas and for common fill in non-structural areas. Trenches within the right-of-way should be bedded and backfilled with 5/8-inch-minus screened crushed rock meeting the specifications provided in WSS 9-03.9(3) – Crushed Surfacing.

Trench backfill within the zone of influence of adjacent or overlying foundations should be backfilled with controlled density fill.

Trench bedding material should also consist of 5/8-inch-minus screened crushed rock meeting the specifications provided in WSS 9-03.9(3) – Crushed Surfacing.

8.5.9 Stabilization Material

Stabilization material to backfill over-excavations or to stabilize soft subgrade areas may consist of either of the following:

- WSS 9-03.9(2) – Permeable Ballast
- WSS 9-13.7(2) – Backfill for Rock Wall

The initial lift of stabilization material used to fill over-excavations should be 18 inches thick and compacted to a firm condition. Successive lifts should be 12 inches thick and compacted to a dense and unyielding condition.

8.5.10 Drain Rock

Drain rock used in infiltration systems, subsurface drains, or against retaining walls should consist of granular material with a maximum particle size of 1 inch and should meet the specifications provided in WSS 9-03.12(4) – Gravel Backfill for Drains. The material should be free of roots, organic matter, and other unsuitable materials and have less than 2 percent by dry weight passing the U.S. Standard No. 200 sieve (washed analysis).

8.5.11 Retaining Wall Select Backfill

Backfill material placed behind retaining walls and extending a horizontal distance of ½H, where H is the height of the retaining wall, should consist of select granular material that meets the specifications provided in WSS 9-03.12(2) – Gravel Backfill for Walls. We recommend the select granular wall backfill be separated from general fill, native soil, and/or topsoil using a geotextile fabric that meets the specifications provided in WSS 9-33.2 – Geosynthetic Properties for drainage geotextiles.

8.5.12 Floor Slab Base Rock

Imported granular material placed beneath building floor slabs should be clean, crushed rock or crushed gravel and sand that is fairly well graded between coarse and fine. The granular material should contain no deleterious materials, have a maximum particle size of 1½ inches and less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve, have at least two mechanically fractured faces, and should meet the specifications provided in WSS-9-03.9(3) – Crushed Surfacing. The imported granular material should be placed in one lift and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D1557.

8.6 GEOSYNTHETICS

We have recommended the use of geotextiles for stabilizing the base of over-excavations when wet or saturated soil conditions are encountered and as a separator between subsurface drainage material and native material or fill. The geotextiles should be installed in conformance with the specifications provided in WSS 2-12 – Construction Geosynthetic.

8.6.1 Stabilization Geotextile

We recommend using a woven geotextile stabilization material at the base of over-excavations and to stabilize the exposed subgrade beneath paved areas if construction is completed during the wet season. The geotextile should conform to the specifications for woven soil stabilization material provided in WSS 9-33.2(1) – Geotextile Properties, Table 3, Geotextile for Separation or Soil Stabilization.

Beneath permeable pavement areas subject to vehicular traffic we have recommended the use of a geotextile to reinforce the subgrade and act as a barrier between the native soil subgrade and

the pavement storage aggregate. The recommended geotextile is a heavy-duty geotextile, such as Mirafi RS380i, or equivalent and should conform to WSS 9-33.2(1) – Geotextile Properties, Table 4, Permanent Erosion Control, High Survivability, Woven and Table 5, Class A.

8.6.2 Separation and Drainage Geotextile

We recommend using a non-woven geotextile drainage material around subsurface drains to separate drain rock from adjacent materials. The geotextile should conform to the specifications for non-woven separation material provided in WSS 9-33.2(1) – Geotextile Properties, Table 3, Geotextile for Separation or Soil Stabilization.

8.7 CONSTRUCTION STORMWATER CONSIDERATIONS

Appropriate BMPs and stormwater quality treatment will be necessary to prevent discharging stormwater to adjacent properties. Grading during construction should be completed so that water drains back onto the site and is not allowed to flow down the slope to neighboring properties and/or become concentrated.

The soil encountered on site is high in silt, which will be difficult to remove from stormwater using passive systems, such as sediment traps and ponds. Exposed native soil should be stabilized as soon as possible to prevent erosion and sedimentation.

8.8 WET WEATHER CONSIDERATIONS

This section describes additional recommendations with potential budget and schedule impacts that may affect the owner and site contractor if earthwork occurs during the wet season. These recommendations are based on the site conditions and our experience on previous construction projects completed in the area.

- The near-surface soil encountered in the explorations is typically silty sand and sandy silt. The fines content of the material is high, and the soil will be susceptible to deterioration during wet weather. If construction is completed or extends into the wet season, we recommend stabilizing the areas of the site where construction traffic is anticipated using either a gravel working pad or cement-treated soil overlain with a 4-inch-thick layer of crushed rock. Additional BMPs will be necessary in cement-treated areas and to monitor/manage the pH levels in stormwater discharge.
- Earthwork should be accomplished in small sections to minimize exposure to wet weather.
- Excavation or the removal of unsuitable soil should be followed promptly by the placement and compaction of clean structural fill.
- The size of construction equipment and access to the area should be limited to prevent soil disturbance.
- The ground surface in the construction area should be sloped and sealed with a smooth-drum roller to promote rapid runoff of precipitation, to prevent surface water from flowing into excavations, and to prevent puddles from forming.
- The building pads should be surfaced with a 12-inch-thick gravel pad consisting of stabilization material as described in the "Fill Materials" section. This layer will help protect the pads from deterioration under construction traffic during wet weather. The protected area should also extend outwards from the building pads a sufficient distance to provide stabilized access for construction equipment around the perimeter of the buildings.

- Additional excavation below planned foundation subgrades should be anticipated in order to construct a 2-inch-thick lean-mix concrete rat slab or to install a 6-inch-thick layer of crushed surfacing base course to protect the foundation subgrade from deterioration.
- Installation of sumps within excavations may be necessary to remove accumulated stormwater. The sumps should be located outside of the footing footprint and be installed to a depth sufficient to lower the water to below the excavated subgrade elevation.
- Construction of stabilized access roads using non-moisture-sensitive materials and geotextile fabric to provide separation from underlying soil should be expected.
- Increased handling, excavation, and disposal of wet and disturbed surface material should be expected.
- Protection of exposed soil subgrades and stockpiles will be required.
- Heavy rainfall can occur during winter months and can compromise earthwork schedules in this region.
- In general, snowfall is not dramatically high; however, frozen ground should not be proof rolled or compacted, and fill should not be placed over frozen ground.

9.0 OBSERVATION OF CONSTRUCTION

Recommendations provided in this report assume that GeoDesign will be retained to provide geotechnical consultation and observation services during construction. Satisfactory earthwork and foundation performance depends to a large degree on the quality of construction. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience with the site conditions and an understanding of the geotechnical recommendations; therefore, GeoDesign personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated and to verify that the work is completed in accordance with the construction drawings and specifications.

Observation and laboratory testing of the proposed fill materials should be completed to verify that proposed fill materials are in conformance with our recommendations. Observation of the placement and compaction of the fill should be performed to verify it meets the required compaction and will be capable of providing the structural support for the proposed infrastructure and buildings. A sufficient number of in-place density tests should be performed as the fill is placed to verify the required relative compaction is being achieved.

10.0 LIMITATIONS

We have prepared this report for use by Seattle Public Schools and its consultants in design of this project. The data and report can be used for bidding or estimating purposes, but our report, conclusions, and interpretations should not be construed as warranty of the subsurface conditions and are not applicable to other nearby building sites.

Exploration observations indicate soil conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

The site development plans and design details were preliminary at the time this report was prepared. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification.

The scope of our services does not include services related to construction safety precautions and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time the report was prepared. No warranty, express or implied, should be understood.

♦ ♦ ♦

We appreciate the opportunity to be of continued service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

GeoDesign, Inc.

Joe Westergreen

Joe Westergreen, P.E.
Project Engineer

Kevin J. Lamb

Kevin J. Lamb, P.E.
Principal Engineer

Signed 10/19/2020

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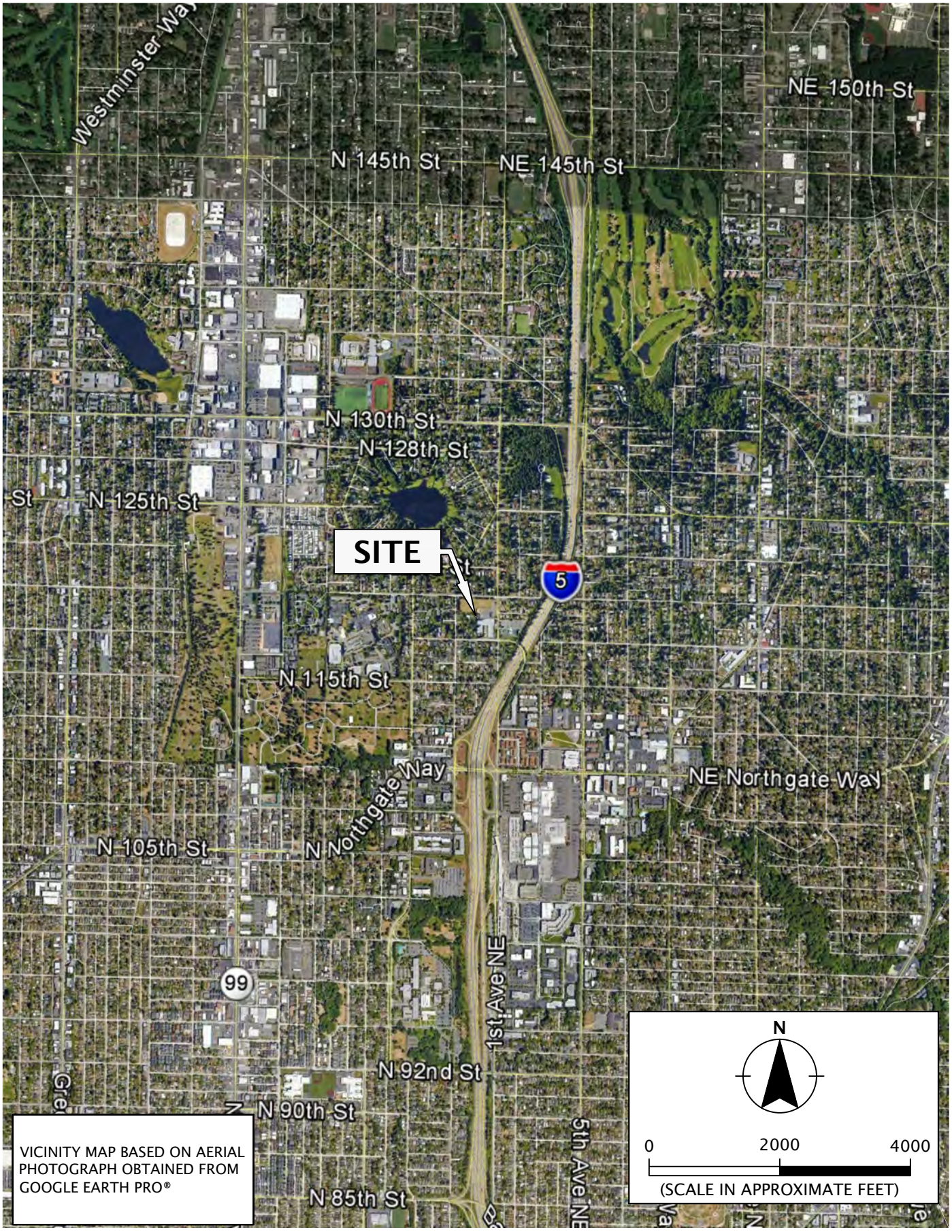
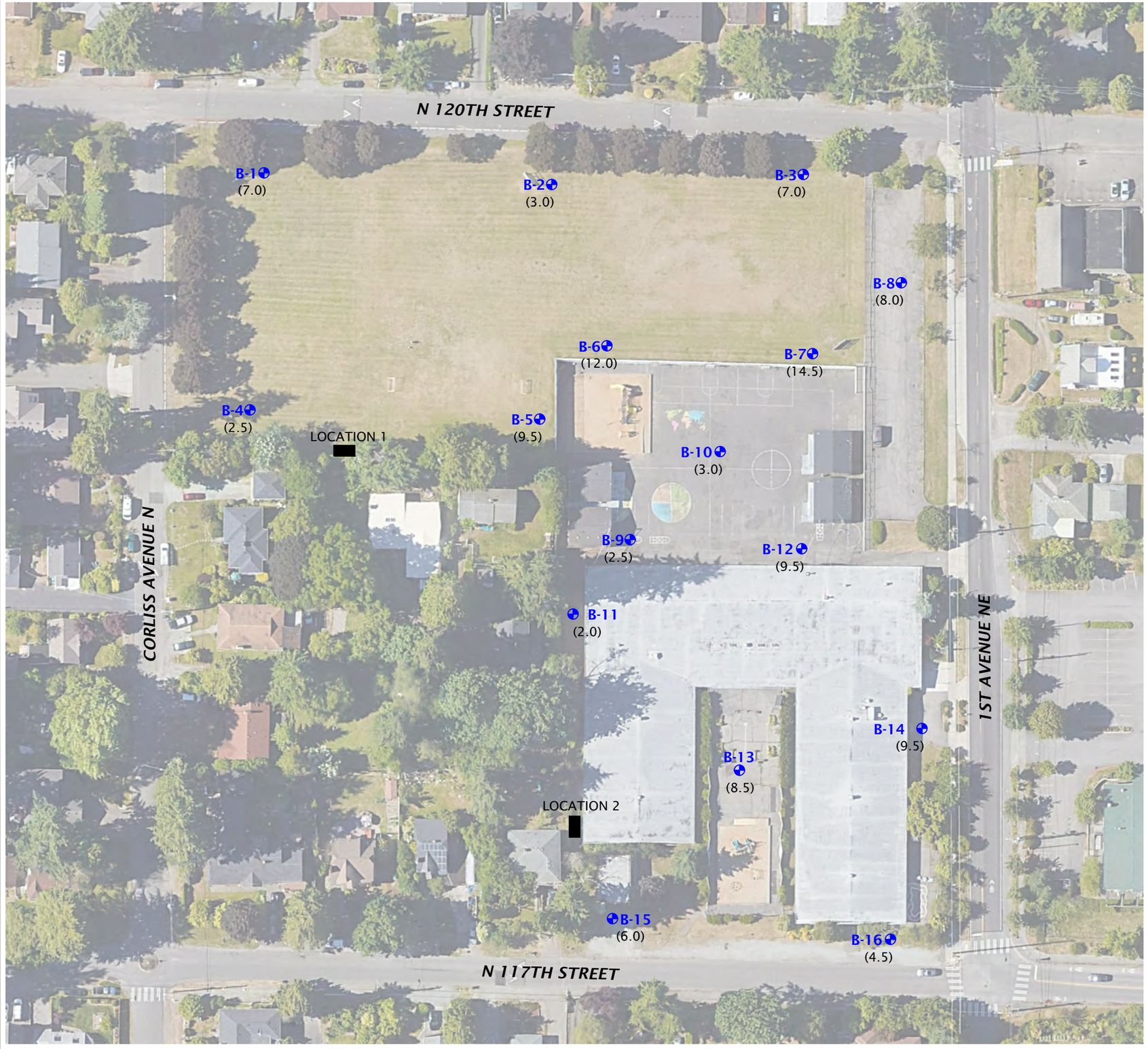
Washington State Department of Transportation, 2020. Standard Specifications for Road, Bridge and Municipal Construction. M 41-10.

FIGURES



GeoDesign Inc AN NV5 COMPANY	SEATTLEPS-11-01	**VICINITY MAP**	
	OCTOBER 2020	NORTHGATE ELEMENTARY SCHOOL SEATTLE, WA	**FIGURE 1**

Printed By: mmiller | Print Date: 10/19/2020 2:45:35 PM
File Name: J:\S-Z\SeattlePS\SeattlePS-11\SeattlePS-11-01\Figures\CAD\SeattlePS-11-01-VM01.dwg | Layout: FIGURE 1



LEGEND:

- B-1 — BORING
- (2.5) — DEPTH OF FILL (FEET BGS)
- APPROXIMATE LOCATIONS OF VIBRATING MONITORS FOR BASELINE ASSESSMENT

N

0 80 160

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, JANUARY 29, 2019

SITE PLAN

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE 2

SEATTLEPS-11-01

OCTOBER 2020

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File Name: J:\S-Z\SeattlePS\SeattlePS-11\SeattlePS-11-01\Figures\CAD\SeattlePS-11-01-SP01.dwg | Layout: FIGURE 2

APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

Subsurface conditions at the site were explored by drilling 16 soil borings (B-1 through B-16) to depths between 6.5 and 41.5 feet BGS. The borings were completed on July 15 and 16, 2019 by BoreTec1, Inc. of Valleyford, Washington, using a mini track drill rig and excavator-mounted drill rig and hollow-stem auger drilling techniques. The exploration logs are presented in this appendix. The locations of the explorations were determined in the field by using hand-held GPS equipment. This information should be considered accurate to the degree implied by the methods used.

SOIL SAMPLING

We collected representative samples of the various soils encountered in the explorations for geotechnical laboratory testing. Samples were collected from the borings using a 1½-inch-inside diameter, split-spoon sampler (SPT sampler). The split-spoon sampling was conducted in general accordance with ASTM D1586. The 1½-inch-inside diameter, split-spoon samplers were driven into the soil with 140-pound hammer free falling 30 inches. The samplers were driven a total distance of 18 inches. The number of blows required to drive the sampler the final 12 inches is recorded on the boring logs, unless otherwise noted. Sampling methods and intervals are shown on the exploration logs.

The SPT blows completed by BoreTec1, Inc. were conducted using two wraps around a cathead.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the "Exploration Key" (Table A-1) and "Soil Classification System" (Table A-2), which are presented in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change could be gradual. A horizontal line between soil types indicates an observed change. If the change was gradual the change is indicated using a dashed line. Classifications are shown on the exploration logs.

LABORATORY TESTING

CLASSIFICATION

The soil samples were classified in the laboratory to confirm field classifications. The laboratory classifications are shown on the exploration logs if those classifications differed from the field classifications.

GRAIN-SIZE ANALYSIS

We completed grain-size testing on select soil samples in order to determine the distribution of soil particle sizes. The testing was completed in general accordance with ASTM C136 and ASTM C117. The test results are presented in this appendix.

MOISTURE CONTENT

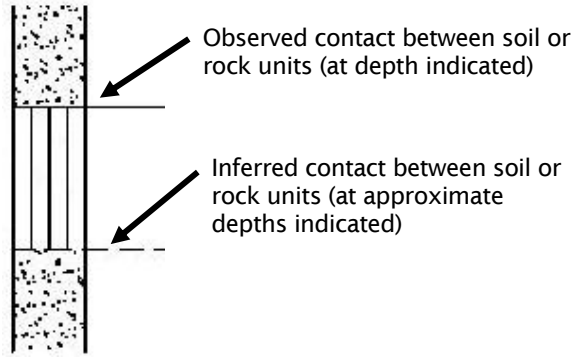
We tested the moisture content of select soil samples in general accordance with ASTM 2216. The moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The test results are presented in this appendix.

FINES CONTENT

We completed fines content testing on select soil samples in order to determine the soil characteristics. The testing was completed in general accordance with ASTM D1140. The test results are presented in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample collected in general accordance with ASTM D1586 using Standard Penetration Test with recovery
	Location of sample collected using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D1587 with recovery
	Location of sample collected using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample collected using Dames & Moore sampler and 140-pound hammer or pushed with recovery
	Location of sample collected using 3-inch-O.D. California split-spoon sampler and 140-pound hammer with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density		
DS	Direct Shear	RES	Resilient Modulus
HYD	Hydrometer Gradation	SIEV	Sieve Gradation
MC	Moisture Content	TOR	Torvane
MD	Moisture-Density Relationship	UC	Unconfined Compressive Strength
NP	Non-Plastic	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
		MS	Moderate Sheen
ppm	Parts per Million	HS	Heavy Sheen

RELATIVE DENSITY - COARSE-GRAINED SOIL

Relative Density	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very Loose	0 – 4	0 – 11	0 – 4
Loose	4 – 10	11 – 26	4 – 10
Medium Dense	10 – 30	26 – 74	10 – 30
Dense	30 – 50	74 – 120	30 – 47
Very Dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOIL

Consistency	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very Soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 – 4	3 – 6	2 – 5	0.25 – 0.50
Medium Stiff	4 – 8	6 – 12	5 – 9	0.50 – 1.0
Stiff	8 – 15	12 – 25	9 – 19	1.0 – 2.0
Very Stiff	15 – 30	25 – 65	19 – 31	2.0 – 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOIL (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVEL WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SAND (<5% fines)	SW or SP	SAND
		SAND WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SAND WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOIL (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOIL			PT	PEAT

MOISTURE CLASSIFICATION

Term	Field Test
dry	very low moisture, dry to touch
moist	damp, without visible moisture
wet	visible free water, usually saturated

ADDITIONAL CONSTITUENTS

Secondary granular components or other materials such as organics, man-made debris, etc.

Percent	Silt and Clay In: Fine-Grained Soil	Silt and Clay In: Coarse-Grained Soil	Percent	Sand and Gravel In: Fine-Grained Soil	Sand and Gravel In: Coarse-Grained Soil
< 5	trace	trace	< 5	trace	trace
5 – 12	minor	with	5 – 15	minor	minor
> 12	some	silty/clayey	15 – 30	with	with
			> 30	sandy/gravelly	Indicate %

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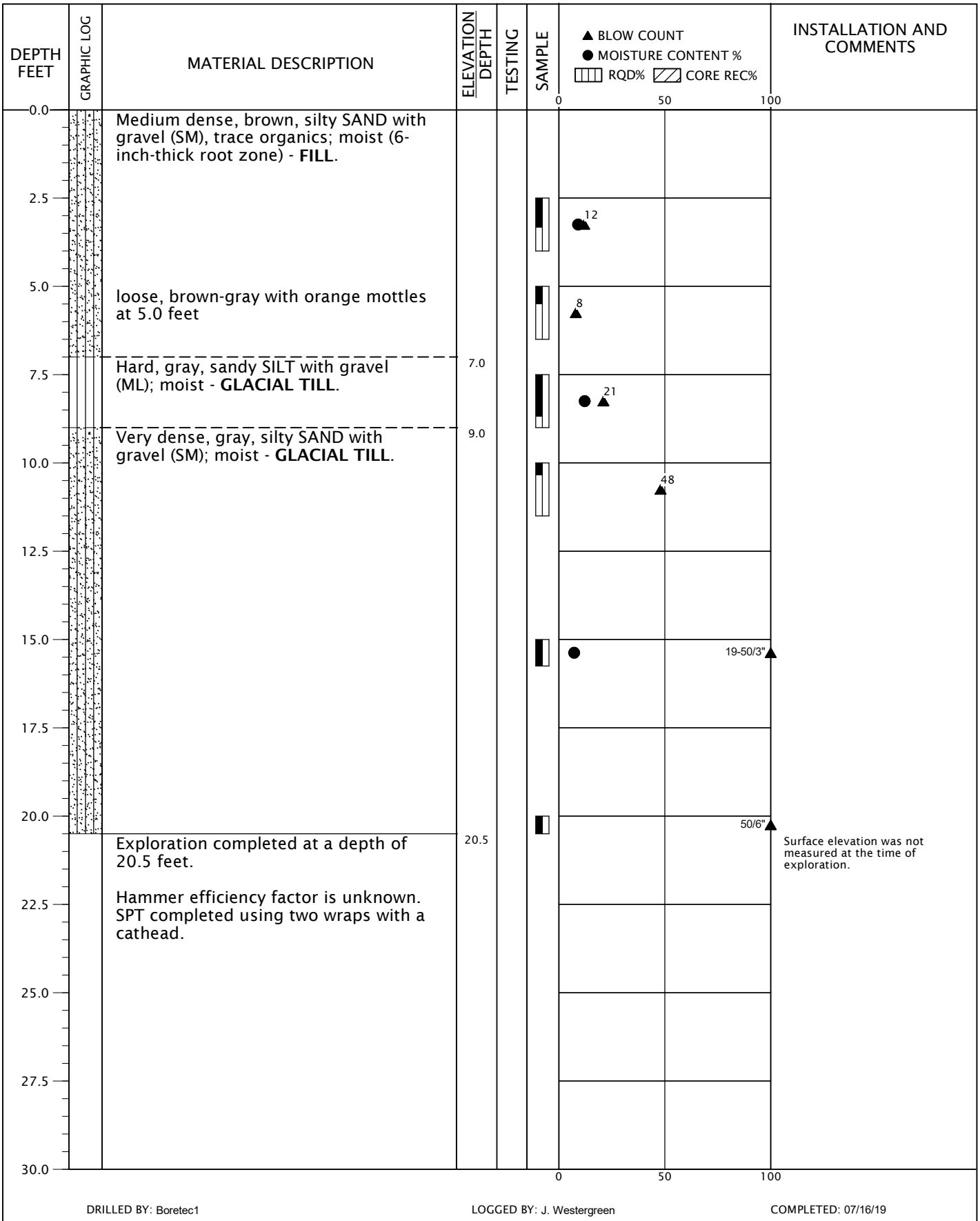
SOIL CLASSIFICATION SYSTEM

TABLE A-2



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/16/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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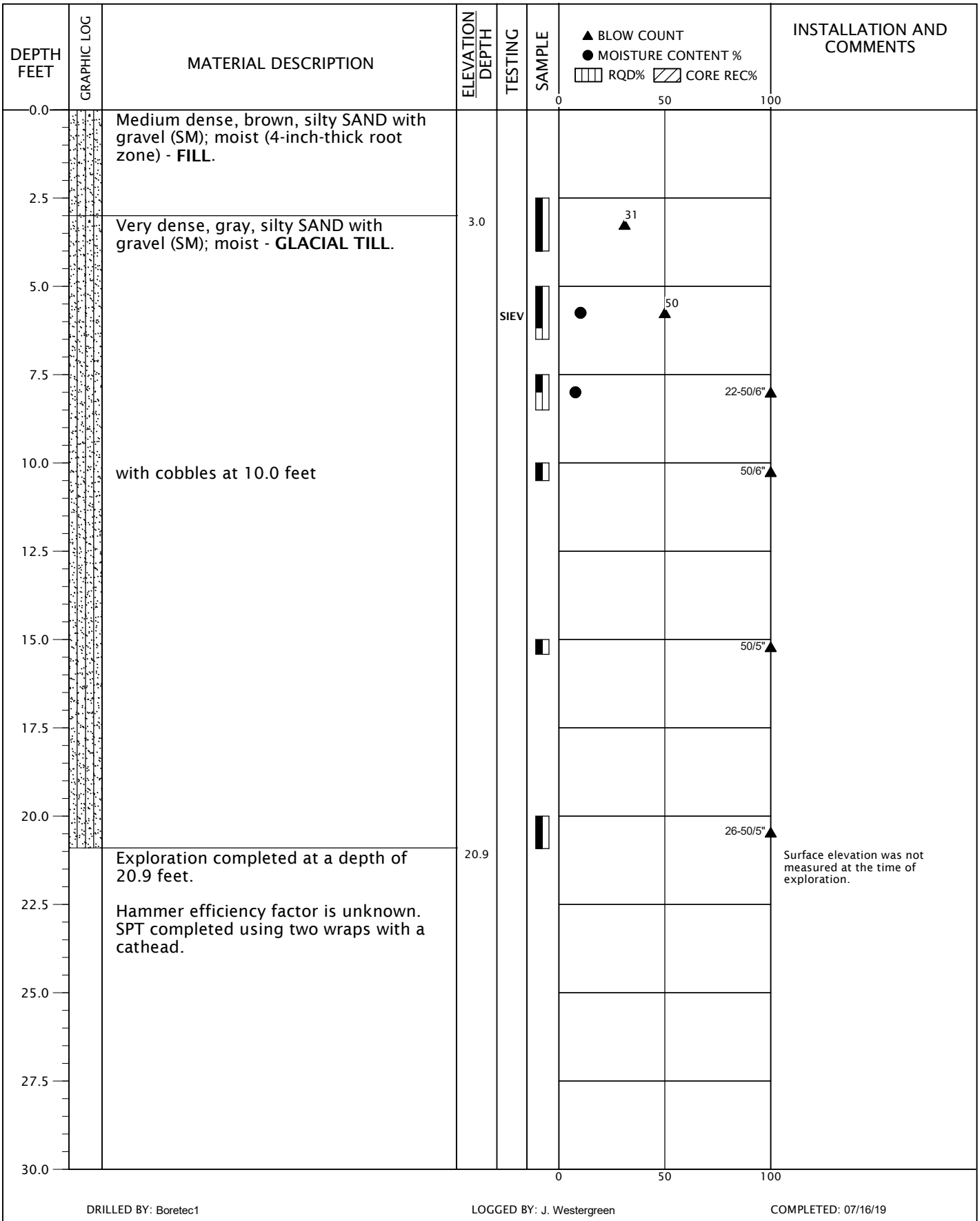
SEATTLEPS-11-01	**BORING B-1**
OCTOBER 2020	NORTHGATE ELEMENTARY SCHOOL SEATTLE, WA

FIGURE A-1

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/16/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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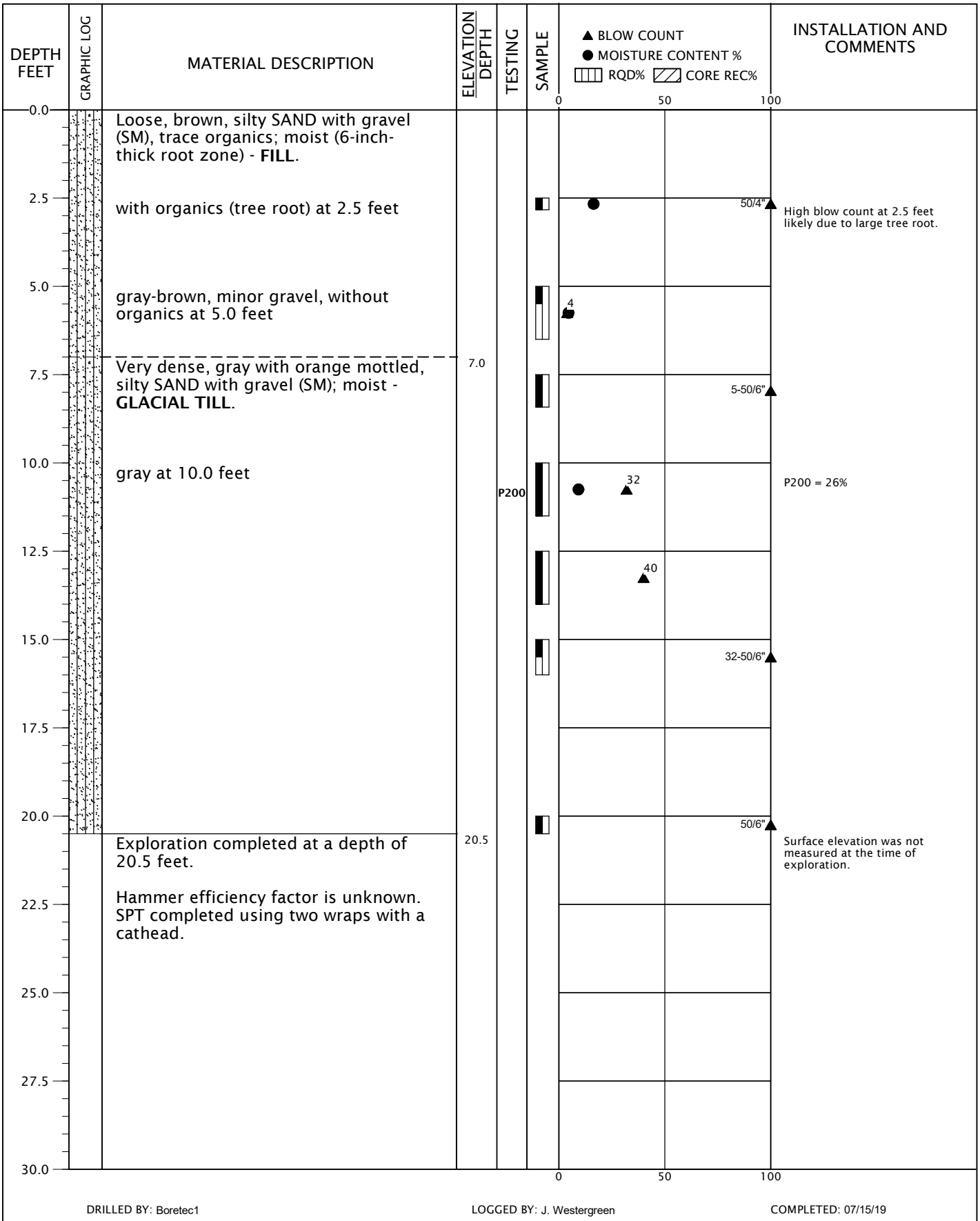
SEATTLEPS-11-01	**BORING B-2**
OCTOBER 2020	NORTHGATE ELEMENTARY SCHOOL SEATTLE, WA

FIGURE A-2

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT


DEPTH FEET
GRAPHIC LOG
MATERIAL DESCRIPTION
ELEVATION DEPTH
TESTING
SAMPLE
▲ BLOW COUNT
● MOISTURE CONTENT %
RQD% CORE REC%
0
50
100
INSTALLATION AND COMMENTS
0.0
Loose, brown, silty SAND with gravel (SM), trace organics; moist (6-inch-thick root zone) - FILL.
2.5
with organics (tree root) at 2.5 feet
50/4"
High blow count at 2.5 feet likely due to large tree root.
5.0
gray-brown, minor gravel, without organics at 5.0 feet
4
7.0
Very dense, gray with orange mottled, silty SAND with gravel (SM); moist - GLACIAL TILL.
7.5
5-50/6"
10.0
gray at 10.0 feet
P200
32
P200 = 26%
12.5
40
15.0
32-50/6"
17.5
20.0
50/6"
20.5
Exploration completed at a depth of 20.5 feet.
Surface elevation was not measured at the time of exploration.
Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.
22.5
25.0
27.5
30.0
0
50
100
DRILLED BY: Boretec1
LOGGED BY: J. Westergreen
COMPLETED: 07/15/19
BORING METHOD: hollow-stem auger (see document text)
BORING BIT DIAMETER: 8 inches
GEODESIGN INC
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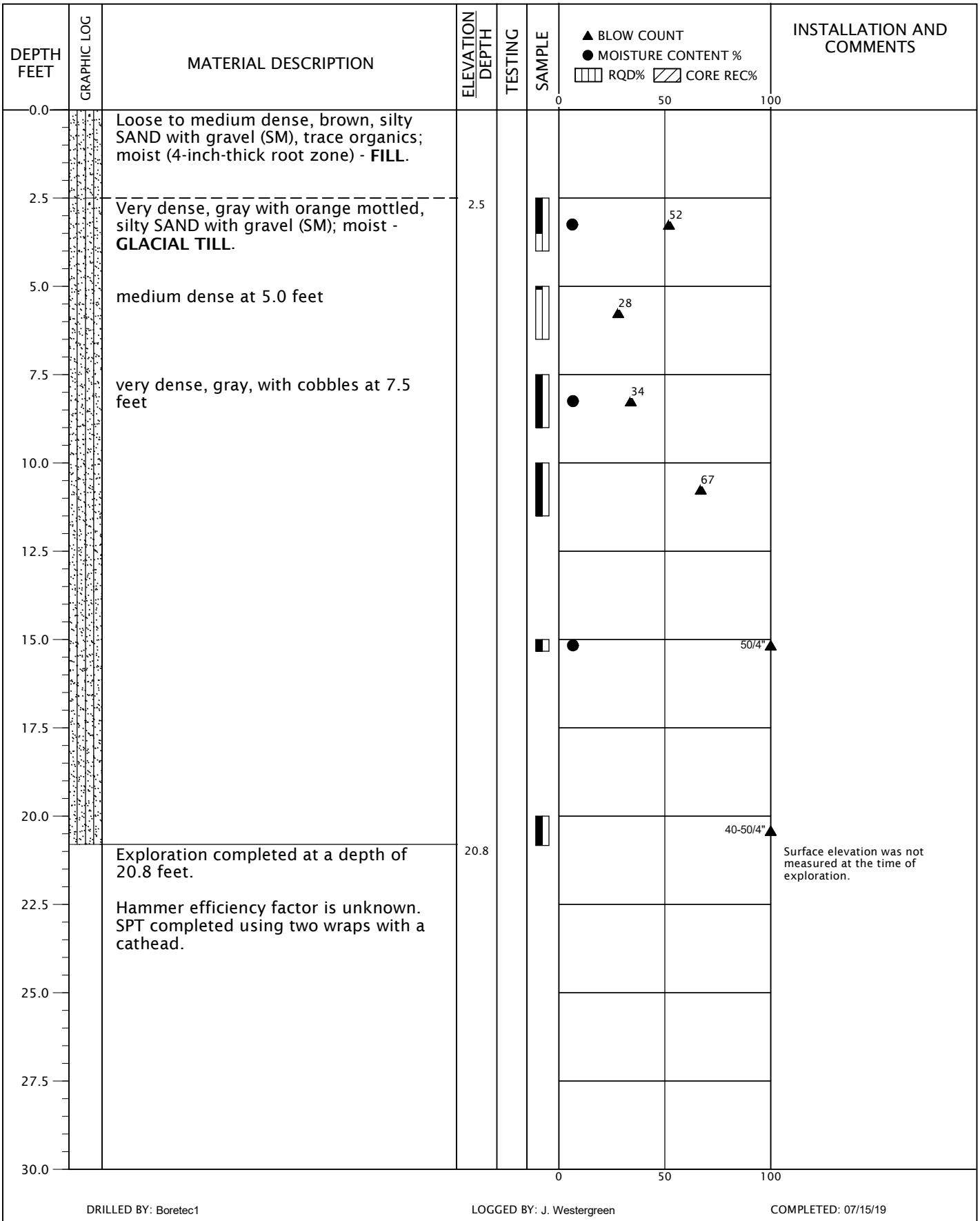
SEATTLEPS-11-01
BORING B-3
OCTOBER 2020
NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA
FIGURE A-3
BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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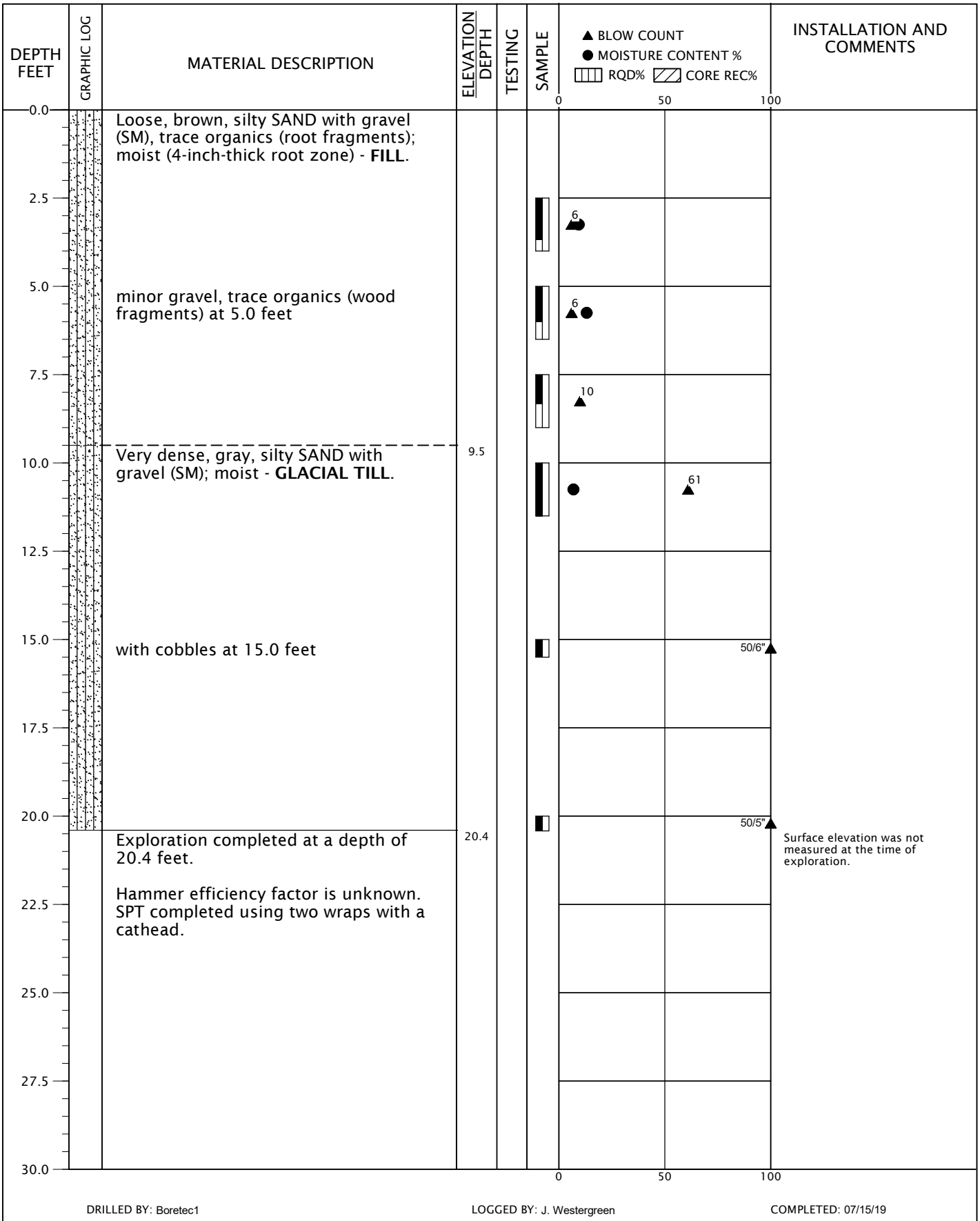
SEATTLEPS-11-01	**BORING B-4**
OCTOBER 2020	NORTHGATE ELEMENTARY SCHOOL SEATTLE, WA

FIGURE A-4

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1

LOGGED BY: J. Westergreen

COMPLETED: 07/15/19

BORING METHOD: hollow-stem auger (see document text)

BORING BIT DIAMETER: 8 inches

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SEATTLEPS-11-01

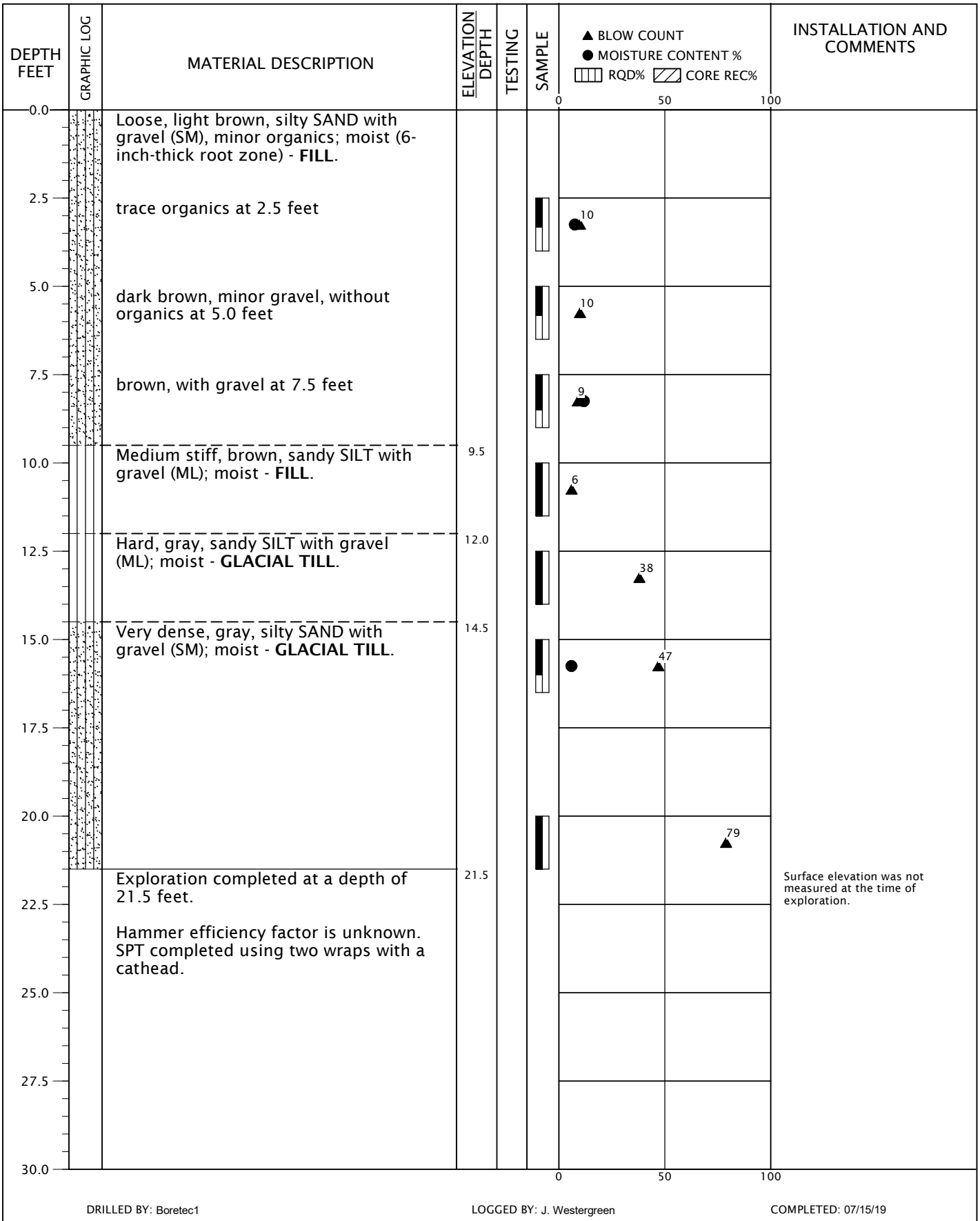
BORING B-5

OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-5

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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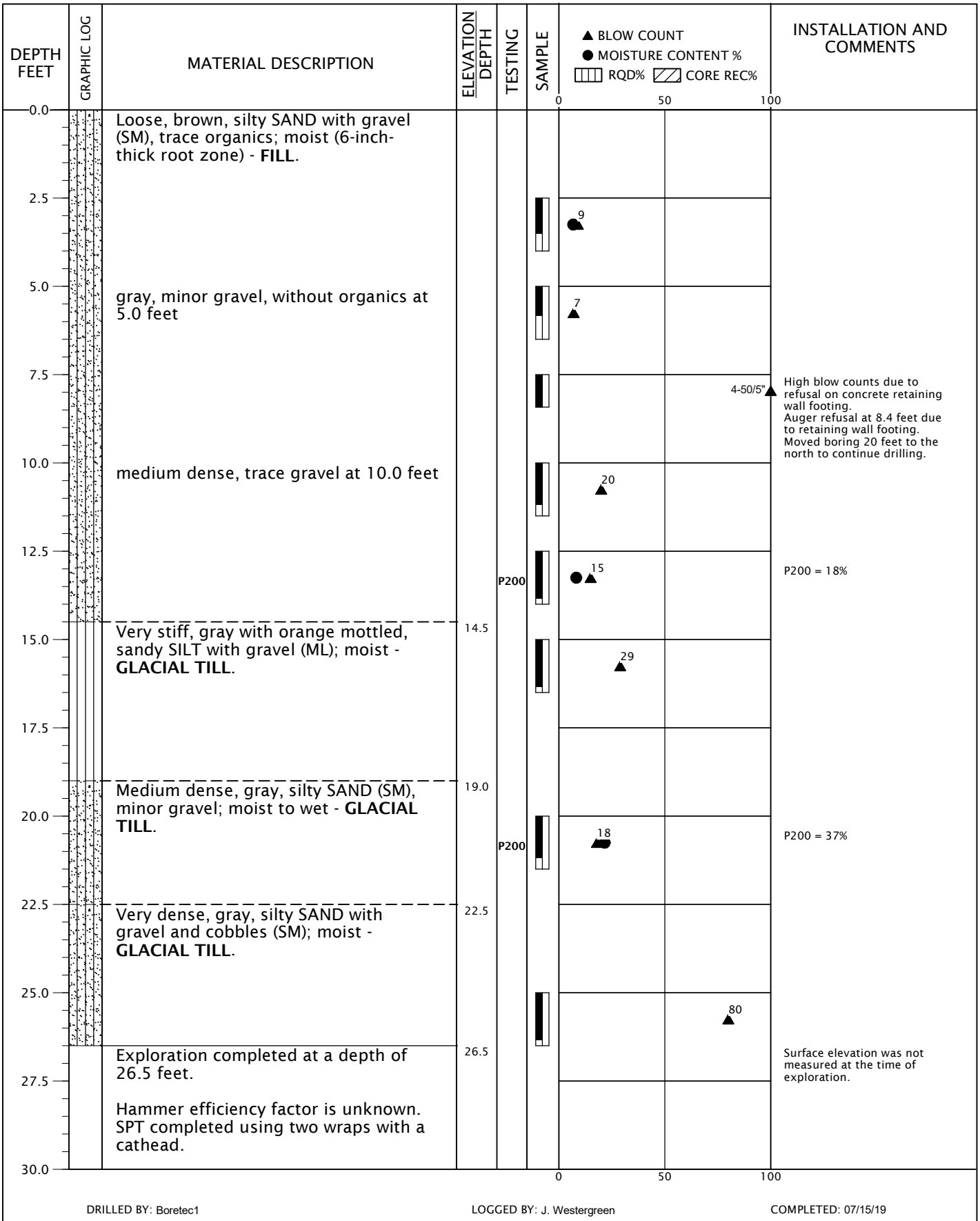
BORING B-6

OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-6

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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SEATTLEPS-11-01

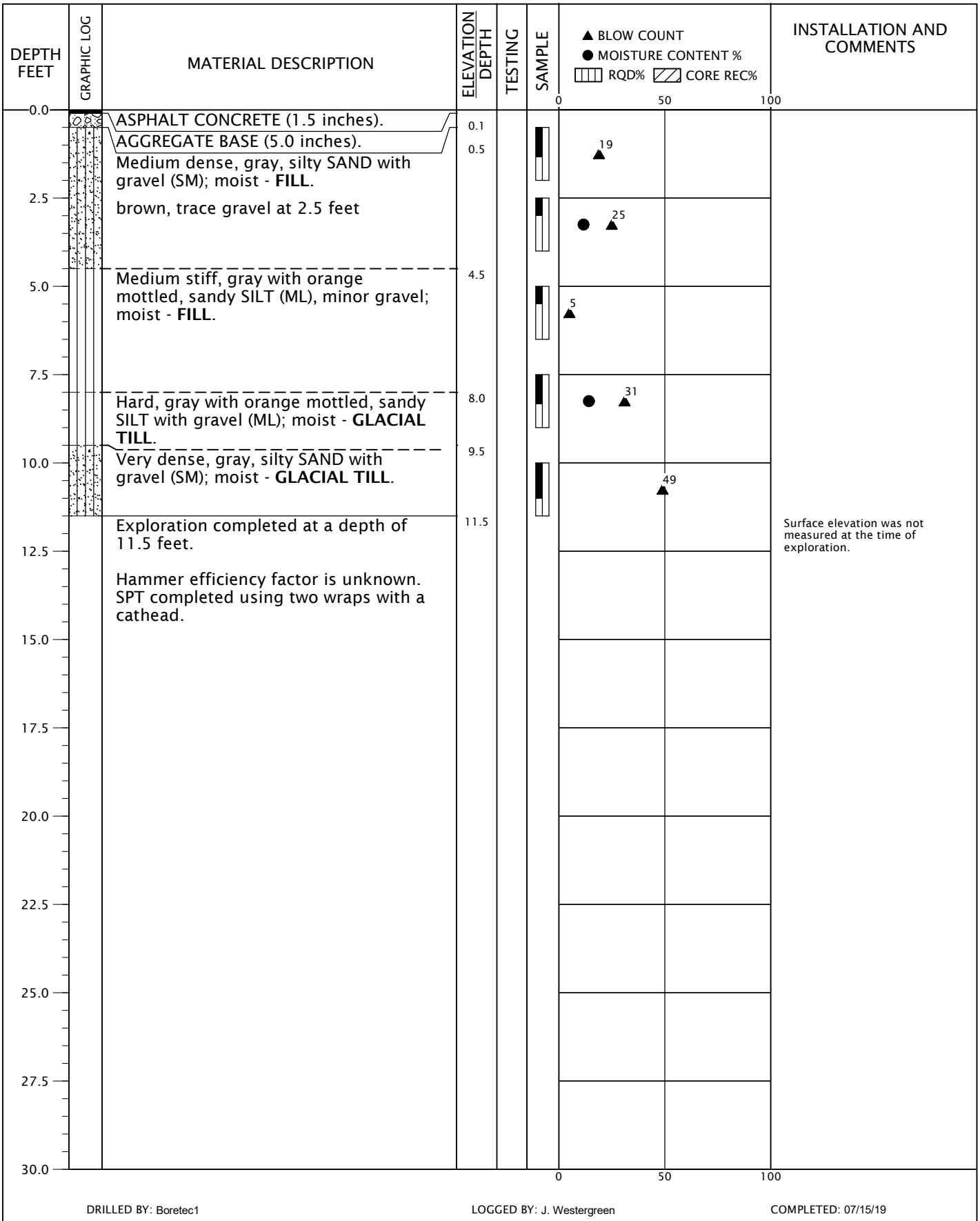
OCTOBER 2020

BORING B-7

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-7

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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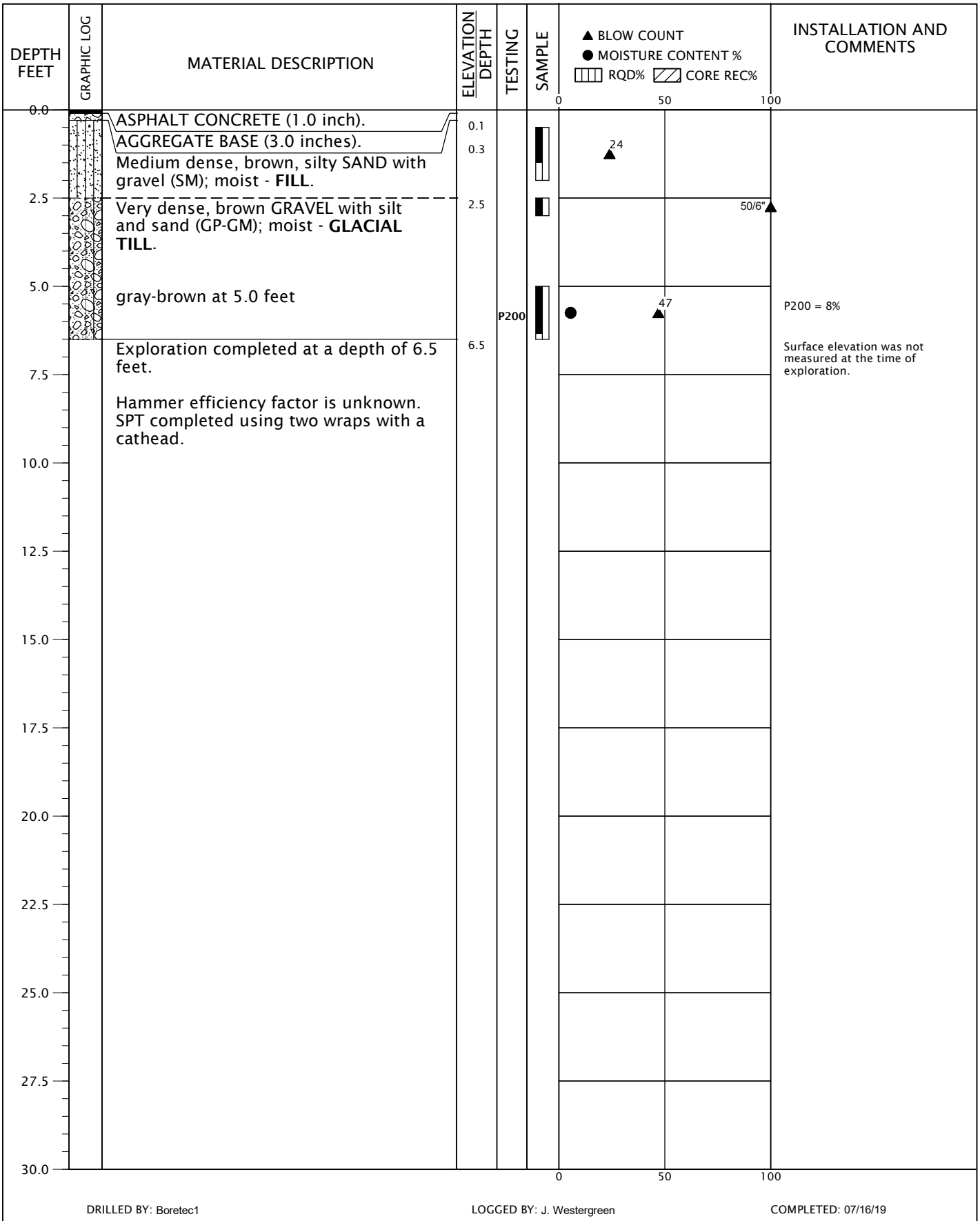
BORING B-8

OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-8

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT


DEPTH FEET
GRAPHIC LOG
MATERIAL DESCRIPTION
ELEVATION DEPTH
TESTING
SAMPLE
▲ BLOW COUNT
● MOISTURE CONTENT %
RQD% CORE REC%
0 50 100
INSTALLATION AND COMMENTS
ASPHALT CONCRETE (1.0 inch).
AGGREGATE BASE (3.0 inches).
Medium dense, brown, silty SAND with gravel (SM); moist - FILL.
Very dense, brown GRAVEL with silt and sand (GP-GM); moist - GLACIAL TILL.
gray-brown at 5.0 feet
Exploration completed at a depth of 6.5 feet.
Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.
0.1
0.3
2.5
6.5
P200
24
50/6"
47
P200 = 8%
Surface elevation was not measured at the time of exploration.
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
DRILLED BY: Boretec1
LOGGED BY: J. Westergreen
COMPLETED: 07/16/19
BORING METHOD: hollow-stem auger (see document text)
BORING BIT DIAMETER: 8 inches
GEODESIGN INC
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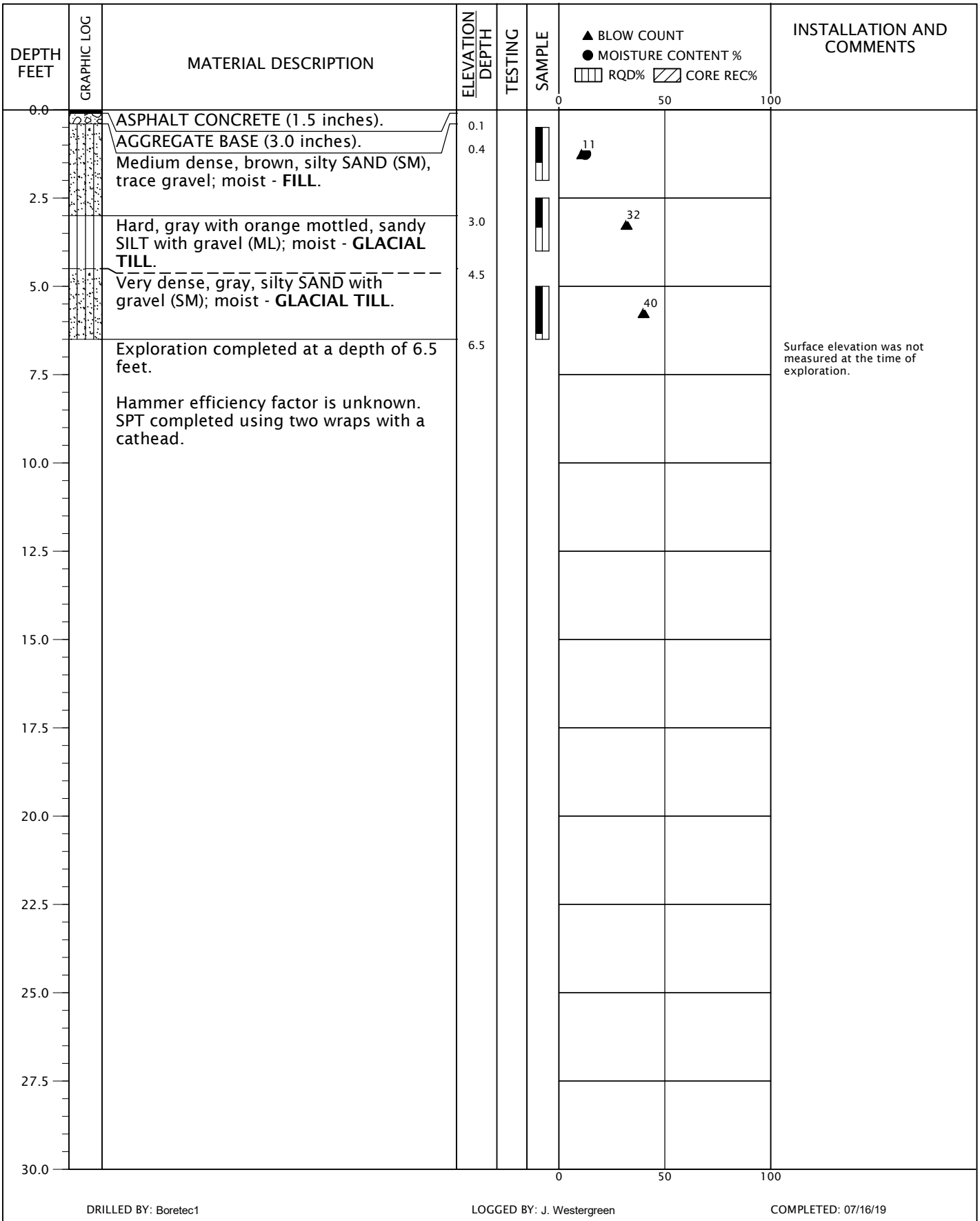
SEATTLEPS-11-01
BORING B-9
OCTOBER 2020
NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA
FIGURE A-9
BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/16/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

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SEATTLEPS-11-01

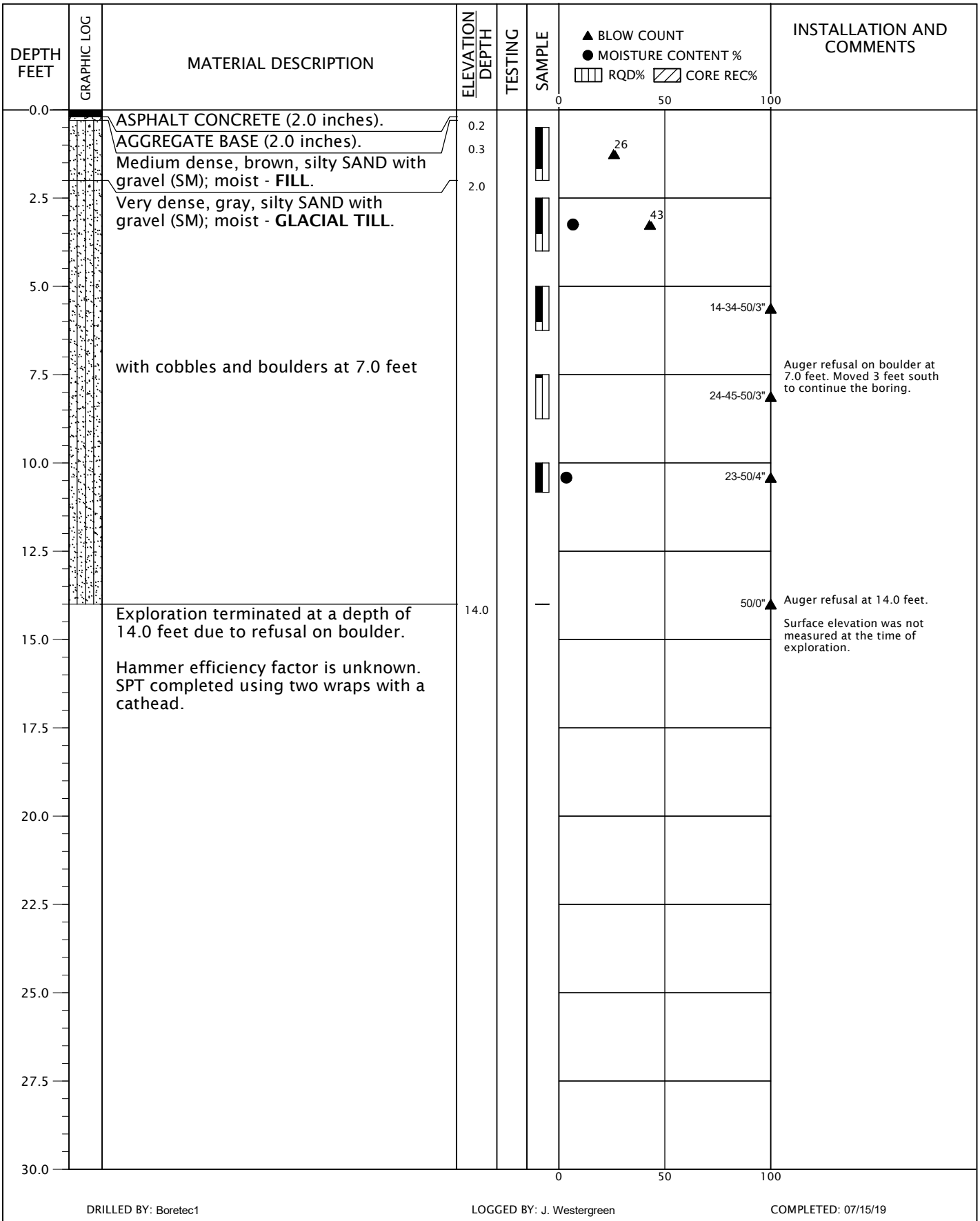
BORING B-10

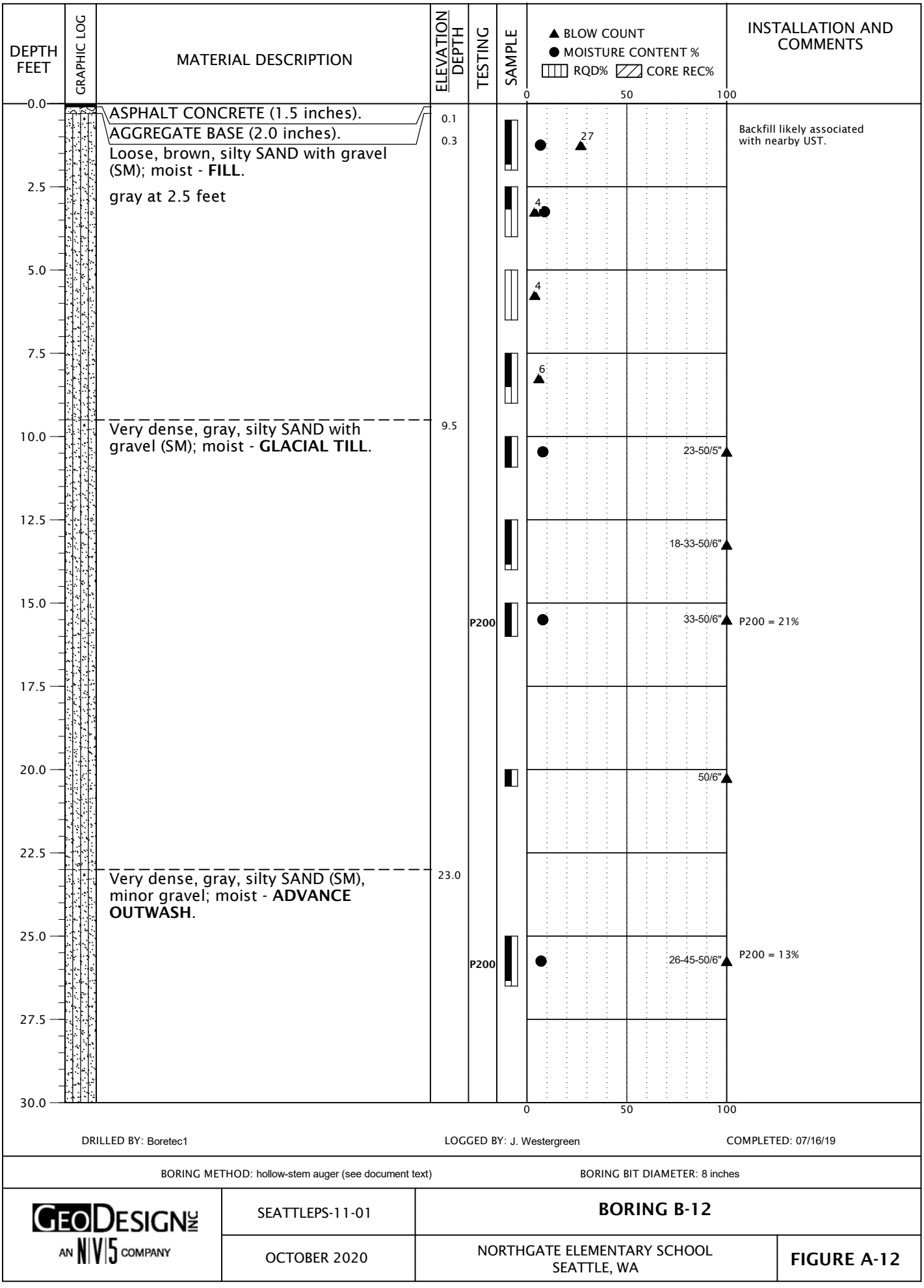
OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-10

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT


DEPTH FEET
GRAPHIC LOG
MATERIAL DESCRIPTION
ELEVATION DEPTH
TESTING
SAMPLE
BLOW COUNT
MOISTURE CONTENT %
RQD%
CORE REC%
INSTALLATION AND COMMENTS
0
50
100
0.0
ASPHALT CONCRETE (2.0 inches).
0.2
AGGREGATE BASE (2.0 inches).
0.3
Medium dense, brown, silty SAND with gravel (SM); moist - FILL.
2.0
2.5
Very dense, gray, silty SAND with gravel (SM); moist - GLACIAL TILL.
26
43
5.0
14-34-50/3"
7.5
with cobbles and boulders at 7.0 feet
Auger refusal on boulder at 7.0 feet. Moved 3 feet south to continue the boring.
24-45-50/3"
10.0
23-50/4"
12.5
50/0"
Auger refusal at 14.0 feet.
Surface elevation was not measured at the time of exploration.
14.0
Exploration terminated at a depth of 14.0 feet due to refusal on boulder.
15.0
Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.
17.5
20.0
22.5
25.0
27.5
30.0
DRILLED BY: Boretec1
LOGGED BY: J. Westergreen
COMPLETED: 07/15/19
BORING METHOD: hollow-stem auger (see document text)
BORING BIT DIAMETER: 8 inches
GEODESIGN INC
AN NV5 COMPANY
SEATTLEPS-11-01
BORING B-11
OCTOBER 2020
NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA
FIGURE A-11
BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT


DEPTH FEET
GRAPHIC LOG
MATERIAL DESCRIPTION
ELEVATION DEPTH
TESTING
SAMPLE
▲ BLOW COUNT
● MOISTURE CONTENT %
RQD% CORE REC%
INSTALLATION AND COMMENTS
ASPHALT CONCRETE (1.5 inches).
AGGREGATE BASE (2.0 inches).
Loose, brown, silty SAND with gravel (SM); moist - FILL.
gray at 2.5 feet
Very dense, gray, silty SAND with gravel (SM); moist - GLACIAL TILL.
Very dense, gray, silty SAND (SM), minor gravel; moist - ADVANCE OUTWASH.
0.1
0.3
9.5
23.0
Backfill likely associated with nearby UST.
27
4
4
6
23-50/5"
18-33-50/6"
33-50/6"
P200 = 21%
50/6"
26-45-50/6"
P200 = 13%
P200
P200
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
0
50
100
DRILLED BY: Boretec1
LOGGED BY: J. Westergreen
COMPLETED: 07/16/19
BORING METHOD: hollow-stem auger (see document text)
BORING BIT DIAMETER: 8 inches
GEODESIGN INC
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SEATTLEPS-11-01
BORING B-12
OCTOBER 2020
NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA
FIGURE A-12
BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % ▭ RQD% ▨ CORE REC% (0 50 100)	INSTALLATION AND COMMENTS
30.0		(continued from previous page)					
32.5							
35.0						76 ▲	
37.5							
40.0						66 ▲ ●	
41.5		Exploration completed at a depth of 41.5 feet. Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.	41.5				Surface elevation was not measured at the time of exploration.
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							

DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/16/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

GeoDesign Inc
AN NV5 COMPANY

SEATTLEPS-11-01

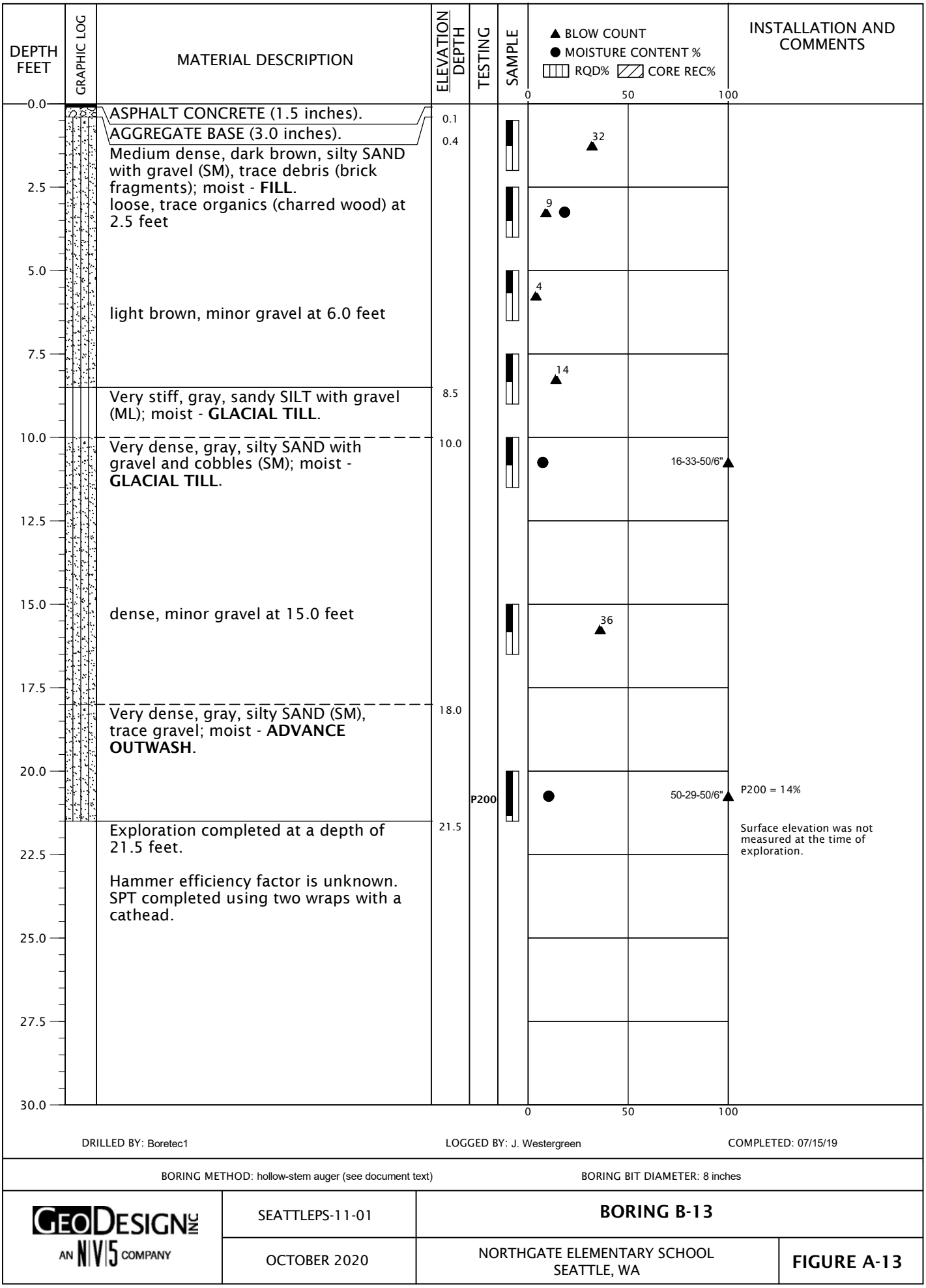
BORING B-12
(continued)

OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-12

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/15/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

GeoDesign Inc
AN NV5 COMPANY

SEATTLEPS-11-01

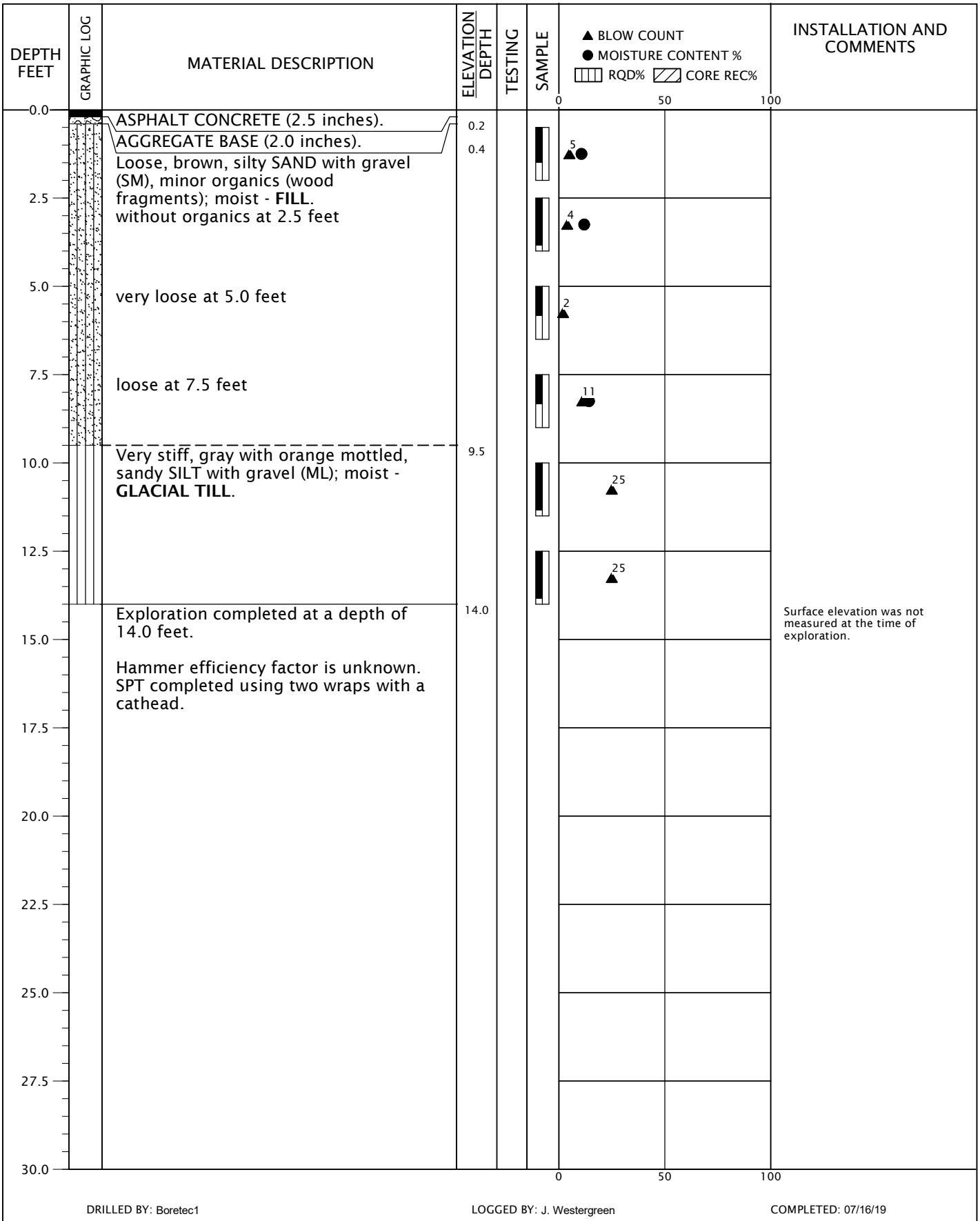
BORING B-13

OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-13

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/16/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

GeoDesign Inc
AN NV5 COMPANY

SEATTLEPS-11-01

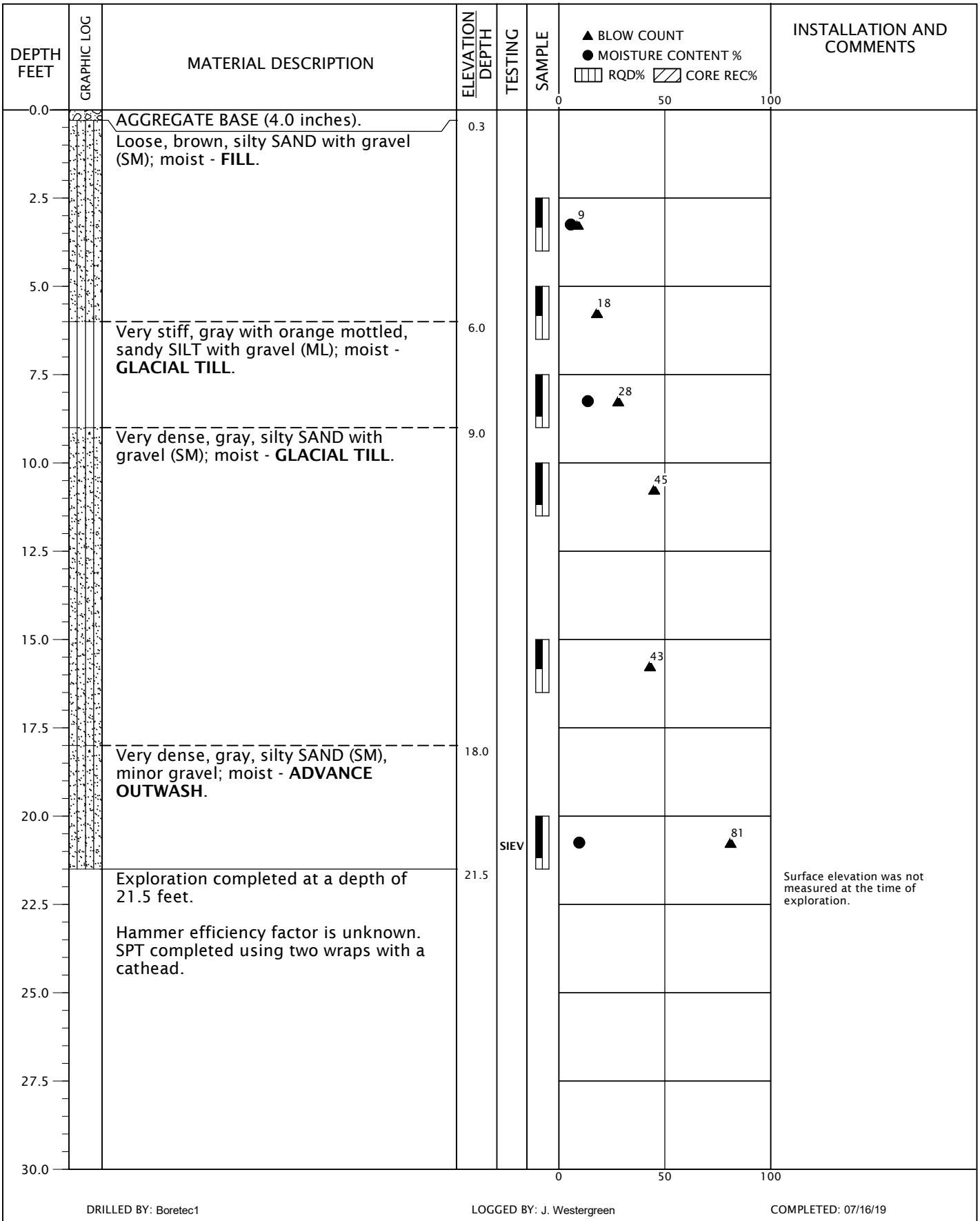
BORING B-14

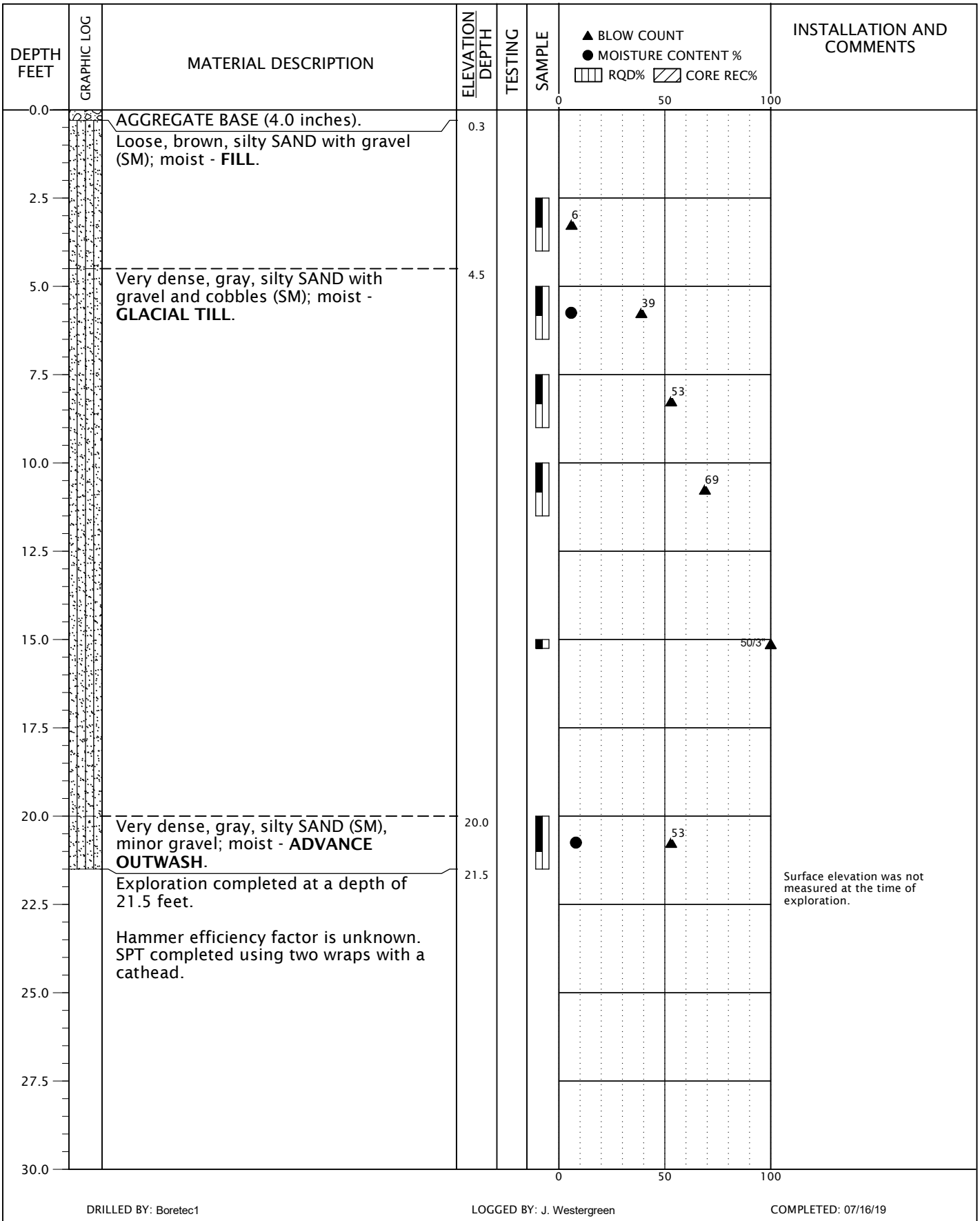
OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-14

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT


DEPTH FEET
GRAPHIC LOG
MATERIAL DESCRIPTION
ELEVATION DEPTH
TESTING
SAMPLE
BLOW COUNT
MOISTURE CONTENT %
RQD%
CORE REC%
INSTALLATION AND COMMENTS
0
50
100
AGGREGATE BASE (4.0 inches).
0.3
Loose, brown, silty SAND with gravel (SM); moist - FILL.
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
9
18
28
45
43
81
Very stiff, gray with orange mottled, sandy SILT with gravel (ML); moist - GLACIAL TILL.
6.0
Very dense, gray, silty SAND with gravel (SM); moist - GLACIAL TILL.
9.0
Very dense, gray, silty SAND (SM), minor gravel; moist - ADVANCE OUTWASH.
18.0
SIEV
Exploration completed at a depth of 21.5 feet.
21.5
Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.
Surface elevation was not measured at the time of exploration.
DRILLED BY: Boretec1
LOGGED BY: J. Westergreen
COMPLETED: 07/16/19
BORING METHOD: hollow-stem auger (see document text)
BORING BIT DIAMETER: 8 inches
GEODESIGN INC
AN NV5 COMPANY
SEATTLEPS-11-01
BORING B-15
OCTOBER 2020
NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA
FIGURE A-15
BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



DRILLED BY: Boretec1 LOGGED BY: J. Westergreen COMPLETED: 07/16/19

BORING METHOD: hollow-stem auger (see document text) BORING BIT DIAMETER: 8 inches

GeoDesign Inc
AN NV5 COMPANY

SEATTLEPS-11-01

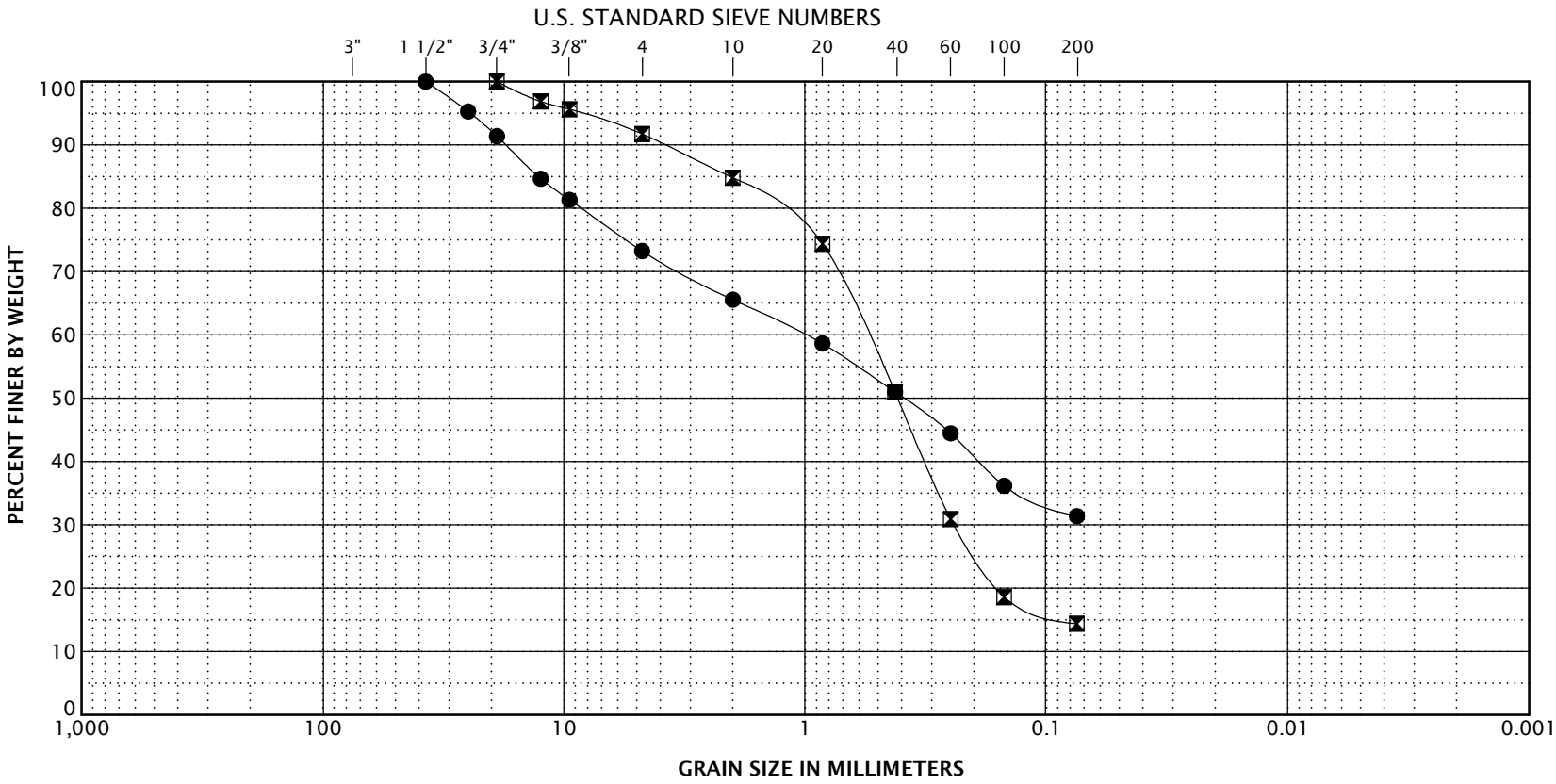
BORING B-16

OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-16

BORING LOG - GDI-NV5 - 1 PER PAGE SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KM:KT



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60	D50	D30	D10	D5	GRAVEL (PERCENT)	SAND (PERCENT)	SILT (PERCENT)	CLAY (PERCENT)
●	B-2	5.0	10	1.01	0.39				27	42	31	
⊠	B-15	20.0	10	0.56	0.41	0.24			8	77	14	

GEODESIGN INC
AN NV5 COMPANY

SEATTLEPS-11-01

OCTOBER 2020

GRAIN-SIZE TEST RESULTS

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-17 -

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-1	2.5		9							
B-1	7.5		12							
B-1	15.0		7							
B-2	5.0		10		27	42	31			
B-2	7.5		8							
B-3	2.5		16							
B-3	5.0		5							
B-3	10.0		9				26			
B-4	2.5		6							
B-4	7.5		7							
B-4	15.0		7							
B-5	2.5		9							
B-5	5.0		13							
B-5	10.0		7							
B-6	2.5		8							
B-6	7.5		12							
B-6	15.0		6							
B-7	2.5		7							
B-7	12.5		8				18			
B-7	20.0		22				37			
B-8	2.5		12							
B-8	7.5		14							
B-9	5.0		6				8			
B-10	0.5		12							
B-11	2.5		7							
B-11	10.0		4							
B-12	0.5		7							

GEODESIGN INC
AN NV5 COMPANY

SEATTLEPS-11-01

SUMMARY OF LABORATORY DATA

OCTOBER 2020

NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WA

FIGURE A-18

LAB SUMMARY - GDI-NV5 SEATTLEPS-11-01-B1_16.GPJ GDI_NV5.GDT PRINT DATE: 10/19/20:KT

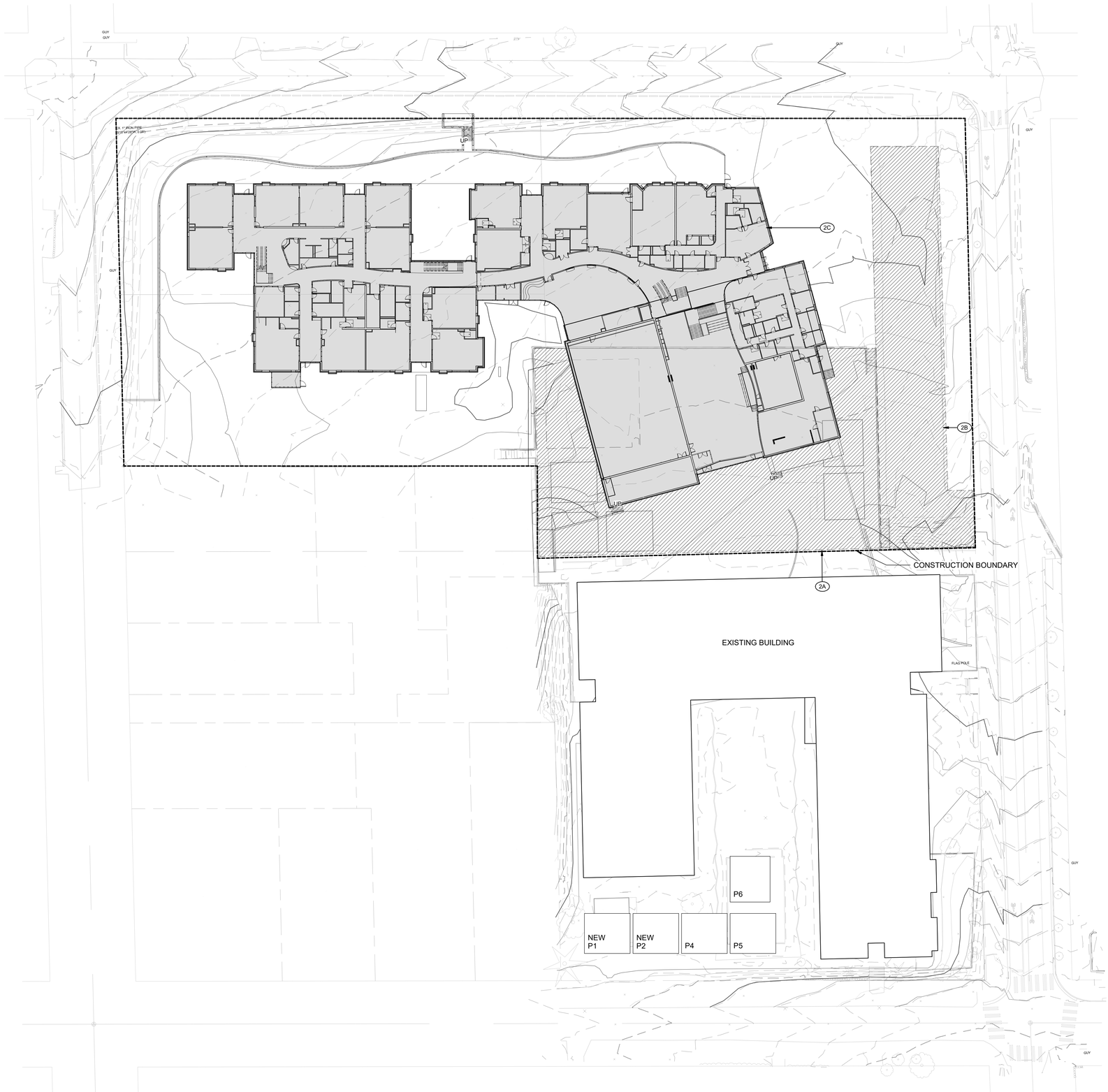
SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-12	2.5		9							
B-12	10.0		8							
B-12	15.0		8				21			
B-12	25.0		7				13			
B-12	40.0		7							
B-13	2.5		18							
B-13	10.0		7							
B-13	20.0		10				14			
B-14	0.5		11							
B-14	2.5		12							
B-14	7.5		14							
B-15	2.5		6							
B-15	7.5		14							
B-15	20.0		10		8	77	14			
B-16	5.0		6							
B-16	20.0		8							

APPENDIX B

APPENDIX B

PRELIMINARY SITE PLAN

The preliminary plan for the proposed school re-development are presented in this appendix.



N

PHASING PLAN 2 - CONSTRUCTION

Scale: 1" = 30'-0"

PHASING PLAN - NOTES

1. (PHASE 1) EXISTING PORTABLES 1, 2, & 3 DEMOLISHED ON-SITE. EXISTING PORTABLES 4, 5, & 6 RELOCATED ON-SITE TO THE SOUTH OF THE EXISTING BUILDING ALONG WITH 2 NEW PORTABLES. PORTION OF LANDSCAPING WALL DEMOLISHED AND TEMPORARY FENCING CONSTRUCTED TO CREATE TEMPORARY PLAY AREA.
2. (PHASE 2) EXISTING PLAY YARD DEMOLISHED. NEW BUILDING CONSTRUCTED NORTH OF EXISTING BUILDING.
3. (PHASE 3) FINAL SITEWORK IS COMPLETED. EXISTING SCHOOL BUILDING DEMOLISHED AND NEW PLAY FIELDS CONSTRUCTED.

PHASING PLAN 2 - CODED NOTES

- (2A) EXISTING PLAY YARD DEMOLISHED
- (2B) EXISTING PARKING DEMOLISHED
- (2C) CONSTRUCT NEW BUILDING

PHASING LEGEND

- CONSTRUCTION ZONE BOUNDARY
- CONSTRUCTION / NEW LOCATION
- DEMOLITION
- RELOCATION
- CONTRACTOR'S STAGING AND ACCESS

REVISIONS

DD COST ESTIMATE SUBMITTAL

SEATTLE PUBLIC SCHOOLS

NORTHGATE ELEMENTARY SCHOOL

11725 1ST AVE NE, SEATTLE, WA 98125

NAC ARCHITECTURE
nacarchitecture.com
2025 FIRST AVE | SUITE 300
SEATTLE, WA 98121
P:206.441.4522

NAC NO	121-19023
DRAWN	Author
CHECKED	Checker
DATE	07-06-2020

PHASING PLAN

A1.32

APPENDIX C

APPENDIX C

ORIGINAL TOPOGRAPHY AND GRADING PLANS

Relevant original topography information and grading plans from the development of the existing school are presented in this appendix.

EAST 120th ST.

654.12'

30' GRAVEL PAVEMT.

297.05'

594.16'

SET HUB

HUB

30.01'

1.28'

IRON PIPE.

80°40'30"

B.M: spike in power pole
Elev. 372.89 County datum.

Power Pole

OLD STONE MON'T.

HYDRANT.

18'

6+00

5+50

5+00

4+50

3+91

3+50

3+00

2+50

2+00

1+50

1+00

0+50

0+30

0+00

W 6" WOOD PIPE WATER MAIN RE LAID

N.E. 120th ST.

18' BLACK TOP PAVEMENT

AP. 663.19

663.17

91°14'17"

123.25'

139.85'

122.70'

91°18'07"

CORNER POST AT LINE

REMAINS OF OLD FENCE ALONG THE LINE

297.22'

LOT-2

LOT-3

Ditch.

CORLISS AVENUE.

664.09'

30' GRAVEL PAVEMENT

W 3" WOOD PIPE WATER MAIN

W 2" GALVANIZED STEEL PIPE WATER MAIN

480.78

POST & WIRE FENCE

DILAPIDATED WOOD POST

480.91'

CORNER POST ON LINE

LOT-1

LOT-4

174.98'

91°18'20"

80°38'

IRON PIPE

297.73'

Hydrant

1" Valve

91°12'30"

3" WOOD PIPE WATER MAIN

655.54'

Hub. 358.28

297.76'

30' GRAVEL PAVEMENT.

EAST 117th ST.

6"x6"x4"x4" CROSS

Hydrant

Note:
Information on water mains, obtained from City of Seattle, Water Department.

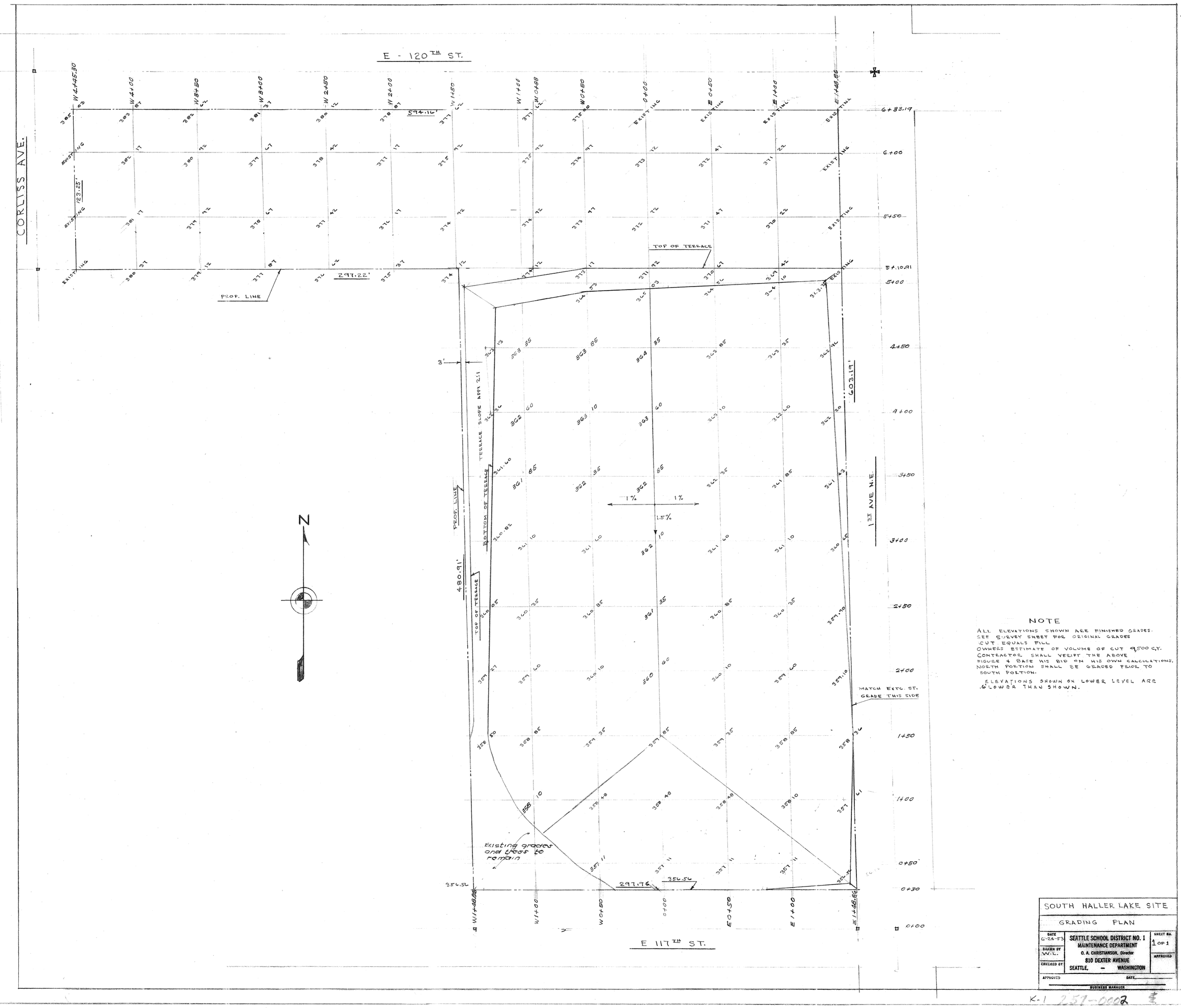
DESCRIPTION

Lots 3 & 4, and that portion of Lot 2, lying north of a line drawn from a point on the east line of Corliss Ave; 123.25' south of the northwest corner of Lot 2, to a point on the east line of Lot 2, which is 122.70' south of the northeast corner thereof, all in Block 6, H.E. ORR PARK. Filed in Volume 17 of plats, at page 21, records of King County, Washington.

SEATTLE PUBLIC SCHOOLS
SURVEY & TOPOGRAPHY
SOUTH HALLER LAKE
SCHOOL SITE.

DATE	AMERICAN ENGINEERING CO.	MADE BY
5-29-53	LICENSED CIVIL ENGINEERS AND LAND SURVEYORS	A.W.H.
REVISIONS	322 COLUMBIA ST.	APPROVED BY
6-19-53	SEATTLE 4, WASH. SE. 5934	E
		SCALE 1"=30'
		SHEET No. 1 of 1

S #19



NOTE

ALL ELEVATIONS SHOWN ARE FINISHED GRADES.
SEE SURVEY SHEET FOR ORIGINAL GRADES
CUT EQUALS FILL
OWNERS ESTIMATE OF VOLUME OF CUT 9,500 C.Y.
CONTRACTOR SHALL VERIFY THE ABOVE FIGURE & BASE HIS BID ON HIS OWN CALCULATIONS.
NORTH PORTION SHALL BE GRADED PRIOR TO SOUTH PORTION.

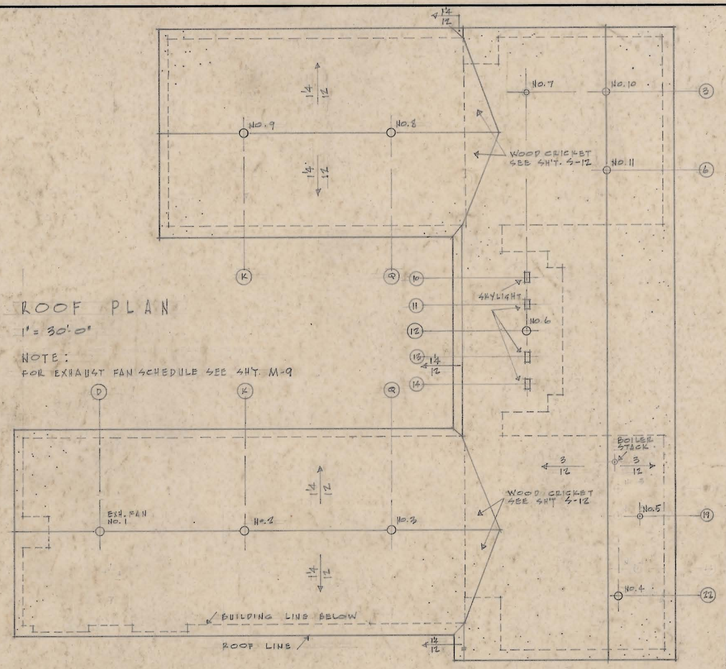
ELEVATIONS SHOWN ON LOWER LEVEL ARE .6' LOWER THAN SHOWN.

SOUTH HALLER LAKE SITE

GRADING PLAN

DATE 6-24-53	SEATTLE SCHOOL DISTRICT NO. 1 MAINTENANCE DEPARTMENT O. A. CHRISTIANSON, Director 810 DEXTER AVENUE SEATTLE, — WASHINGTON	SHEET No. 1 OF 1
DRAWN BY W.L.		APPROVED
CHECKED BY		
APPROVED	DATE	
BUSINESS MANAGER		

K-1 257-0002



DRAWING INDEX

NUMBER	DESCRIPTION
A- 1	PLOT PLAN, ROOFING PLAN AND DRAWING INDEX
A- 2	BUILDING PLAN AND EXTERIOR DETAILS
A- 3	PLAN - EAST WING
A- 4	PLAN - WEST WING
A- 5	SCHEDULES AND FLOOR CONDITIONS
A- 6	ELEVATIONS
A- 7	SECTIONS
A- 8	SECTIONS
A- 9	WALL SECTIONS, SLIDING DOOR AND FOLDING GATE DETAILS
A-10	HORIZONTAL SECTIONS
A-11	VERTICAL SECTIONS AND WINDOW DETAILS
A-12	EXTERIOR DOOR, WIRE PARTITION AND WINDOW DETAILS
A-13	KITCHEN PLAN AND ELEVATIONS
A-14	KITCHEN DETAILS
A-15	TOILET ROOM PLAN
A-16	TOILET ROOM ELEVATIONS
A-17	TOILET ROOM ELEVATIONS AND DETAILS
A-18	CLASSROOM PLAN AND ELEVATIONS
A-19	CLASSROOM AND HALL DETAILS
A-20	KINDERGARTEN PLAN
A-21	KINDERGARTEN ELEVATIONS AND DETAILS
A-22	ADMINISTRATION AREA PLAN
A-23	ADMINISTRATION ELEVATIONS AND DETAILS
A-24	GYMNASIUM PLANS AND DETAILS
A-25	AUDITORIUM, PLATFORM AND DETAILS
S- 1	FOUNDATION PLAN - WEST WING
S- 2	FOUNDATION PLAN - EAST WING
S- 3	FOUNDATION DETAILS, CLASSROOM SECTIONS
S- 4	FOUNDATION DETAILS, GYMNASIUM SECTION
S- 5	FOUNDATION DETAILS, GYMNASIUM AND PLAYCOURT
S- 6	FOUNDATION DETAILS, PLAYCOURT AND BOILER ROOM
S- 7	FOUNDATION DETAILS, AUDITORIUM SECTION
S- 8	MISCELLANEOUS FOUNDATION DETAILS
S- 9	TYPICAL FRAME - AUDITORIUM
S-10	TYPICAL FRAME - GYMNASIUM AND PLAYCOURT
S-11	TYPICAL CLASSROOM FRAME
S-12	ROOF PLAN - WEST WING
S-13	ROOF PLAN - EAST WING
S-14	ROOF PANEL DETAILS
S-15	ROOF PANEL DETAILS
S-16	WALL PANEL DETAILS
S-17	WALL PANEL DETAILS - SECTIONS

LEGAL DESCRIPTION:

LOTS 3 & 4, AND THAT PORTION OF LOT 2, LYING NORTH OF A LINE DRAWN FROM A POINT ON THE EAST LINE OF CORLISS AVE., 123.25' SOUTH OF THE NORTHWEST CORNER OF LOT 2, TO A POINT ON THE EAST LINE OF LOT 2, WHICH IS 122.70' SOUTH OF THE N.E. CORNER THEREOF, ALL IN BLOCK 6, H.E. ORR PARK. FILED IN VOLUME 17 OF PLATS, AT PAGE 21, RECORDS OF KING COUNTY, WN.

SURVEY BY AMERICAN ENGINEERING CO. 5-29-53

PAUL THIRY REGISTERED TO PRACTICE IN THE STATE OF WASHINGTON LICENSED ARCHITECT

NO.	GENERAL NOTES
1	VERIFY ALL DIMENSIONS BEFORE PROCEEDING

NO.	REVISION	DATE
1.	RELOCATION OF POWER POLE	3/11/57
2.	PARKING ISLAND RELOCATION	3/11/57
3.	ENTRY STEPS REDETERMINED	3/11/57

APPROVED _____ DATE _____

PAUL THIRY
ARCHITECT, F.A.I.A.
800 COLUMBIA STREET SEATTLE 4, WN.

NORTHGATE ELEMENTARY SCHOOL
1ST AVENUE N.E. AND EAST 117TH STREET
SEATTLE SCHOOL DISTRICT NO. 1
SEATTLE, WASHINGTON

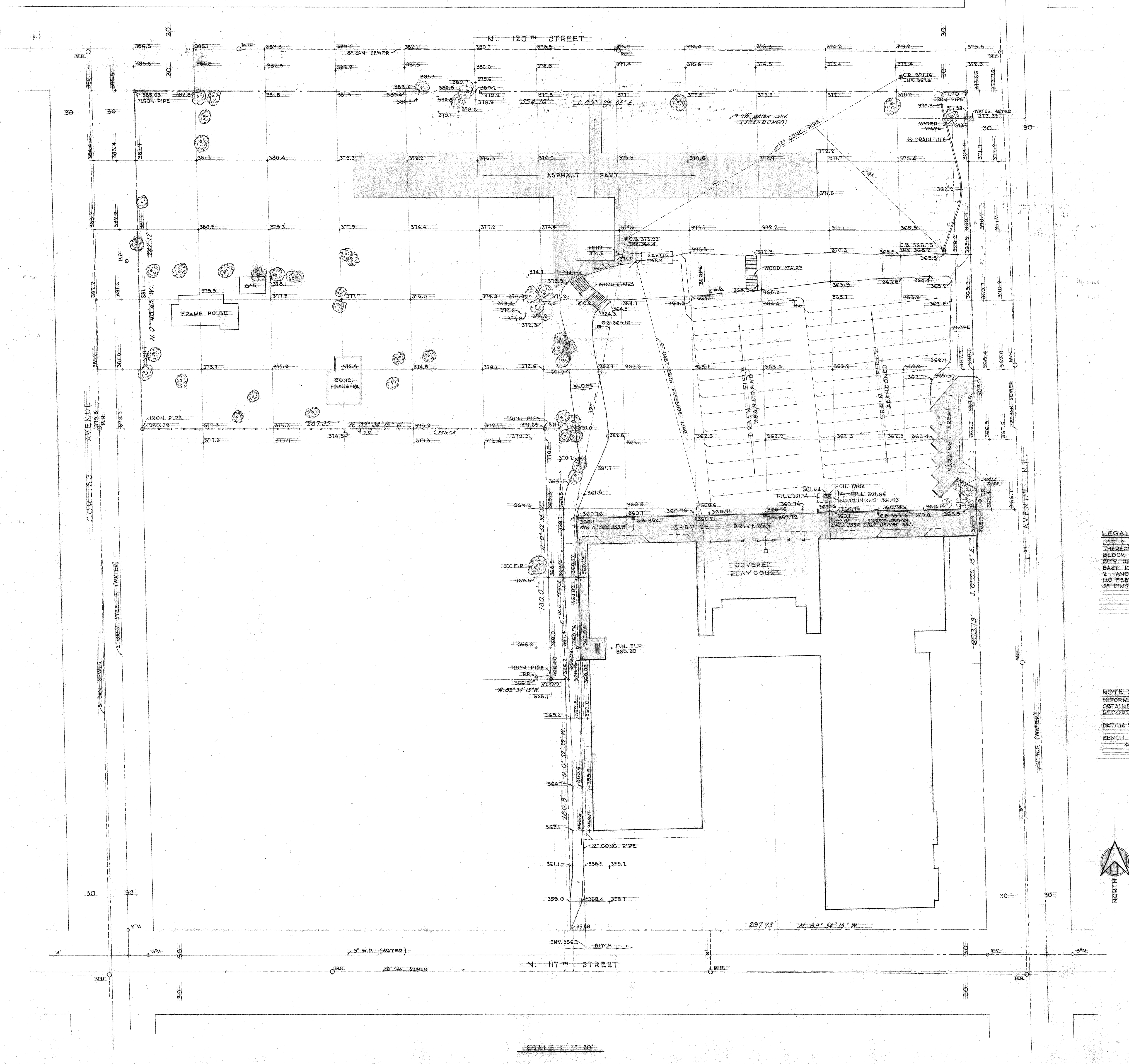
PLOT PLAN, ROOF PLAN AND DRAWING INDEX

DRAWN BY	TRACED BY	CHECKED BY	ORIG. ISSUE	REV. ISSUE
HC	HC	JG	5-1-55	

SHEET A-1

357-0062

DRAWING NUMBER 257-00[redacted]69



SCALE : 1" = 30'

LEGAL DESCRIPTION :

LOT 2, EXCEPT THE SOUTH 60 FEET THEREOF, AND ALL OF LOTS 3 AND 4, BLOCK 6, H.E. ORR PARK ADDITION TO THE CITY OF SEATTLE. TOGETHER WITH THE EAST 10 FEET OF THE SOUTH 60 FEET OF LOT 2. AND THE EAST 10 FEET OF THE NORTH 120 FEET OF LOT 1 SAID BLOCK 6, RECORDS OF KING COUNTY, WASHINGTON.

NOTE :

INFORMATION ON UNDERGROUND UTILITIES OBTAINED FROM SEATTLE SCHOOL DISTRICT RECORDS.

DATUM : KING COUNTY.

BENCH MARK : B.M. ELEV. ON WATER METER AND IRON PIPES.

ERNEST V. SHOWALTER
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL LAND SURVEYOR

NORTHGATE SCHOOL

TOPOGRAPHY NORTH OF BLD'G.

DATE MAR. 5, 59	SEATTLE SCHOOL DISTRICT NO. 1	SHEET No. 1 OF 5
DRAWN BY R.W.K.	MAINTENANCE DEPARTMENT O. A. CHRISTIANSON, Director	APPROVED
CHECKED BY E.S.	810 DEXTER AVENUE SEATTLE, — WASHINGTON	

APPROVED DATE

F.B. # 22

257-00[redacted]69 IM

APPENDIX D

APPENDIX D

VIBRATION MONITORING RESULTS

Test results from the baseline vibration monitoring assessment are presented in this appendix.

Event Report

Histogram Start Time	09:10:23 July 16, 2019
Histogram Finish Time	14:01:41 July 16, 2019
Number of Intervals	1165.00 at 15 seconds
Range	Geo:254.0 mm/s
Sample Rate	1024sps
Job Number:	1

Serial Number	BE11835 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	September 13, 2018 by Instantel
File Name	__TEMP.EVT

Notes

Location: Northgate Elementary School
Client: Seattle PS
User Name: JTW
General: SeattlePS-11-01

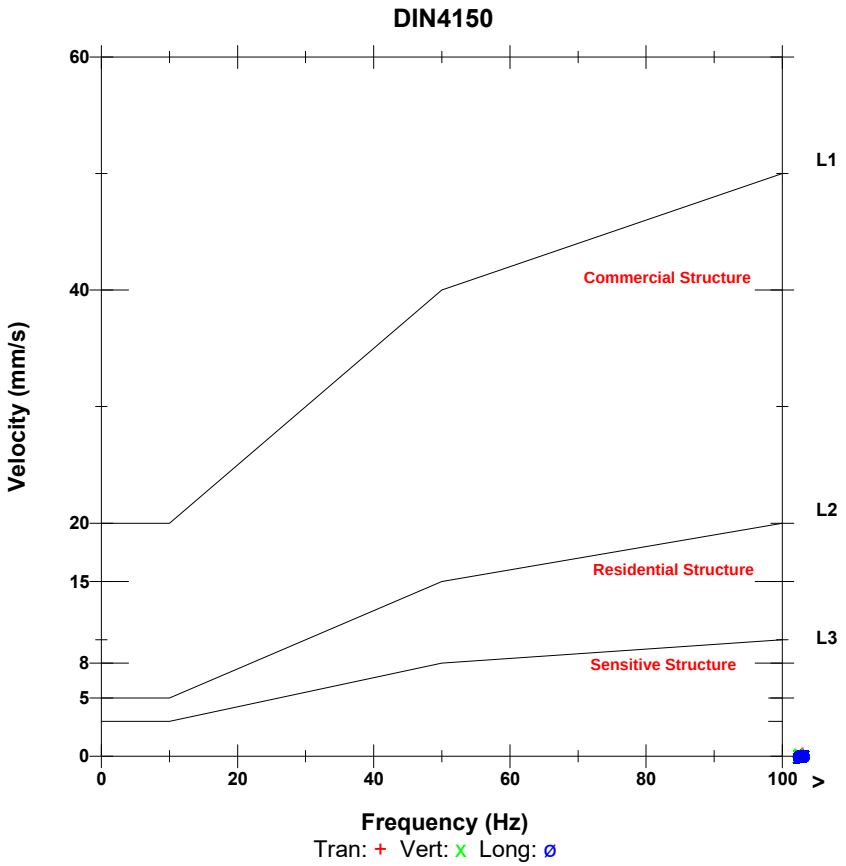
Extended Notes

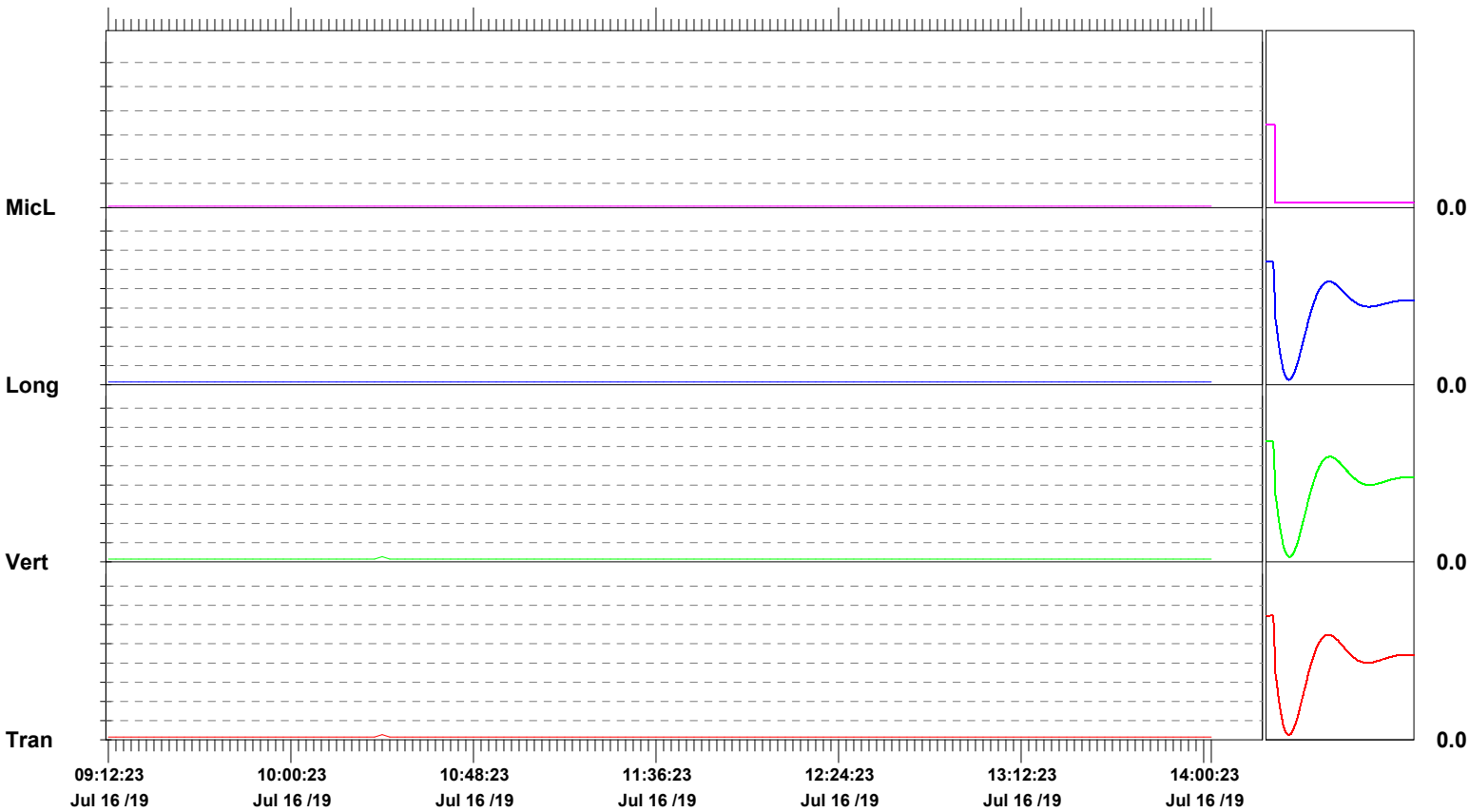
Address: 11725 1St. Ave. NE
Seattle, WA

Microphone	Linear Weighting
PSPL	<0.500 pa.(L) on July 16, 2019 at 09:10:38
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

	Tran	Vert	Long	
PPV	0.254	0.254	0.127	mm/s
ZC Freq	>100	>100	>100	Hz
Date	Jul 16 /19	Jul 16 /19	Jul 16 /19	
Time	10:22:38	10:22:38	09:10:38	
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.5	7.6	Hz
Overswing Ratio	3.6	3.6	3.9	

Peak Vector Sum 0.381 mm/s on July 16, 2019 at 10:22:38
N/A: Not Applicable





Time Scale: 2 minutes /div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 5.000 pa.(L)/div Sensor Check

Event Report

Histogram Start Time	14:22:47 July 16, 2019
Histogram Finish Time	15:46:48 July 16, 2019
Number of Intervals	336.00 at 15 seconds
Range	Geo:254.0 mm/s
Sample Rate	1024sps
Job Number:	1

Serial Number	BE11835 V 10.72-8.17 MiniMate Plus
Battery Level	6.3 Volts
Unit Calibration	September 13, 2018 by Instantel
File Name	__TEMP.EVT

Notes

Location: Northgate Elementary School
Client: Seattle PS
User Name: JTW
General: SeattlePS-11-01

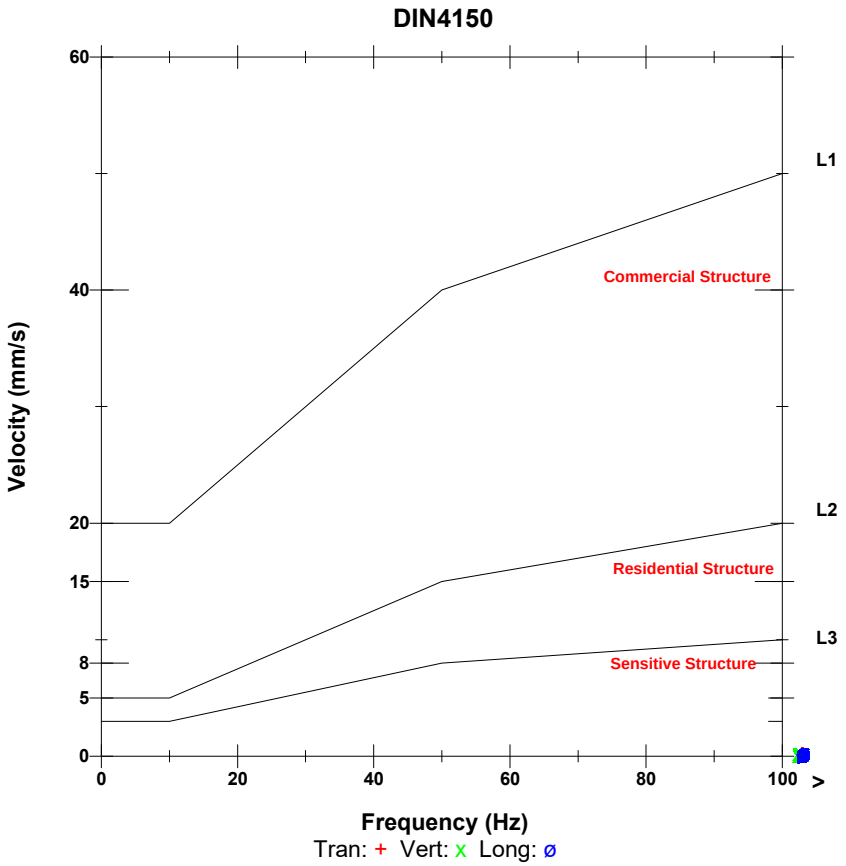
Extended Notes

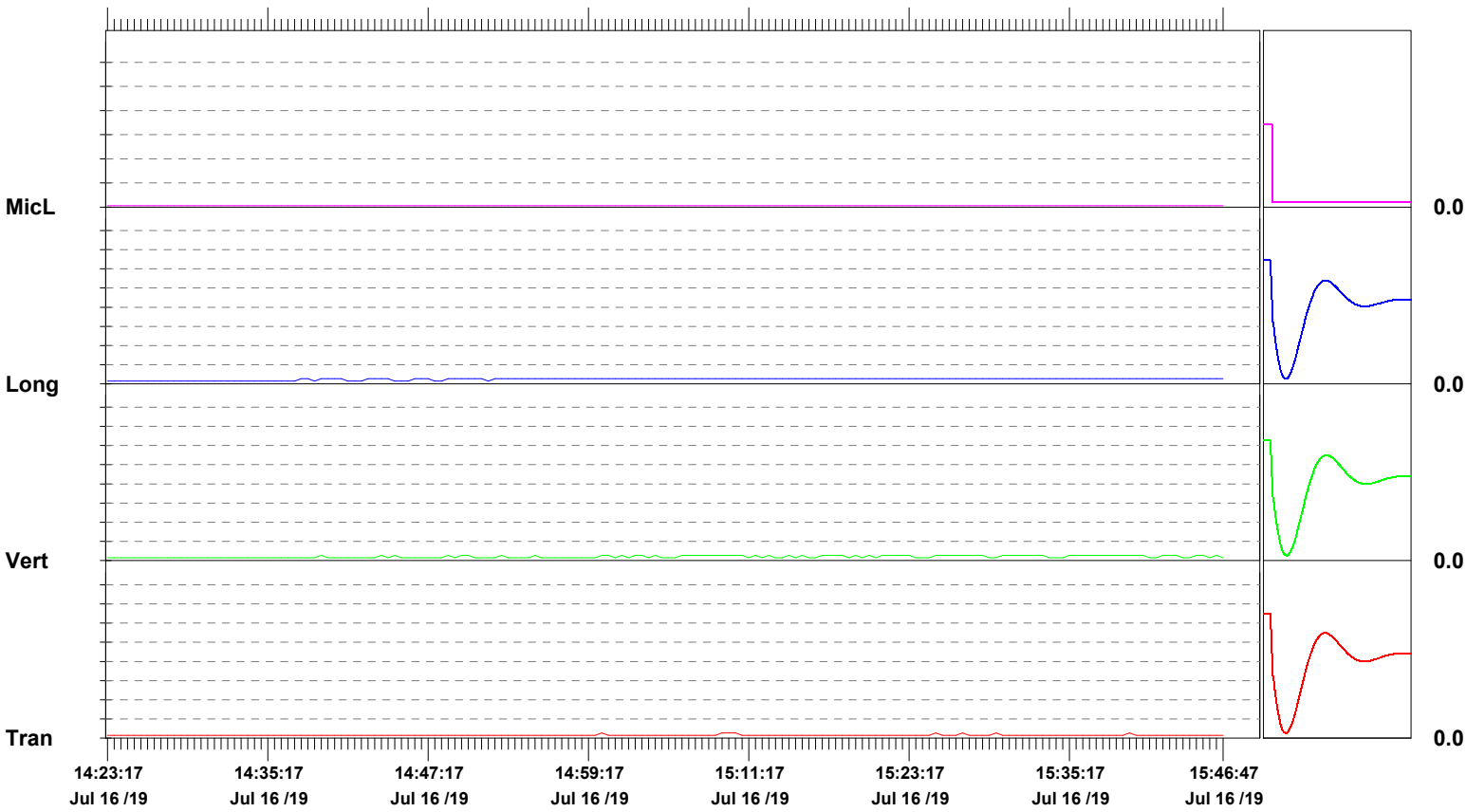
Address: 11725 1St. Ave. NE
Seattle, WA

Microphone	Linear Weighting
PSPL	<0.500 pa.(L) on July 16, 2019 at 14:23:02
ZC Freq	>100 Hz
Channel Test	Check (Freq = 0.0 Hz Amp = 0 mv)

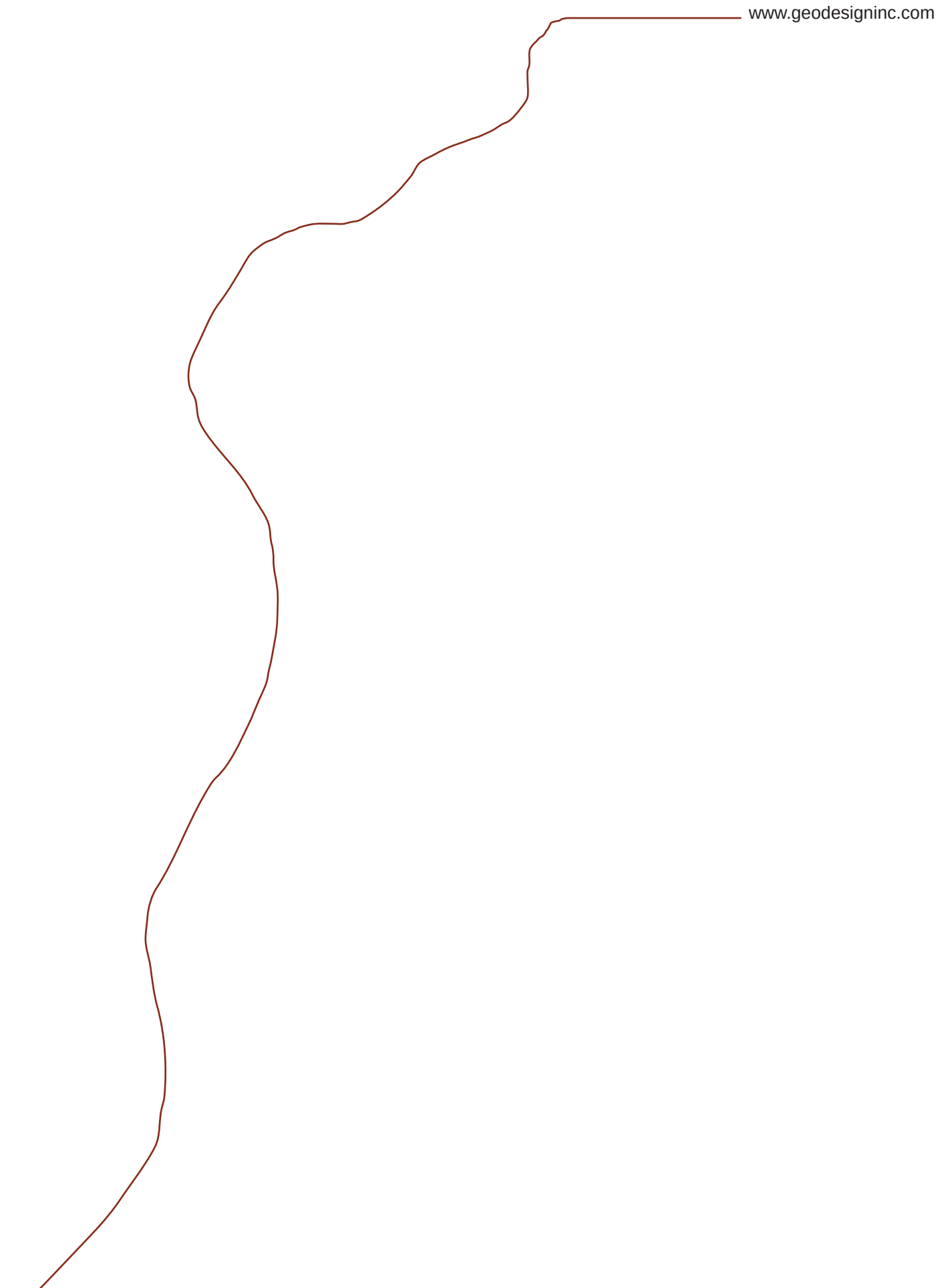
	Tran	Vert	Long	
PPV	0.254	0.254	0.254	mm/s
ZC Freq	>100	>100	>100	Hz
Date	Jul 16 /19	Jul 16 /19	Jul 16 /19	
Time	15:00:02	14:39:17	14:37:47	
Sensor Check	Passed	Passed	Passed	
Frequency	7.8	7.6	7.7	Hz
Overswing Ratio	3.5	3.5	3.9	

Peak Vector Sum 0.381 mm/s on July 16, 2019 at 15:09:17
N/A: Not Applicable





Time Scale: 30 seconds /div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 5.000 pa.(L)/div Sensor Check


www.geodesigninc.com

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.

Northgate Elementary School 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)			**Lifespan Emissions (MTCO2e)**
			Embodied	Energy	Transportation	
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		95.0	39	646	361	**99321**
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: **99321**

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		
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	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
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

TREE INVENTORY AND ARBORIST REPORT

Tree Solutions Inc
Consulting Arborists

Project No. TS - 6890

Arborist Report

To:	Seattle Public Schools c/o Vince Gonzales
Site:	Northgate Elementary, 11725 1st Ave NE Seattle, WA 98125
Re:	Northgate Elementary Redevelopment
Date:	September 4, 2020
Project Team:	Joseph Sutton-Holcomb ISA Certified Arborist #PN-8397A ISA Qualified Tree Risk Assessor
	Andrea Starbird, Environmental Scientist
Referenced Documents:	100% Design Development, NAC Architecture dated 08/06/2020
Attached:	Table of Trees Tree Site Map

Summary

Tree Solutions inventoried and assessed 43 trees on the site listed above. 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.

Of the trees assessed, four met the exceptional tree criteria outlined in the Seattle Director's Rule 16-2008.

We found no exceptional tree groves on-site. The City defines an exceptional grove as eight or more trees each with a DSH measuring 12 inches or greater with continuously overlapping canopies.

Trees on neighboring properties, including the right-of-way, were documented if they appeared to be greater than 6-inches diameter and their driplines extended over the property line, or if their presence might impact construction access. All tree diameters on adjacent properties were estimated from public property such as the adjacent right-of-way.

There were 14 trees adjacent to the site that required documentation for this property, seven of which qualify as exceptional based on our DSH estimates. Since our initial site visit, one of the 14 trees adjacent to the site has been removed.

Assignment and Scope of Work

This report outlines the site inspection of Northgate Elementary by Joseph Sutton-Holcomb and Andrea Starbird, of Tree Solutions Inc, on August 28, 2019. We were asked to evaluate all regulated trees on the site and identify any exceptional trees, as defined by the Seattle Director's Rule 16-2008. We were asked

to produce an Arborist Report outlining our findings. We performed a follow up site inspection on July 22, 2020 to evaluate the potential to transplant a small memorial tree. While on-site we conducted an updated inspection of some of the maple trees along 120th to evaluate retention potential with proposed Seattle Department of Transportation (SDOT) improvements.

Included are observations from the site inspection and discussion regarding retention and impacts related to proposed development. Vince Gonzales, of Seattle Public Schools, requested these services to acquire information for project planning.

On-site trees were assigned a numerical identifier and are tagged with a corresponding metal tree tag. Off-site trees were assigned an alphabetical identifier for the purpose of this report but are not tagged.

Observations & Discussion

Site

The site consists of two adjacent parcels in the Northgate neighborhood of Seattle.

The larger of the two, parcel ID 6411600312, is a 216,057 square foot site that fronts 1st Ave NE. The east side of this parcel spans the block between N 117th street and N 120th St, and the north side spans the block between 1st Ave NE and Corliss Ave N. Concrete and brick school buildings, a playground, and playfield currently exist on-site.

The smaller parcel, ID 6411600310, is a 35,308 square foot lot that fronts Corliss Ave N and spans half of the block between Corliss Ave N and 1st Ave NE. The two parcels meet near the midpoint of the existing playfield.

Trees

Specific details about each tree, including DSH, health, and structural condition are documented in the attached tree table. An annotated survey showing tree locations and identifiers is also attached.

On-site trees

Trees 402 through 418 are crimson king Norway maples (*Acer platanoides* 'Crimson King') planted along the west and north property lines along the playfield. All of these trees have surface roots with wounding, and many have girdling or circling roots at the base.

Despite these root problems, all but two are in good health and structural condition; tree 411 is in fair health and poor structural condition due to a large trunk wound at the base (Photo 1a) and tree 418 is in good health but fair structural condition due to significant trunk wounds on the east stems (Photo 1b).

Tree 419 is an exceptional vine maple (*Acer circinatum*) per the Seattle Director's Rule 16-2008, however, it is in decline and is not likely to survive development.

Trees 420 through 423 are flowering cherry (*Prunus serrulata*) in poor to fair health and structural condition.

Tree 424 is an exceptional Japanese red pine (*Pinus densiflora*) in good health and structural condition (Photo 2a). This tree has root conflicts with the adjacent parking lot (Photo 2b).

Tree 425 is a Colorado blue spruce (*Picea pungens*) in good health and structural condition (Photo 3). This tree has branches that overhang the roof of the school and the trunk is in close proximity to the existing school foundation.

Tree 426 is an exceptional Pacific madrone (*Arbutus menziesii*) in good health and structural condition. This tree shares a rooting area with tree 425.

Tree 441 is an exceptional Western hemlock (*Tsuga heterophylla*) in excellent health and fair structural condition (Photo 4).

Trees 442 and 443 are European white birches (*Betula pendula*) in poor health and structural condition due to heavy infestation of bronze birch borer (*Agrilus anxius*).

Tree 444 is a bitter cherry (*Prunus emarginata* var. *mollis*) in poor health and structural condition.

Off-site trees
There were 14 trees adjacent to the site that required documentation for this property, 7 of which qualify as exceptional based on our estimations. One of the trees, tree I, was in poor condition and has since been removed.

Discussion—Construction Impacts

Based on 100% Design Development plans, 33 trees are proposed for removal across the site; 22 trees are of regulated size, one of which is exceptional, and 11 are below regulated size. Proposed action and notes for individual trees are provided in the attached Table of Trees. All removed trees on-site are proposed for replacement.

Tree 419 is an exceptional vine maple, and the only exceptional tree proposed for removal. This tree is in decline it is our opinion that this tree will not survive construction impacts. Because of its exceptional status, removal must be approved by Settle Department of Construction and Inspection (SDCI) and will require replacement as outlined in SMC 25.11.090.

Tree Protection
A common tree layer that shows accurate driplines, exceptional status, tree identifiers, and tree protection fencing should be used as a base across the plan set on all plan pages that show retained trees, including demolition, civil, and landscape plans.

Per SMC 25.11.50, the basic tree protection area is the dripline of the retained tree. The attached tree table includes Tree Solutions recommended tree protection area which may extend beyond the dripline. The recommended tree protection area takes into consideration each tree's dripline, size, age, health, and structural condition as well as various tree species' sensitivity to development impacts.

Groups of retained trees should be protected together at the outer edge of the tree protection area.

Specific tree protection specifications are provided in Appendix G.

Trees 401-417 – Perimeter crimson king Norway maples
100% Design Development plans show sidewalk and right-of-way improvements that will require grade changes on the north side of the maples along 120th, and the west side of the maples along Corliss Ave. This work will require arborist coordination. Arborist monitoring and alternative excavation methods such as pneumatic air excavation should be used for any grade cuts that are planned to occur within the tree protection area.

Arborist woodchip mulch (4 to 6 inches) should be applied throughout the tree protection area prior to the start of construction. This will help retain moisture and reduce soil compaction as well as improve soil condition which will help reduce stress from impacts to roots on the north and west sides of the trees from SDOT sidewalk improvements.

Tree 424 – Exceptional Japanese red pine
This tree has root system conflicts with the adjacent parking area (Photo 2b). Any demolition of existing hardscape, excavation, or installation of new hardscape within the dripline should be done by hand and be supervised by a qualified ISA Certified Arborist.

Avoid trenching for utilities in the tree protection area.

Any grade changes planned to occur within the tree protection area should be carefully planned in coordination with the project arborist.

Tree 425 - Colorado blue spruce & 426 – Exceptional Pacific madrone
These trees are both in good health and structural condition, they share a root zone and are in close proximity to the existing school building.

According to the ISA Trees and Construction BMP, Pacific madrone has a low tolerance to development disturbance. The tree protection area for this tree should be the existing planting bed. Consider abandoning existing retaining walls in place or carefully removing and replacing them under arborist supervision. Careful demolition with arborist monitoring, supplemental irrigation, and soil protection will be imperative to retain this tree.

Tree 441 – Exceptional western hemlock
This tree is in good to excellent health condition. Western hemlock trees are sensitive to disturbance and do not respond well to root impacts. Large structural surface roots make this tree especially vulnerable to development impacts from machinery operating within the dripline or excavation. Tree protection fencing for this tree should be placed at 1 foot for every 1 inch of DSH at a minimum. This fencing may be moved, with arborist coordination, for the work detailed below:

As drawn, the Design Development plans show a sidewalk within the dripline of this tree. Ideally, only remove the organic matter and keep excavation to the top 4 to 6 inches of soil; the sidewalk could be at a slightly higher grade in this area and well-draining fill soil used to meet sidewalk grade. The subgrade for the sidewalk should be excavated with arborist coordination, utilizing pneumatic air excavation to expose large structural roots; coarse gravel (the larger the better) without fines should then be applied around the roots to create an air barrier. If large structural roots must be impacted, consider shaving the roots to accommodate the sub-base instead of completely severing them; a steel-plate can be attached to the root to direct response wood laterally and prevent future infrastructure conflicts. Do not impact roots greater than 2 inch diameter without supervision by the project arborist.

Off-Site Trees
The west property line has several large and/or exceptional trees that have a dripline overhanging school property. The exceptional status of off-site trees should be confirmed.

Demolition activities within the tree protection areas of off-site trees south of the classroom wing must occur with arborist coordination. If feasible, abandon the existing storm line in place. If it must be removed, arborist monitoring and use of an alternative excavation method such as pneumatic air excavation will be required.

Several portable buildings are proposed within the tree protection areas of off-site trees G and H, as well as on-site tree 441. These trees will require clearance pruning to accommodate these structures. Pruning should be the minimum required to provide clearance for the structures, and must be performed by a qualified ISA certified arborist. Upon request, Tree Solutions can produce a detailed pruning specification for this work.

Tree N is a Douglas-fir tree upslope from a proposed ramp. Depending on the required over-excavation and subbase for the ramp, alternative excavation methods such as pneumatic air excavation may be required.

Trees C, D, E, G, and N are likely exceptional. Any excavation within the dripline of exceptional trees will require SDCI approval and arborist monitoring.

All off-site trees will require protection during demolition and construction activity, following specifications provided in Appendix G.

Recommendations

- Site planning around exceptional trees must follow the guidelines outlined in SMC 25.11.050.
- Site planning around trees in critical areas must follow the guidelines outlined in SMC 25.09.070.
- Confirm size and exceptional status of trees off-site with overhanging canopies likely to be impacted by construction activities; trees C, D, E, G, and N.
- Add tree numbers and tree protection specifications to all plan pages that show retained trees; including the location of tree protection fencing, limits of disturbance, root management, soil protection, and excavation requirements. Refer to Appendix B for detailed specifications.
- The project arborist should inspect tree protection fencing prior to the start of demolition.
- Arborist monitoring should occur with any required excavation in the tree protection area of retained trees and may require alternative excavation methods such as pneumatic air excavation.
    - Areas called out for arborist monitoring should be noted on the plan sets.
- Grading activities should be avoided or minimized as much as possible within the tree protection area of retained trees.
    - At a minimum, avoid grade cuts within the tree protection area and utilize minimal fill as approved by the project arborist.
    - When feasible, consider abandoning existing retaining walls around retained trees to minimize grade changes. If walls must be removed, install new retaining wall in the same location in order to maintain existing grade around trees
- Route proposed utilities that require trenching outside of the tree protection areas of retained trees both on and off-site.

    - Consider abandoning decommissioned utility lines in place within tree protection areas for both on- and off-site trees.

- Where seeded grass lawn is proposed, the existing lawn should be retained. Soils are compacted and many trees have surface roots. Consider remediating the soil in this area and reseeding the existing lawn area.
    - Upon request, Tree Solutions can provide information on methods for renovating and replacing turfgrass that minimize impact to tree roots.
- Utilize small plant stock (maximum 1-2 gallon size) for installation within the tree protection area of retained trees. Install plants within driplines of retained trees by hand and only in the outer half of their driplines.
- No trenching for irrigation can occur within the dripline of retained trees.
- Implement temporary irrigation for all retained trees on-site throughout the dry season; May through September.
- All necessary clearance pruning should be conducted by an ISA certified arborist and following ANSI A300 specifications.

Respectfully submitted,

Andrea Starbird and Joseph Sutton-Holcomb,
Consulting Arborist

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 **Site Map**

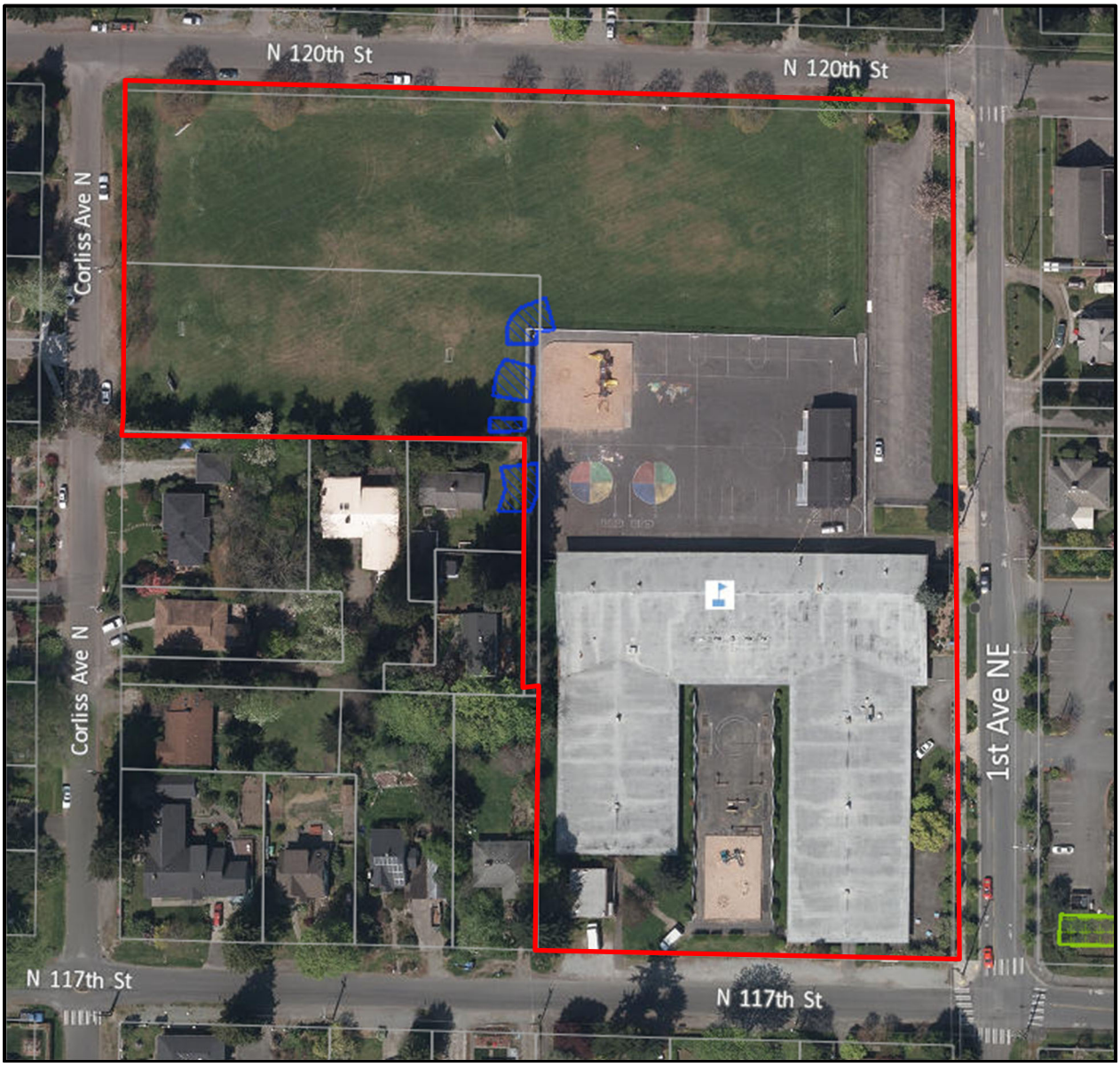


Figure 1. An aerial view of the site. The red lines indicate the approximate boundaries of the parcels assessed. The blue diagonal lines indicate steep slope environmentally critical areas (Source: SDCI GIS)

Appendix D **Photographs**

Photo 1a, 1b. Tree 411, Tree 418.

Photo 2a. Tree 424, an exceptional Japanese red pine, has structural roots in conflict with asphalt to the east (yellow).

Photo 2b. Detail of structural roots of tree 424 in conflict with asphalt to the east.

Photo 3. View looking north at the school and Tree 425, a Colorado blue spruce.


Photo 4. Tree 441, an exceptional western hemlock.

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

I measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, I 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.

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

Appendix G **Tree Protection Specifications**

The follow is a list of protection measures that must be employed before, during and after construction to ensure the long-term viability of retained trees.

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):** The city of Seattle requires a tree protection area to be the area within dripline. In some cases, the TPA may extend outside tree protection fencing. Work within the TPA must be approved and monitored by the project arborist.
3. **Tree Protection Fencing:** Tree protection shall consist of 6-foot chain-link fencing installed at 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 grove.
    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 tree protection is placed at the top of a rockery, high visibility fencing shall be used.
    e. 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, with 3” tall text. Signage will note: “Tree Protection Area – Do Not Enter: Entry into the tree protection area is prohibited unless authorized by the project manager.” Signage shall include the contact information for the project manager and instructions for gaining access to the area.
6. **Filter Fencing:** Filter fencing within the TPA of retained trees shall be installed in a manner that does not sever roots. Do not trench to insert fabric into the ground. Install so that filter fabric sits on the ground and is weighed in place by sandbags or gravel.
7. **Monitoring:** The project arborist shall monitor all ground disturbance at the edge of or within the TPA, including where the TPA extends beyond the tree protection fencing.
8. **Soil Protection:** 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 applying 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). Retain existing paved surfaces within or at the edge of the TPA for as long as possible.
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 five 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 at the edge of or 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 visqueen 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 onsite 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 visqueen
    - Burlap
    - Water

Tree Solutions Inc
Consulting Arborists

Table of Trees

11725 1st Ave NE Seattle, WA 98125

Arborist: J. Sutton-Holcomb, A. Starbird
Date of Inventory: Aug 28, 2019
Table Amended: Sept 04, 2020

DSH (Diameter at Standard Height) is measured 4.5 feet above grade.
Multi-stem trees are noted, and a single stem equivalent is calculated using the method defined in the Director's Rule 16-2008.
Letters are used to identify trees on neighboring property 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**	**Exceptional by Size**	**Recommended Tree Protection Area** (feet)	**Tree Protection Area Determiner**	**Proposed Action**	**Notes**
On-site Trees																
402	*Acer platanoides*	Norway maple	14.2		Good	Good	19.6	19.1	17.6	16.1	*30.0*	-	18	dripline	Retain	Surface roots with damage, all Norway maples in north lot are 'Crimson King' cultivar, all maple trees in row have surface roots with wounding. Power lines along row to the west could present future utility conflict
403	*Acer platanoides*	Norway maple	14.6		Good	Good	14.6	16.6	15.1	16.1	*30.0*	-	16	dripline	Retain	
404	*Acer platanoides*	Norway maple	13.0		Good	Good	6.0	14.0	17.0	14.0	*30.0*	-	13	dripline	Retain	Large wound at 2.5 feet with good response, some canopy dieback
405	*Acer platanoides*	Norway maple	16.1		Good	Good	19.7	18.7	16.7	16.7	*30.0*	-	18	dripline	Retain	
406	*Acer platanoides*	Norway maple	17.3		Good	Fair	16.2	15.7	14.2	18.2	*30.0*	-	16	dripline	Retain	Tridominant at 5 feet with included bark, atypical root flare, measured at narrowest point below union.
407	*Acer platanoides*	Norway maple	11.8		Good	Good	18.0	15.0	17.5	17.0	*30.0*	-	17	dripline	Retain	End of west property line row, wound on south side at 3-5 feet, girdling roots
408	*Acer platanoides*	Norway maple	21.2		Good	Good	21.4	26.4	24.4	21.4	*30.0*	-	23	dripline	Retain	Start of north row, surface roots, girdling roots, multiple small wounds with good response growth in canopy
409	*Acer platanoides*	Norway maple	21.2		Good	Good	19.9	20.9	25.4	20.9	*30.0*	-	22	dripline	Retain	Foliage thinning at top of canopy, large girdling roots on east side of trunk. Could be in fair condition in 1-2 years if dieback continues
410	*Acer platanoides*	Norway maple	14.7		Good	Good	19.1	14.1	14.6	14.1	*30.0*	-	15	dripline	Retain	3 inch branch in canopy has significant wound, moderate response growth.
411	*Acer platanoides*	Norway maple	10.6		Fair	Poor	11.9	11.4	12.4	11.9	*30.0*	-	12	-	Retain	Significant trunk wound at base to 2 feet, 40-50% of trunk circumference. Significant wounding of surface roots.
412	*Acer platanoides*	Norway maple	15.7		Good	Good	19.7	17.2	17.2	17.7	*30.0*	-	18	dripline	Retain	Surface roots with wounding near base on the north side, 8.5 inch scaffold branch on south side of tree with large wound on compression side of branch, good response growth.
413	*Acer platanoides*	Norway maple	13.3		Good	Good	20.1	14.6	21.1	16.1	*30.0*	-	18	dripline	Retain	
414	*Acer platanoides*	Norway maple	14.8		Good	Good	20.6	16.6	17.1	15.6	*30.0*	-	17	dripline	Retain	Minor canopy dieback
415	*Acer platanoides*	Norway maple	13.5		Good	Good	18.1	17.6	18.6	18.1	*30.0*	-	18	dripline	Retain	Surface roots with wounding near base on the north side.
416	*Acer platanoides*	Norway maple	18.2		Good	Good	20.3	16.8	19.3	17.3	*30.0*	-	18	dripline	Retain	
417	*Acer platanoides*	Norway maple	19.3		Good	Good	19.3	20.3	17.8	19.3	*30.0*	-	19	dripline	Retain	
418	*Acer platanoides*	Norway maple	21.9	13.1,7.5,15.9	Good	Fair	23.9	13.9	14.9	16.9	*30.0*	-	-	-	Remove	Tridominant at 1 foot, significant wounds on east stems with response growth, surface roots with wounding. Smallest stem is purple, larger stems have reverted to green. Larger green leafed stems are possible suckers from below graft union. Conflicts with proposed development.

Tree Solutions Inc
Consulting Arborists

Table of Trees

11725 1st Ave NE Seattle, WA 98125

Arborist: J. Sutton-Holcomb, A. Starbird
Date of Inventory: Aug 28, 2019
Table Amended: Sept 04, 2020

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Recommended Tree Protection Area (feet)	Tree Protection Area Determiner	Proposed Action	Notes
419	*Acer circinatum*	Vine maple	8.1	5.3,4,3.1,3.5	Fair	Fair	8.3	8.3	8.3	8.3	*8.0*	Exceptional	8	-	Remove	Symptoms of sunscald and drought stress, in parking lot island. Remove due to condition.
420	*Prunus serrulata*	Flowering cherry	17.6	11,13.8	Poor	Poor	12.7	10.2	7.7	6.2	*23.0*	-	-	-	Remove	Start of row of ailing cherry trees. Curb is 2 feet to the west of trees in this row.
421	*Prunus serrulata*	Flowering cherry	19.0		Fair	Fair	11.8	16.3	16.3	18.8	*23.0*	-	-	-	Remove	Measured at narrowest point below union, surface roots with wounding.
422	*Prunus serrulata*	Flowering cherry	13.8		Poor	Poor	11.6	7.6	7.6	7.6	*23.0*	-	-	-	Remove	In decline
423	*Prunus serrulata*	Flowering cherry	12.7	7.2,7,7.8	Poor	Poor	7.0	7.0	7.0	10.5	*23.0*	-	-	-	Remove	In decline
424	*Pinus densiflora*	Japanese red pine	21.8	14.5,16.3	Good	Good	16.4	18.4	21.4	18.4	*20.0*	Exceptional	22	**1 foot for 1 inch DSH**	Retain	Likely an ornamental cultivar due to its small, dense stature. Significant roots under pavement to the north; careful demo with arborist monitoring.
425	*Picea pungens*	Colorado spruce	18.1		Good	Good	7.8	14.8	14.8	13.8	*23.1*	-	18 / planting bed as a whole	**planting bed**	Retain	likely ''Glauca' cultivar, trunk is 7 feet from existing foundation, branches over the roof of school to the west; careful demo with arborist monitoring.
426	*Arbutus menziesii*	Pacific madrone	6.5		Good	Good	10.3	12.3	7.8	4.8	*6.0*	Exceptional	9 / planting bed as a whole	**planting bed**	Retain	Protect entire existing planting bed, consider abandoning existing retaining wall in place or carefully replacing it; careful demo with arborist monitoring.
427	*Prunus serrulata*	Flowering cherry	6.4		Good	Good	6.3	6.3	6.3	6.3	*23.0*	-	-	-	Remove	
428	*Prunus serrulata*	Flowering cherry	10.7		Good	Good	11.4	11.4	11.4	11.4	*23.0*	-	-	-	Remove	Measured at narrowest point below union.
429	*Prunus serrulata*	Flowering cherry	11.2		Good	Good	11.5	11.5	11.5	11.5	*23.0*	-	-	-	Remove	
430	*Magnolia x soulangiana*	Saucer magnolia	14.5		Good	Good	19.6	21.6	19.6	12.6	*30.0*	-	18	dripline	Retain	
431	*Malus sp.*	Flowering crabapple	9.5	6.9, 6.6	Poor	Poor	5.4	8.4	5.4	8.4	-	-	-	-	Remove	Size of fruit indicates that tree is a crabapple. Exact species difficult to determine. Likely an older cultivar. All trees in row appear to be same species.
432	*Malus sp.*	Flowering crabapple	10.3	8,6.5	Poor	Poor	5.4	5.4	8.4	8.4	-	-	-	-	Remove	See notes for tree 431
433	*Malus sp.*	Flowering crabapple	11.3	9.5,6.2	Fair	Fair	10.5	13.0	4.5	10.5	-	-	-	-	Remove	See notes for tree 431
434	*Malus sp.*	Flowering crabapple	11.0		Fair	Fair	7.5	15.5	14.0	12.5	-	-	12	-	Remove	Begins row on the south side, growing on top of boulders - removal of boulders would likely destabilize tree.
435	*Malus sp.*	Flowering crabapple	12.5		Fair	Fair	7.5	10.0	11.5	12.5	-	-	13	-	Remove	
436	*Pinus sylvestris*	Scots pine	13.6		Fair	Fair	0.6	22.6	17.6	8.6	*24.0*	-	14	-	Remove	Pitch moth symptoms present. Overextended procumbent structure a result of pruning practices as opposed to a genetic trait. Appears to be an experimental bonsai tree
437	*Pinus mugo*	Mugo pine	7.8		Fair	Good	9.3	9.3	9.3	9.3	*17.2*	-	9	-	Remove	Pitch moth, canopy dieback 10-15%
438	*Styrax japonicus*	Japanese snowbell	6.0		Good	Good	7.3	7.3	7.3	7.3	*12.0*	-	7	-	Remove	Diameter measured at narrowest point below union
439	*Pseudotsuga menziesii*	Douglas-fir	14.0		Good	Good	15.6	17.6	16.6	18.1	*30.0*	-	17	-	Remove	Pruning wounds with pitch, crown raised by about 8 feet
440	*Acer platanoides*	Norway maple	12.5		Good	Good	18.5	15.5	18.0	17.0	*30.0*	-	17	-	Remove	

Tree Solutions Inc
Consulting Arborists

Table of Trees

11725 1st Ave NE Seattle, WA 98125

Arborist: J. Sutton-Holcomb, A. Starbird
Date of Inventory: Aug 28, 2019
Table Amended: Sept 04, 2020

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Recommended Tree Protection Area (feet)	Tree Protection Area Determiner	Proposed Action	Notes
441	*Tsuga heterophylla*	Western hemlock	33.7		Excellent	Fair	23.4	23.4	23.4	23.4	*24.0*	Exceptional	34	**1 foot for 1 inch DSH**	Retain	Tree protection should be placed at dripline plus 5 feet as a minimum. Codominant stems with included bark and narrow angle of attachment at 38 feet. This defect should be managed with pruning within 3 years. large structural surface roots make this tree vulnerable to development impacts.
442	*Betula pendula*	European white birch	19.0		Poor	Poor	4.8	4.8	4.8	4.8	*24.0*	-	19	-	Remove	Living snags, remove standing snags and deadwood left from previous canopy removal to prevent spread of bronze birch borer to healthy trees in the area.
443	*Betula pendula*	European white birch	15.5		Poor	Poor	10.6	10.6	10.6	10.6	*24.0*	-	16	-	Remove	Living snags, remove standing snags and deadwood left from previous canopy removal to prevent spread of bronze birch borer to healthy trees in the area.
444	*Prunus emarginata var. mollis*	Bitter cherry	13.8		Poor	Poor	7.6	7.6	7.6	7.6	*Not Exceptional except in grove*	-	14	-	Remove	Holly at base, major canopy dieback. Large pieces of deadwood target school roof in the event of failure. Recommend removal before November 2019.
Off-site Trees with Overhanging Canopies																
A	*Crataegus laevigata*	English hawthorn	12.0	9,8	Good	Fair	16.0	0.5	0.5	0.5	*16.0*	-	12	1 foot for 1 inch DSH	Retain	Growing on top of concrete wall, dripline overhangs the stairwell to the north
B	*Chamaecyparis lawsoniana*	Lawson cypress	23.0	12,8,8,16	Good	Fair	11.0	1.0	1.0	1.0	*30.0*	-	23	1 foot for 1 inch DSH	Retain	North dripline overhangs the fence, tree is growing though the fence itself
C	*Thuja plicata*	Western redcedar	32.0		Good	Good	21.3	1.3	1.3	1.3	*30.0*	Exceptional	32	1 foot for 1 inch DSH	Retain	North dripline overhangs the fence, tree is growing though the fence itself
D	*Thuja plicata*	Western redcedar	33.0		Good	Good	24.4	1.4	1.4	1.4	*30.0*	Exceptional	33	1 foot for 1 inch DSH	Retain	
E	*Cornus nuttallii*	Pacific dogwood	18.0	15,10	Fair	Poor	33.8	0.8	0.8	0.8	*6.0*	Exceptional	18	1 foot for 1 inch DSH	Retain	Heavy anthracnose, tree partially defoliated from disease, in decline
F	*Acer circinatum*	Vine maple	10.6	6,6,5,4	Good	Fair	10.9	0.4	0.4	0.4	*8.0*	Exceptional	11	1 foot for 1 inch DSH	Retain	Has been heavily pruned previously with heading cuts
G	*Pseudotsuga menziesii*	Douglas-fir	40.0		Fair	Poor	20.2	1.7	1.7	1.7	*30.0*	Exceptional	40	1 foot for 1 inch DSH	Retain	Overhangs fence. Ivy on trunk, heavy ivy at base and on the fence. Previously topped at 25 feet with no response growth, living snag, growing under power lines
H	*Populus × canescens*	Gray poplar	18.0		Fair	Fair	24.8	0.8	0.8	0.8	*30.0*	-	18	1 foot for 1 inch DSH	Retain	Leaf spots, previously topped, holly and heavy ivy present
I	*Thuja plicata*	Western redcedar	27.7	27,6	Poor	Poor	24.2	1.2	1.2	1.2	*30.0*	-	28	1 foot for 1 inch DSH	has been removed as of 7/22/2020	Previously topped at 28 feet. Tree is in decline, likely dead in 6-12 months.
J	*Corylus cornuta*	Beaked hazelnut	8.1	2,2,2,2,3,3,4,4	Fair	Fair	10.8	0.3	0.3	0.3	*0.0*	-	8	1 foot for 1 inch DSH	Retain	8 stems 2-4 in diameter
K	*Arbutus menziesii*	Pacific madrone	25.0		Poor	Poor	1.0	1.0	1.0	1.0	*6.0*	Exceptional	25	1 foot for 1 inch DSH	Retain	Codominant at 5 feet with included bark, previously topped for utilities. Significant dieback on stem overhanging street to west
L	*Prunus cerasifera*	Cherry plum	7.0		Good	Fair	0.3	12.3	0.3	0.3	*21.0*	-	7	1 foot for 1 inch DSH	Retain	

Tree Solutions Inc
Consulting Arborists

Table of Trees

11725 1st Ave NE Seattle, WA 98125

Arborist: J. Sutton-Holcomb, A. Starbird
Date of Inventory: Aug 28, 2019
Table Amended: Sept 04, 2020

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Recommended Tree Protection Area (feet)	Tree Protection Area Determiner	Proposed Action	Notes
M	*Acer macrophyllum*	Bigleaf maple	0.0				0.0	10.0	0.0	0.0	*30.0*	-	confirm diameter to determine tree protection	1 foot for 1 inch DSH	Retain	Dripline overhangs fence by 10 feet, unlikely to be impacted by construction. Mature, some dieback in canopy. Can't assess trunk or root flare due to access limitations.
N	*Pseudotsuga menziesii*	Douglas-fir	50.0		Good/ Excellent	Fair	2.1	37.6	2.1	2.1	*30.0*	Exceptional	50	1 foot for 1 inch DSH	Retain	Previously topped at 25 feet many years ago, 20 foot overhang onto school property.

SW/4, NW/4, SECTION 29, TOWNSHIP 26 N, RANGE 04 E

20 10 0 20 40
SCALE IN FEET

PHILLIP T. ABENROTH
STATE OF WASHINGTON
42666
REGISTERED
PROFESSIONAL LAND SURVEYOR

LEGEND

SHRUB	BUILDING LINE
CONIFER TREE	SHRUB
DECIDUOUS TREE	CHAINLINK FENCE AS NOTED
GAS VALVE	WOOD FENCE AS NOTED
JUNCTION BOX	POWER LINE
POWER VAULT	RECORD POWER LINE
POWER POLE W/LIGHT	OVERHEAD LINE
GUY ANCHOR	GAS LINE
STORM DRAIN MANHOLE	RECORD GAS LINE
CATCH BASIN	STORM DRAIN LINE
CULVERT AS NOTED	RECORD STORM DRAIN LINE
WATER VAULT	SANITARY SEWER LINE
FIRE HYDRANT	RECORD SANITARY SEWER
WATER VALVE	WATER LINE
WATER METER	RECORD WATER LINE
WATER MANHOLE	FIBER OPTICS LINE
SANITARY SEWER MANHOLE	RIGHT-OF-WAY
SANITARY SEWER CLEAN OUT	CENTERLINE
BOLLARD	PROPERTY LINE
SIGN	LOT LINE
MAILBOX	CONCRETE PAVEMENT
FOUND MONUMENT IN CASE	ASPHALT PAVEMENT
PK NAIL W/WASHER	GRAVEL
HUB AND TACK SURVEY POINT	0.5'TALL CONCRETE WHEEL STOP

DATUMS:

HORIZONTAL DATUM:
NAD 83/11 WA NORTH

COORDINATES ESTABLISHED THROUGH GPS RTK OBSERVATIONS ON WSDOT MONUMENT IS1724 VIA THE WASHINGTON STATE REFERENCE NETWORK. ADDITIONAL CONTROL COORDINATES ESTABLISHED BY GPS RTK OBSERVATIONS AND CLOSED TRAVERSE.

RM POINT NO. 3 (WSDOT MON IS1724): EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 117TH STREET AND 1ST AVENUE NE
N= 264049.81 , E= 1272303.73 , ELEVATION= 354.74

VERTICAL DATUM: NAVD 88
DERIVED FROM GPS RTK OBSERVATIONS ON WSDOT MON IS1724 VIA THE WASHINGTON STATE REFERENCE NETWORK

PROJECT BENCHMARKS:
RM POINT NO. 9: EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 120TH STREET AND CORLISS AVENUE N (–0.8 DOWN)
N= 264732.07 , E= 1271652.36 , ELEVATION= 389.87

RM POINT NO. 5: EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 120TH STREET AND 1ST AVENUE NE (–0.85 DOWN)
N= 264713.39 , E= 1272296.12 , ELEVATION= 376.17

RM POINT NO. 3 (WSDOT MON IS1724): EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 117TH STREET AND 1ST AVENUE NE
N= 264049.81 , E= 1272303.73 , ELEVATION= 354.74

CONTROL METHODOLOGY

EQUIPMENT : LEICA GS14 GNSS RECEIVER
METHOD : 3 MINUTE OBSERVATIONS

EQUIPMENT : LEICA MS50 MULTISTATION
METHOD : FIELD TRAVERSE

TOPOGRAPHY METHODOLOGY

ACCURACY : CONFORMS TO WAC 332-130-090

EQUIPMENT : LEICA MS50 MULTISTATION
METHOD : FIELD TRAVERSE

EQUIPMENT : YUNEEC H520 UAV
METHOD : AERIAL PHOTOGRAMMETRY

FIELDWORK PERFORMED : AUGUST–SEPTEMBER 2019

SURVEY NOTES:

1. THIS SURVEY WAS MADE WITHOUT THE BENEFIT OF A TITLE REPORT. A BOUNDARY SURVEY WAS COMPLETED IN CONJUNCTION WITH THIS TOPOGRAPHIC SURVEY.
2. PART OF TOPOGRAPHIC ELEMENTS ON THIS MAP WERE DERIVED FROM AN AERIAL SURVEY THAT WAS COMPLETED IN CONJUNCTION WITH TOPOGRAPHIC SURVEY.

UTILITY NOTES:

1. THE UTILITIES SHOWN HEREON ARE BASED ON OBSERVATION OF SURFACE FEATURES, RECORD UTILITY MAPS/COUNTY GIS SYSTEM AND BY PAINT MARKS SET BY A UTILITY LOCATING COMPANY. FIELD LOCATIONS MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.
2. UTILITIES MARKED * ARE AS PER CITY OF SEATTLE GIS SYSTEM.

NORTHGATE ELEMENTARY

FIRST AVENUE N.E.

N

M

row of NR hawthorn

641160024

444: Cherry with one living stem and one dead codominant stem

LOT 4

A.P.N. 6411600290

424 426 425 427 NR 428 NR 429 430 NR NR NR 431 NR NR 432 433 NR 434 435 436 437 438 439 440 441 442 443

row of NR *Carpinus*

Tree Solutions Inc.
Arborist: Joseph Sutton-Holcomb
206-528-4670

Tree Inventory

Tree inventory took place on August 28, 2019 and included all trees 6-inches diameter or greater on the site. We also assessed trees with overhanging canopies. Tree icons used on the survey do not denote canopy drip lines. Drip line measurements and other tree specifics are listed in the tree table produced by Tree Solutions Inc. and should be added to this drawing prior to any design relating to tree protection.

Under regulated DSH: NR
Not on survey: ●

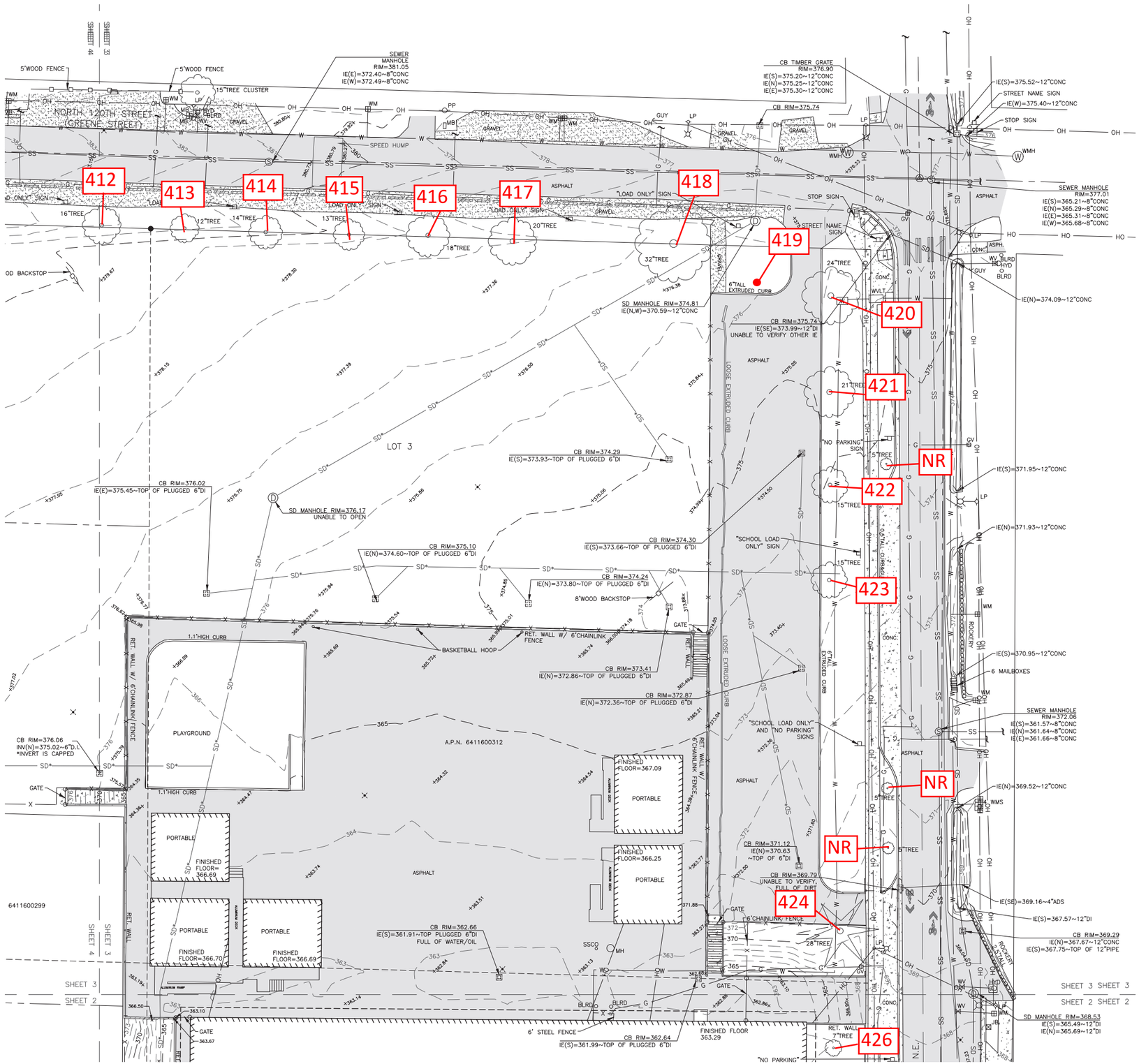
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555

NOTE:
IF "L" DOES NOT MEASURE 1" ADJUST SCALES ACCORDINGLY.

TOPOGRAPHIC AND BOUNDARY SURVEY
SEATTLE SCHOOL DISTRICT NO.1
NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WASHINGTON

SCALE	1"=20'
DES.	SHEET NO.
DR. IW	2
CH. PTA	
F.B. 908	OF 4 SHEETS
DATE 9/20/2019	
FILE NO. 222019.009	

SW/4, NW/4, SECTION 29, TOWNSHIP 26 N, RANGE 04 E



20 10 0 20 40

SCALE IN FEET

LEGEND

	SHRUB		BUILDING LINE
	CONIFER TREE		SHRUB
	DECIDUOUS TREE	X	CHAINLINK FENCE AS NOTED
GV	GAS VALVE		WOOD FENCE AS NOTED
JB	JUNCTION BOX	P	POWER LINE
PVLT PP	POWER VAULT	P*	RECORD POWER LINE
LP	POWER POLE W/LIGHT	OH	OVERHEAD LINE
GUY	GUY ANCHOR	G	GAS LINE
D	STORM DRAIN MANHOLE	G*	RECORD GAS LINE
	CATCH BASIN	SD	STORM DRAIN LINE
	CULVERT AS NOTED	SD*	RECORD STORM DRAIN LINE
WVLT W	WATER VAULT	SS	SANITARY SEWER LINE
HYD	FIRE HYDRANT	SS*	RECORD SANITARY SEWER
WV	WATER VALVE	W	WATER LINE
WM	WATER METER	W*	RECORD WATER LINE
WMH W	WATER MANHOLE	FO	FIBER OPTICS LINE
S	SANITARY SEWER MANHOLE		RIGHT-OF-WAY
SSCO	SANITARY SEWER CLEAN OUT		CENTERLINE
BLRD	BOLLARD		PROPERTY LINE
	SIGN		LOT LINE
MB	MAILBOX		CONCRETE PAVEMENT
	FOUND MONUMENT IN CASE		
	PK NAIL W/WASHER		ASPHALT PAVEMENT
	HUB AND TACK SURVEY POINT		GRAVEL
			0.5'TALL CONCRETE WHEEL STOP

DATUMS:

HORIZONTAL DATUM:
NAD 83/11 WA NORTH

COORDINATES ESTABLISHED THROUGH GPS RTK OBSERVATIONS ON WSDOT MONUMENT IS1724 VIA THE WASHINGTON STATE REFERENCE NETWORK. ADDITIONAL CONTROL COORDINATES ESTABLISHED BY GPS RTK OBSERVATIONS AND CLOSED TRAVERSE.

RM POINT NO. 3 (WSDOT MON IS1724): EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 117TH STREET AND 1ST AVENUE NE
N= 264049.81 , E= 1272303.73 , ELEVATION= 354.74

VERTICAL DATUM: NAVD 88
DERIVED FROM GPS RTK OBSERVATIONS ON WSDOT MON IS1724 VIA THE WASHINGTON STATE REFERENCE NETWORK

PROJECT BENCHMARKS:
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EQUIPMENT : LEICA GS14 GNSS RECEIVER
METHOD : 3 MINUTE OBSERVATIONS

EQUIPMENT : LEICA MS50 MULTISTATION
METHOD : FIELD TRAVERSE

TOPOGRAPHY METHODOLOGY

ACCURACY : CONFORMS TO WAC 332-130-090

EQUIPMENT : LEICA MS50 MULTISTATION
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42666
REGISTERED PROFESSIONAL LAND SURVEYOR

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NOTE:
IF "L" DOES NOT MEASURE 1" ADJUST SCALES ACCORDINGLY.

REVISION	BY	DATE	NO.

ReidMiddleton
728 134th Street SW • Suite 200
Everett, Washington 98204
Ph: 425 741-3800

TOPOGRAPHIC AND BOUNDARY SURVEY
SEATTLE SCHOOL DISTRICT NO.1
NORTHGATE ELEMENTARY SCHOOL
SEATTLE, WASHINGTON

SCALE	1"=20'
DES.	SHEET NO. 3
DR. IW	
CH. PTA	
F.B. 908	of 4 SHEETS
DATE 9/20/2019	
FILE NO. 222019.009	

SW/4, NW/4, SECTION 29, TOWNSHIP 26 N, RANGE 04 E

LEGEND

SHRUB	BUILDING LINE
CONIFER TREE	SHRUB
DECIDUOUS TREE	CHAINLINK FENCE AS NOTED
GAS VALVE	WOOD FENCE AS NOTED
JUNCTION BOX	POWER LINE
POWER VAULT	RECORD POWER LINE
POWER POLE W/LIGHT	OVERHEAD LINE
GUY ANCHOR	GAS LINE
STORM DRAIN MANHOLE	RECORD GAS LINE
CATCH BASIN	STORM DRAIN LINE
CULVERT AS NOTED	RECORD STORM DRAIN LINE
WATER VAULT	SANITARY SEWER LINE
FIRE HYDRANT	RECORD SANITARY SEWER
WATER VALVE	WATER LINE
WATER METER	RECORD WATER LINE
WATER MANHOLE	FIBER OPTICS LINE
SANITARY SEWER MANHOLE	RIGHT-OF-WAY
SANITARY SEWER CLEAN OUT	CENTERLINE
BOLLARD	PROPERTY LINE
SIGN	LOT LINE
MAILBOX	CONCRETE PAVEMENT
FOUND MONUMENT IN CASE	ASPHALT PAVEMENT
PK NAIL W/WASHER	GRAVEL
HUB AND TACK SURVEY POINT	0.5'TALL CONCRETE WHEEL STOP

DATUMS:

HORIZONTAL DATUM:

NAD 83/11 WA NORTH

COORDINATES ESTABLISHED THROUGH GPS RTK OBSERVATIONS ON WSDOT MONUMENT IS1724 VIA THE WASHINGTON STATE REFERENCE NETWORK. ADDITIONAL CONTROL COORDINATES ESTABLISHED BY GPS RTK OBSERVATIONS AND CLOSED TRAVERSE.

RM POINT NO. 3 (WSDOT MON IS1724): EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 117TH STREET AND 1ST AVENUE NE
N= 264049.81 , E= 1272303.73 , ELEVATION= 354.74

VERTICAL DATUM: NAVD 88

DERIVED FROM GPS RTK OBSERVATIONS ON WSDOT MON IS1724 VIA THE WASHINGTON STATE REFERENCE NETWORK

PROJECT BENCHMARKS:

RM POINT NO. 9: EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 120TH STREET AND CORLISS AVENUE N (-0.8 DOWN)
N= 264732.07 , E= 1271652.36 , ELEVATION= 389.87

RM POINT NO. 5: EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 120TH STREET AND 1ST AVENUE NE (-0.85 DOWN)
N= 264713.39 , E= 1272296.12 , ELEVATION= 376.17

RM POINT NO. 3 (WSDOT MON IS1724): EX. NAIL IN 4"X4"CONC MON IN CASE AT INTERSECTION OF N 117TH STREET AND 1ST AVENUE NE
N= 264049.81 , E= 1272303.73 , ELEVATION= 354.74

CONTROL METHODOLOGY

EQUIPMENT : LEICA GS14 GNSS RECEIVER
METHOD : 3 MINUTE OBSERVATIONS

EQUIPMENT : LEICA MS50 MULTISTATION
METHOD : FIELD TRAVERSE

TOPOGRAPHY METHODOLOGY

ACCURACY : CONFORMS TO WAC 332-130-090

EQUIPMENT : LEICA MS50 MULTISTATION
METHOD : FIELD TRAVERSE

EQUIPMENT : YUNEEC H520 UAV
METHOD : AERIAL PHOTOGRAMMETRY

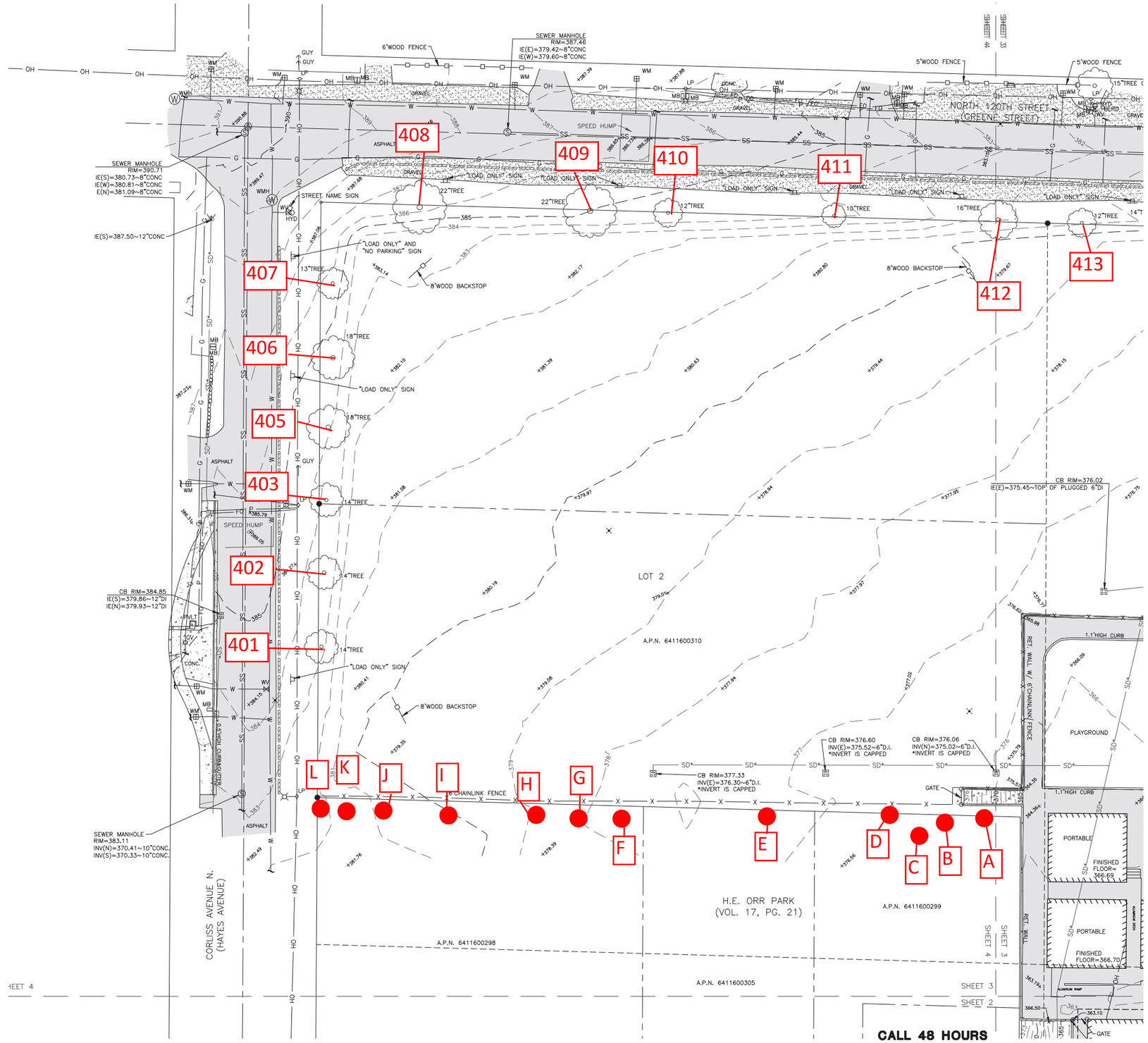
FIELDWORK PERFORMED : AUGUST-SEPTEMBER 2019

SURVEY NOTES:

1. THIS SURVEY WAS MADE WITHOUT THE BENEFIT OF A TITLE REPORT. A BOUNDARY SURVEY WAS COMPLETED IN CONJUNCTION WITH THIS TOPOGRAPHIC SURVEY.
2. PART OF TOPOGRAPHIC ELEMENTS ON THIS MAP WERE DERIVED FROM AN AERIAL SURVEY THAT WAS COMPLETED IN CONJUNCTION WITH TOPOGRAPHIC SURVEY.

UTILITY NOTES:

1. THE UTILITIES SHOWN HEREON ARE BASED ON OBSERVATION OF SURFACE FEATURES, RECORD UTILITY MAPS/COUNTY GIS SYSTEM AND BY PAINT MARKS SET BY A UTILITY LOCATING COMPANY. FIELD LOCATIONS MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.
2. UTILITIES MARKED * ARE AS PER CITY OF SEATTLE GIS SYSTEM.



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REVISION

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SEATTLE SCHOOL DISTRICT NO.1
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SCALE	1":20'
DES.	
DR. IDW	SHEET NO. 4
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F.B. 908	OF 4 SHEETS
DATE 9/20/2019	
FILE NO. 222019.009	

Appendix E

GOOD FAITH INSPECTION REPORT

138 S.W. 154th Street
Suite B
Burien, Wa. 98166
Phone:206.244.1060
Fax: 206.244.1063

NOVO
Laboratory & Consulting Services, Inc.

October 16, 2019

Mr. Vince Gonzales
Project Manager
SEATTLE PUBLIC SCHOOLS
Mail Stop 22-331
P.O. Box 34165
Seattle, Washington 98124-1165

Transmitted via E-Mail, vrgonzales@seattleschools.org

NOVO Project No. 0070-203.075

RE: Good Faith Inspection Letter – Northgate Elementary School

Dear Vince:

Between the dates of August 5th, and 30th 2019, I, Richard L. Carlson (Asbestos Inspector Certification #: 158888 / Certification Expiration Date: 9/21/17), AHERA-accredited Building Inspector, from NOVO Laboratory & Consulting Services, Inc. (NOVO) conducted a regulated building materials investigation of Northgate Elementary School located at 11725 1st Avenue NE Seattle, Washington.

The inspection included the testing of suspect asbestos-containing materials (ACM); collection of paint chip samples to identify the levels of lead paint; the assessment of various heavy metals and silica-containing construction materials, and the inspection of fluorescent lamps for polychlorinated biphenyl (PCB) containing ballast and mercury containing fluorescent light tubes.

The purpose of the survey was to provide information in order to meet the AHERA asbestos sampling protocol as stated in 40 CFR 763.86. This sampling protocol is required for all asbestos surveys prior to renovation or demolition of a building under the Puget Sound Clean Air Agency, Regulation III, Section 4.

In addition, the survey assists the building owner in meeting the "Good Faith Inspection" requirements as stated in Washington Administrative Code 296-62-07721, (Communication of Hazards to Employees). Under the regulation, the Owner of a building to be renovated or demolished must present a contractor with a written statement whether the materials to be disturbed contain asbestos prior to submitting a bid.

The lead paint assessment was performed in order to provide information to assist in complying with WAC 296-155-176, lead-in-construction and WAC 296-173-303. The lead-in-construction regulations are designed to protect workers from lead hazards during renovation, demolition, and other types of construction projects which impact lead containing materials.

An investigation of the lighting fixtures was performed to determine the quantity and location of PCB containing ballast and mercury containing fluorescent light tubes. According to The Washington State Department of Ecology, local health departments, and landfills, PCB containing light ballast must be disposed of as hazardous waste. DOE recommends that fluorescent light tubes be recycled at an approved recycling facility.

The purpose of the survey for other regulated materials was to identify potential hazards within the proposed areas of work, communicate the hazards to prospective bidders and develop technical specifications for work impacting these hazards.

PROJECT INFORMATION

At the time of this report, the project was in the design development stage and the final scope was undetermined. The project will either entail the complete deconstruction of the existing school and the construction of a new building or, a major remodel of the existing building and a new addition. Construction is anticipated to begin by May of 2021 and scheduled to open in the fall of 2023.

For the purpose of our scope of inspection, the scope of work is presumed to consist of the following:

- Complete deconstruction of the existing 37,000 square foot main school building originally constructed in 1956;
- and, complete deconstruction of five (5) existing portable classroom buildings.

PREVIOUS SAMPLING INFORMATION

Beginning on January 8, 2010, Jason Carlson, (Asbestos Inspector Certification #1025069 Certification Expiration Date: January 17, 2010), from NOVO Laboratory & Consulting Services, Inc. (NOVO) conducted a targeted regulated building materials investigation of specific portions of Northgate Elementary School in association with the 2010 renovation project (SPS Bid No. B01004). Specific findings including laboratory data associated with sampling performed during the previous inspection was relied on during the current inspection.

Beginning on the following page is a summary of bulk asbestos samples collected during the 2010 inspection which are applicable to the current project.

Material Description	Sample #	Layer	Location	Lab Result
Floor tile (9x9 tan)	**NGE01**	**1**	**Hallway**	**3% Ch**
Mastic (black) associated with above floor tile	NGE01	2	Hallway	NAD
Covebase (black)	NGE02	1	Hallway	NAD
Mastic (brown) associated with above covebase	NGE02	2	Hallway	NAD
Floor tile (9x9 tan)	**NGE03**	**1**	**Hallway**	**3% Ch**
Mastic (black) associated with above floor tile	NGE03	2	Hallway	NAD
Floor tile (9x9 tan)	**NGE04**	**1**	**Hallway**	**3% Ch**
Mastic (black) associated with above floor tile	NGE04	2	Hallway	NAD
Floor tile (9x9 tan)	**NGE05**	**1**	**Hallway**	**3% Ch**
Mastic (black) associated with above floor tile	NGE05	2	Hallway	NAD
Covebase	NGE06	1	Hallway	NAD
Mastic associated with above covebase	NGE06	2	Hallway	NAD
Window sealant (black)	NGE07		Northwest corner doors	NAD
Window sealant (brown/gray)	**NGE08**		**Northwest corner doors**	**10% Ch**
Plaster	NGE09		Classroom	NAD
Plaster	NGE10		West hallway	NAD
Plaster	NGE11		West hallway	NAD
Sealant	NGE12		South doorway	NAD
Putty	**NGE13**		**Inside windows**	**5% Ch**
Sealant	**NGE14**		**Exterior windows**	**3% Ch**
Putty	NGE15		Exterior windows	NAD
Sealant	**NGE16**		**Exterior windows**	**2% Ch**
Putty	**NGE17**		**Exterior windows**	**2% Ch**
Putty	**NGE18**		**Exterior windows**	**2% Ch**
Sealant	**NGE19**		**Exterior windows**	**2% Ch**
Sealant	**NGE20**		**Exterior windows**	**2% Ch**

Material Description	Sample #	Layer	Location	Lab Result
Putty	**NGE21**		**Exterior windows**	**2% Ch**
Expansion sealant	NGE22		Exterior	NAD
Putty	**NGE23**		**Exterior windows**	**2% Ch**
Sealant	NGE24		North elevation	NAD
Ceramic wall grout	NGE25		Boys restroom	NAD
Window sealant	**NGE26**		**Room 11**	**3% Ch**
Window putty	NGE27		Room 11	NAD
Ceiling tile	NGE28	1	Room 11	NAD
Mastic associated with above ceiling tile	NGE28	2	Room 11	NAD
Putty	NGE29		Corridor glass panel	NAD
Sealant	**NGE30**		**Exterior windows**	**3% Ch**
Plaster	NGE31		Stage area	NAD
Covebase (black)	NGE32	1	Stage area	NAD
Mastic (brown) associated with above covebase	NGE32	2	Stage area	NAD
Floor tile (9x9 tan)	**NGE33**	**1**	**Stage area**	**3% Ch**
Mastic (black) associated with above floor tile	NGE33	2	Stage area	NAD
Floor tile (9x9)	**NGE34**	**1**	**Principals restroom**	**3% Ch**
Mastic associated with above floor tile	NGE34	2	Principals restroom	NAD
Plaster	NGE35		Principals restroom	NAD
Covebase (black)	NGE36	1	Principals restroom	NAD
Mastic (brown) associated with above covebase	NGE36	2	Principals restroom	NAD
Window sealant	**NGE37**		**Room 8**	**3% Ch**
Plaster	NGE38		Room 8	NAD
Ceiling tile (dot pattern)	NGE39	1	Room 8	NAD
Mastic associated with above ceiling tile	NGE39	2	Room 8	NAD
Plaster	NGE40		Room 5	NAD
Floor tile (9x9 tan)	**NGE41**	**1**	**Library**	**3% Ch**

Material Description	Sample #	Layer	Location	Lab Result
Mastic (black) associated with above floor tile	NGE41	2	Library	NAD
Carpet adhesive (gold)	NGE42		Library	NAD
Ceiling tile (12x12 dot pattern)	NGE43	1	Library	NAD
Mastic (brown) associated with above ceiling tile	NGE43	2	Library	NAD
Plaster	NGE44		Library	NAD
Roofing	NGE45		Exterior	NAD
Concrete	NGE46		Hallway	NAD
Ceiling tile (12x12 scrambled dot pattern)	NGE47	1	Conference room near principals office	NAD
Mastic (brown) associated with above ceiling tile	NGE47	2	Conference room near principals office	NAD
Vinyl cove base (black)	NGE48	1	Restroom near principals office	NAD
Mastic (brown) associated with above base	NGE48	2	Restroom near principals office	NAD
Wall plaster	NGE49		Closet within principals office	NAD
Joint compound	NGE50	1	Conference room near principals office	NAD
Gypsum wallboard	NGE50	2	Conference room near principals office	NAD
Joint compound	NGE51	1	Conference room near principals office	NAD
Gypsum wallboard	NGE51	2	Conference room near principals office	NAD
Joint compound	NGE52	1	Restroom near principals office	NAD
Gypsum wallboard	NGE52	2	Restroom near principals office	NAD
Silver paint at mechanical equipment	NGE53		SE Portion of roof	NAD
Sealant at mechanical equipment roof penetrations	NGE54		SE Portion of roof	NAD
Built up roofing material	NGE55	1 – 4	SE Portion of roof	NAD

Material Description	Sample #	Layer	Location	Lab Result
Joint compound	NGE56	1	Library	NAD
Gypsum wallboard	NGE56	2	Library	NAD
Window frame sealant	**NGE57**		**Exterior**	**10% Ch**
Countertop	NGE58		Library	NAD

Note; The majority of the typical metal framed window units with asbestos containing glazing compounds and sealants were removed from the building as part of the 2010 renovation project. The asbestos containing window frames present at the west wing classrooms (west elevation), were not removed as part of that project.

METHODS OF THE SURVEY

Asbestos

A walk through inspection of accessible portions of subject property was performed to identify suspect asbestos-containing material (ACM). Sub-surface suspect materials were not investigated during the time of this assessment. A limited inspection was conducted to investigate concealed areas throughout the subject buildings; however, not all concealed spaces have been surveyed for suspect ACM. If during the course of demolition of the buildings, suspect materials are discovered that are not identified in this report, the materials must be treated as asbestos containing until the material is sampled by an AHERA Certified Building Inspector and analyzed by an accredited laboratory.

Upon identifying a suspect material, its location and type were noted. Samples were obtained, placed in plastic bags, and labeled with an identification number. Samples were collected in accordance with the AHERA asbestos sampling protocol as stated in 40 CFR 763.86 to achieve a representative characterization of the visible suspect asbestos containing materials found.

Samples were collected within EPA guidelines to minimize potential contamination to the surrounding area. Bulk sample locations, associated notes, and observations were documented on-site at the time of sampling. All applicable data was transferred to the field data sheets.

A total of eighty five (85) additional bulk material samples were collected and analyzed for asbestos. The samples were analyzed for asbestos content using Polarized Light Microscopy (PLM) with dispersion staining in accordance with USEPA 600/M-82/020 test method. Samples for asbestos form minerals were analyzed in NOVO's Burien laboratory.

Lead Containing Paint

Representative paint chip samples were collected of various types of painted building components. Each area of paint to be sampled was scored with a sharp knife or scalpel, and the paint film was lifted off by sliding a thin blade along the score and underneath the paint. NOVO removed the paint down to the substrate (i.e. concrete, wood, steel, etc.), making sure all layers of paint were intact. Additional paints may exist under the surface coat in different areas other than those tested. Each sample was placed into a pre-labeled plastic bag and secured with a locking mechanism. Subsequently, a wet cloth was used to clean the area; all residual material was placed into a plastic bag and removed by NOVO.

Lead paint chip samples and chain-of-custody submittal sheets were delivered to EMC Labs in Phoenix, Arizona for lead analysis. EMC is accredited by the American Industrial Hygiene Association as an Environmental Lead Proficiency Analytical Testing (ELPAT) Lab. The paint chip samples were analyzed in accordance with the Environmental Protection Agency (EPA) Method 7000B.

Polychlorinated Biphenyl (PCB) Light Ballast and Mercury Containing Fluorescent Light Tubes

Each homogeneous light fixture type identified was disassembled, and the ballast labeling examined. If the label on the ballast did not state, "NO PCB's", it was assumed to contain PCB's. There are fluorescent light tubes present throughout the building and they have been known to contain mercury.

Other Regulated Building Materials (Heavy Metals, Fugitive Dust and Silica)

For the other regulated materials no sampling was performed. Our results are based on visual observations and research.

SAMPLING RESULTS AND DISCUSSION

Asbestos-Containing Materials

Below is a summary of the bulk asbestos samples collected during our inspection and their laboratory results:

Material Description	Sample #	Layer	Location	Lab Result
Sheet vinyl (white blue gold specks)	NGACM01		Kitchen bathroom	NAD
Associated adhesive (gold) with above sheet vinyl	NGACM01		Kitchen bathroom	NAD
Floor tile (9x9 tan/maroon)	**NGACM02**		Cafeteria storage room	**5% Ch**

Material Description	Sample #	Layer	Location	Lab Result
Associated mastic (black) with above floor tile	NGACM02		Cafeteria storage room	NAD
Vinyl base (black)	NGACM03		Cafeteria storage room	NAD
Associated adhesive (brown) with above vinyl base	**NGACM03**		Cafeteria storage room	**<1% Ch**
Sink undercoating (black)	NGACM04		Kitchen	NAD
Gypsum wallboard behind typical plaster	NGACM05		Attic above kitchen	NAD
Residual mastic (black) on concrete floor	NGACM06		Boiler room	NAD
Ceiling panel (2x4 random)	NGACM07		Main hall	NAD
Ceiling panel (1x1 align dots F/G)	NGACM08		Main hall	NAD
Mastic (brown) associated with above tile	NGACM09		Main hall	NAD
Old mastic (black) beneath carpet tiles	NGACM10		LRC	NAD
Gypsum wallboard (above plaster)	NGACM11		Book room	NAD
Concrete roof panel at roof deck with aggregate finish	NGACM12		Book room attic	NAD
Wall plaster	NGACM13	1	Classroom	NAD
Gypsum wallboard behind plaster	NGACM13	2	Classroom	NAD
Sink undercoating (black)	NGACM14		Classroom	NAD
Sheet vinyl (tan)	NGACM15	1	Classroom	NAD
Associated adhesive (gold) with above sheet vinyl	NGACM15	2	Classroom	NAD
Sheet vinyl (blue circles)	NGACM16	1	Classroom	NAD
Associated adhesive (gold) with above sheet vinyl	NGACM16	2	Classroom	NAD
Leveling compound (gray)	NGACM16	3	Classroom	NAD
Vinyl (pink)	NGACM17	1	Classroom	NAD
Associated adhesive (black) with above vinyl	NGACM17	2	Classroom	NAD
Floor tile (12x12 tan)	NGACM18	1	Classroom	NAD
Associated mastic (black) with above floor tile	NGACM18	2	Classroom	NAD

Material Description	Sample #	Layer	Location	Lab Result
Floor tile (12x12 light blue)	NGACM19	1	Classroom	NAD
Associated mastic (black) with above floor tile	NGACM19	2	Classroom	NAD
Asphaltic floor covering	NGACM20		Covered play	NAD
Glazing at metal framed windows	NGACM21		Bathroom	NAD
Glazing at metal framed windows	NGACM22		Bathroom	NAD
Glazing at metal framed windows	NGACM23		Bathroom	NAD
Floor tile (black)	NGACM24		Main corridor	NAD
Floor tile (red)	NGACM25		Main corridor	NAD
Floor tile (green)	NGACM26		Main corridor	NAD
Floor tile (blue)	NGACM27		Main corridor	NAD
Floor tile (yellow)	NGACM28		Main corridor	NAD
Door frame sealant (white)	NGACM29		MDF	NAD
Floor tile (12x12 crème/white)	NGACM30	1	MDF	NAD
Associated mastic (gold) with above floor tile	NGACM30	2	MDF	NAD
Ceiling tile (1x1 scrambled dot)	NGACM31		Classroom	NAD
Mastic (brown) associated with above tile	NGACM32		Classroom	NAD
Sink undercoating (black)	NGACM33		Classroom	NAD
Ceiling tile (2x4 random)	NGACM34		Hallway	NAD
Ceiling tile (2x4 random)	NGACM35		Hallway	NAD
Ceiling tile (1x1 scrambled dot)	NGACM36		Classroom	NAD
Mastic (brown) associated with above tile	NGACM37		Classroom	NAD
Glazing at wood framed window	**NGACM38**		**P19**	**<1% Ch**
Asphaltic floor covering	NGACM39		Covered play	NAD
Glazing at metal framed windows	NGACM40		Gym	NAD
Glazing at metal framed windows	NGACM41		Gym	NAD

Material Description	Sample #	Layer	Location	Lab Result
Glazing at metal framed windows	NGACM42		Gym	NAD
3-tab roofing	NGACM43		P6	NAD
Paper (middle)	NGACM44		P6	NAD
Paper (bottom)	NGACM45		P6	NAD
3-tab roofing	NGACM46		P4	NAD
Paper (middle)	NGACM47		P4	NAD
Paper (bottom)	NGACM48		P4	NAD
3-tab roofing	NGACM49		P5	NAD
Paper (middle)	NGACM50		P5	NAD
Paper (bottom)	NGACM51		P5	NAD
3-tab roofing	NGACM52		P2	NAD
Paper (middle)	NGACM53		P2	NAD
Paper (bottom)	NGACM54		P2	NAD
3-tab roofing (top layer)	NGACM55		P1	NAD
3-tab roofing (second layer)	NGACM56		P1	NAD
Paper	NGACM57		P1	NAD
Paper	NGACM58		P1	NAD
Ceiling panel (2x4 craters and dots)	NGACM59		P2	NAD
Floor tile (12x12 crème/tan)	NGACM60	1	P2	NAD
Associated mastic (gold) with above floor tile	NGACM60	2	P2	NAD
Vinyl base material	NGACM61		P2	NAD
Sheet vinyl (gold pebble)	NGACM62	1	P2	NAD
Associated mastic (gold) with above sheet vinyl	NGACM62	2	P2	NAD
Vinyl coated gypsum wallboard panel (no joint compound present)	NGACM63		P2	NAD
Floor tile (12z12 white)	NGACM64	1	P2	NAD

Material Description	Sample #	Layer	Location	Lab Result
Associated mastic (gold) with above floor tile	NGACM64	2	P6	NAD
Vinyl base material	NGACM65	1	P6	NAD
Associated mastic (gold) with vinyl base material	NGACM65	2	P6	NAD
Vinyl coated gypsum wallboard panel (no joint compound present)	NGACM66		P6	NAD
Ceiling panel (2x4 random)	NGACM67		P6	NAD
Floor tile (12x12 white)	NGACM68		P4	NAD
Vinyl base material	NGACM69	1	P4	NAD
Associated mastic (white) above vinyl base material	NGACM69	2	P4	NAD
Vinyl coated gypsum wallboard panel (no joint compound present)	NGACM70		P4	NAD
Ceiling tile (2x4 craters/dots)	NGACM71		P4	NAD
Sheet vinyl (blue)	NGACM72	1	Office restroom	NAD
Associated mastic (white) above vinyl base material	NGACM72	2	Office restroom	NAD
Built up roofing	NGACM73		P19	NAD
Built up roofing	NGACM74		P19	NAD
Tar at gutter	NGACM75	1	Main roof	NAD
Silver paint	NGACM75	2	Main roof	NAD
Silver paint at HVAC equipment	NGACM76	1	Main roof	NAD
Sealant at HVAC equipment	NGACM76	2	Main roof	NAD
Silver paint at HVAC equipment	NGACM77		Main roof	NAD
Built up roofing	NGACM78	1-5	West wing	NAD
Paper (bottom layer)	NGACM79		West wing	NAD
Built up roofing	NGACM80	1-6	South side	NAD
Paper (bottom layer)	NGACM81		South side	NAD
Built up roofing	NGACM82	1-6	North side	NAD

Material Description	Sample #	Layer	Location	Lab Result
Paper (bottom layer)	NGACM83		North side	NAD
Built up roofing	NGACM84	1-6	East wing	NAD
Paper (bottom layer)	NGACM85		East wing	NAD

Legend:			
ACM	Asbestos Containing Material	NAD	No Asbestos Detected
PACM	Presumed Asbestos Containing Material		
Ch	Chrysotile Asbestos	Tr	Tremolite Asbestos

The following ACM (>1% asbestos) has been identified at the Northgate Elementary site:

- Hard mudded pipe fittings and joints associated with fiberglass lagging on plumbing and mechanical piping throughout the main building;
- Flexible cloth vibration joints associated with various mechanical equipment throughout the main building;
- Glazing compound and sealants associated with typical metal framed windows at the west wing (west elevation only);
- and, floor tile (9”x9” tan) with non asbestos containing black mastic present at select portions of the main building;

Gaskets associated with mechanical piping valves were not accessible and are presumed asbestos-containing materials. Until sampling can be arranged, these materials should be presumed to contain asbestos.

Due to the safety concerns associated with conducting sampling within live electrical panels, components within electrical panels observed throughout the building was not sampled. Until sampling can be arranged, components within electrical panels should be presumed to contain asbestos.

Due to destructive sampling requirements and the possibility of voiding product warranties the following materials were not accessible and are presumed asbestos-containing materials. Until sampling can be arranged, these materials should be presumed to contain asbestos.

- fire doors and associated frames;
- and, chalk boards.

The following materials were tested and found to contain 1% or less asbestos:

- Mastic (brown) associated with vinyl wall base present at select portions of the main building;

The federal Occupational Safety & Health Administration (OSHA), and the State Department of Labor and Industries regulate these materials for worker protection and permit purposes. Initial exposure assessments are required prior to work impacting these materials, but are not regulated to the same degree as materials containing greater than 1% asbestos.

Additional suspect asbestos-containing materials may be present within hidden locations. If due to change in scope or other unforeseen conditions, additional areas or materials not addressed in this report become likely to be impacted, the materials must be treated as asbestos-containing until the material is sampled by an AHERA Certified Building Inspector and analyzed by an accredited laboratory.

Lead Containing Paint

The following summary lists the suspect paints sampled during the inspection and the laboratory results:

Sample No.	Location	Surface Color	Building Component	Substrate	Lab Result
NGLCP01	Kitchen	Tan	Ceiling	Plaster	0.97%
NGLCP02	Main Corridor	Yellow	Wall	Plaster	0.83%
NGLCP03	Classroom	White	Wall	Plaster	0.51%
NGLCP04	Classroom	Green	Beam	Concrete	0.24%
NGLCP05	West Wing Exterior	Tan	Wall	Concrete	0.14%
NGLCP06	Portable 19	Beige	Wall	Wood	0.31%

Sampling results indicate that painted building components contain some amount of lead in paint. Renovation operations are likely to disturb lead-containing building materials and result in worker exposure to lead. Necessary precautions shall be taken to prevent or minimize the release of lead in the form of dust, fumes or mists from lead-containing building materials into the air or onto surrounding environments. All workers and supervisory personnel who will be at the job site must be informed of the potential hazards of lead and of necessary precautions and housekeeping procedures to reduce the potential for exposure in areas where lead is known or suspected to be present.

For work on painted building components, which may result in personnel exposures, the contractor must assess the hazard. Based on the assessment, and previous similar work and

exposure monitoring results, the contractor may have to provide any or all of the following for employees per WAC 296-155-176:

- Respiratory protection.
- Protective clothing.
- Clean change areas.
- Clean hand washing facilities.
- Biological monitoring to consist of blood sampling and analysis for lead and zinc protoporphyrin levels.
- Hazard communication training.

Initial employee exposure monitoring must be conducted for each separate task involving the handling of lead containing painted building materials. If 8-hour time-weighted average (TWA) exposures exceed the action level of 30 micrograms of lead per cubic meter of air ($\mu g/m^3$), the contractor must continue to conduct periodic air monitoring at specified intervals, and institute medical surveillance and comprehensive training programs. If the WAC/OSHA 8-hour TWA permissible exposure limit (PEL) of 50 $\mu g/m^3$ for lead is exceeded, more stringent and additional requirements become effective, such as engineering controls, respiratory protection, regulated work areas and warning signs in lead work areas.

The disposal of the construction debris with lead paints is also a key issue. The Washington State Department of Ecology, local health departments, and landfills are responsible for regulating the disposal of the lead paints. Dangerous waste testing for lead (Toxicity Characteristics Leaching Procedure - TCLP) must be performed prior to disposal of the construction debris. Testing should also be performed after it is decided how the debris will be segregated for disposal. Debris with lead based paint leaching greater than 5.0 mg/L during TCLP analysis are classified as dangerous waste under the Washington Administrative Code (WAC 173-303) and the EPA Code of Federal Regulations (CFR 40 Part 261).

Heavy Metals

Historical data indicates the following materials are presumed to contain lead:

- lead pipes, lead soldering on copper lines;
- galvanized ductwork;
- sheet metal and mechanical equipment;
- lead glazing on all ceramic tile walls, floors and baseboards;
- lead counterbalances.

One or more of the eight EPA Resource Conservation and Recovery Act (RCRA) metals may be present within masonry mortars present at select locations throughout the building. Additional sampling and investigation will be performed as the project scope is further defined.

Polychlorinated Biphenyl (PCB) Light Ballast and Mercury-Containing Fluorescent Light Tubes

Suspect PCB-containing light ballast were observed at specific areas throughout the subject property. The Washington State Department of Ecology, local health departments, and landfills are responsible for regulating the disposal of polychlorinated biphenyl-filled light ballast. Washington State regulations specifically ban the disposal of PCB-filled ballast from sanitary landfills.

There are fluorescent light tubes present throughout the subject property and they have been known to contain mercury. The Washington State Department of Ecology recommends that fluorescent light tubes be recycled at an approved recycling facility.

Fugitive and Silica Dust

All Construction work will potentially generate fugitive dust. Contractors must control the release of all fugitive dust levels and to comply with the latest regulations from the State of Washington Department of Labor and Industries (WISHA), Puget Sound Clean Air Agency (PSCAA) and any other applicable federal, state, and local government regulations.

Certain building materials including but not limited to the following; concrete, brick, mortar, glass, gypsum wallboard, asphalt filler, plaster, ceramic tile, roofing granules, caulking (clay), fireproofing, and construction dust are presumed to contain silica. The contractor must be informed of the presence of silica-containing construction materials and the requirements of WAC 296-062-07515.

LIMITATIONS

The conclusions of the report are professional opinions based solely upon visual site observations and interpretations of analyses as described in our report. The opinions presented herein apply to the site conditions existing at the time of our investigation and interpretation of current regulations pertaining to regulated materials. Therefore, our opinions and recommendations may not apply to future conditions that may exist at the building, which we have not had the opportunity to evaluate. The regulations should always be verified prior to any work involving regulated materials.

A representative number of wall and ceiling cavities, and mechanical chases were inspected. The number of these areas included in the inspection was determined to be sufficient by the inspector for the for the purpose of identification and quantification of suspect ACM. However, not all concealed areas have been surveyed for suspect ACM.

If during the course of renovation work, suspect materials are discovered that are not identified in this report, the materials must be treated as asbestos containing until the material is sampled by an AHERA Certified Building Inspector and analyzed by an accredited laboratory.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. No other hazardous materials/wastes were investigated. No other conditions, expressed or implied, should be understood.

It is a pleasure doing business with you. If you have questions or require additional information please contact me at 206.244.1060 or via email at richatnovolc.com. Thank you.

Sincerely,

Richard L. Carlson
Vice President of Operations

Appendix F

LANDMARK NOMINATION DETERMINATION AND CULTURAL RESOURCES ASSESSMENT

(Cultural Resources Assessment On-File with Seattle Public Schools)

The City of Seattle

Landmarks Preservation Board

Mailing Address: PO Box 94649, Seattle WA 98124-4649
Street Address: 600 4th Avenue, 4th Floor

LPB 123/20

Ms. Rebecca Acensio
Seattle Public Schools
Mail Stop: 22-336
P.O. Box 34165
Seattle, WA 98124-1165

Re: Denial of Nomination of Northgate Elementary School – 11725 1st Avenue NE

Dear Ms. Acensio:

At the March 4, 2020, meeting of the City's Landmarks Preservation Board, a motion was made to deny the nomination of Northgate Elementary School at 11725 1st Avenue NE in Seattle. The vote to deny was 7 in favor and 1 opposed. 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: March 5, 2020

Erin Doherty
Landmarks Preservation Board Coordinator

cc: Tingyu Wang, Seattle Public Schools
Ellen Mirro, Studio TJP
Nathan Torgelson, SDCI
Maria Cruz, SDCI
Jordan Kiel, Chair, LPB

Appendix G

TRANSPORTATION TECHNICAL REPORT

TRANSPORTATION TECHNICAL REPORT

for the

Northgate Elementary School Replacement

PREPARED FOR:

Seattle Public Schools

PREPARED BY:

heffron transportation inc
6544 NE 61st Street, Seattle, WA 98115
ph: (206) 523-3939 ◆ fx: (206) 523-4949

May 21, 2020

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1. INTRODUCTION

This report presents the transportation impact analyses for the Seattle Public Schools' (SPS) proposed replacement of Northgate Elementary School. 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.

1.1. Project Description

Seattle Public Schools is proposing to replace the existing school on the same site, which is located at 11725–1st Avenue NE in Seattle. The following sections describe the existing school site and the proposed project.

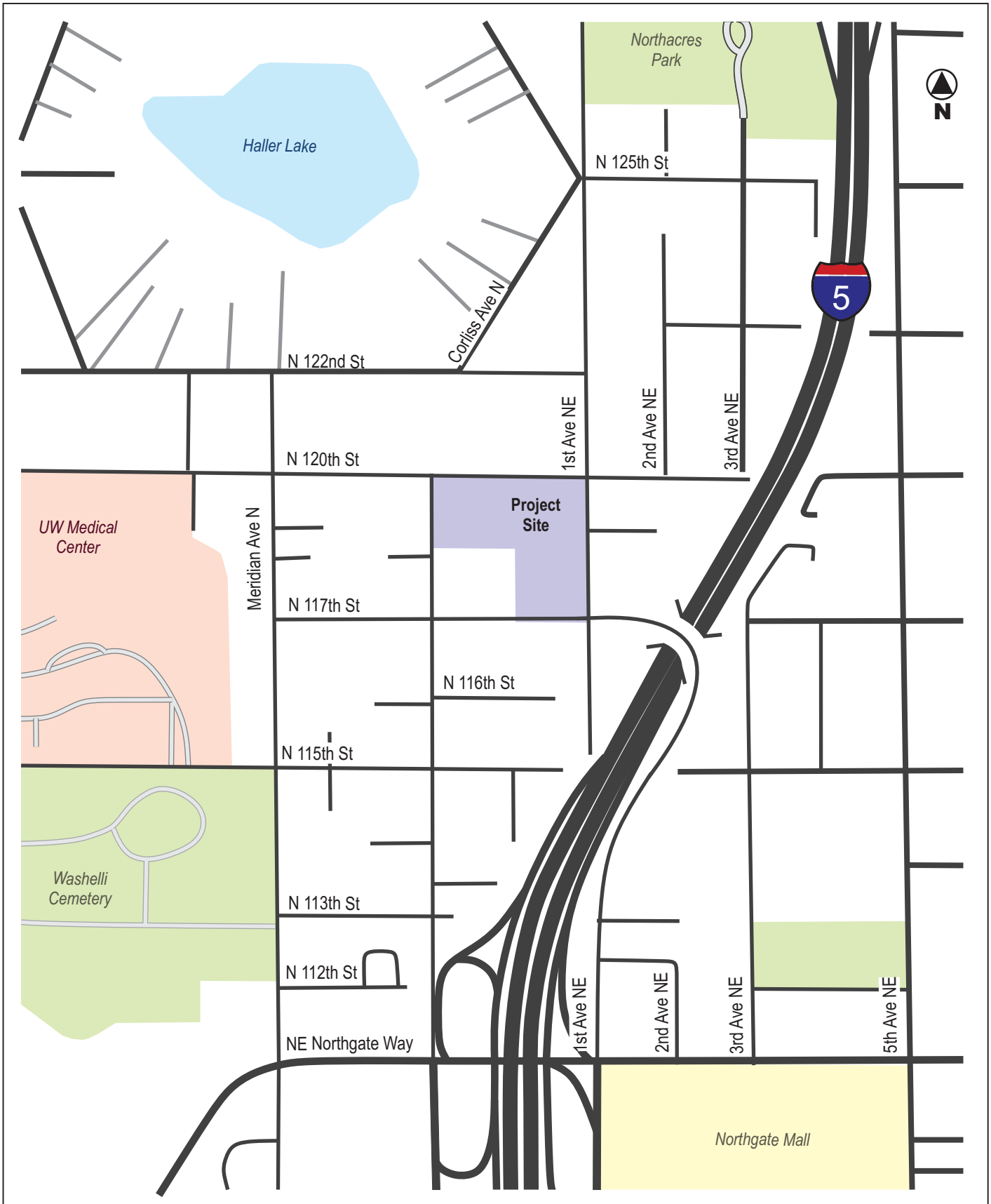
1.1.1. Existing School Site

The "L" shaped school site is bounded by N 120th Street to the north, 1st Avenue NE to the east, N 117th Street to the south, and Corliss Avenue N to the west. The school site occupies about three-quarters of the full block, with single family residences occupying the southwest quarter of the block. The existing school building occupies the southern portion of the site and play areas are located on the north and west areas of the site. There are five portables within the hard-surface play area north of the main school building and one portable on the south side of the school. The existing building area has about 39,300 square feet (sf) of floor area.[1]

A narrow surface parking lot with 28 spaces is located on the northeast portion of the site. This lot is used for staff and visitor parking as well as for family-vehicle load/unload during the morning arrival and afternoon dismissal periods. Circulation through the lot is one-way with an entry driveway on the north from N 120th Street and an exit driveway on 1st Avenue NE. A small visitor parking lot with four spaces is located on the east side of the building with two one-way driveways (entry on the north and exit on the south) on 1st Avenue NE. These driveways are typically coned off and not accessible to parents or visitors during peak arrival and dismissal periods. There is also a gated driveway on 1st Avenue NE aligned along the north side of the main school building. This driveway allows for vehicular access to the hard surface play area, where some maintenance access and employee parking occasionally occurs.

The gravel shoulder on the north side of N 117th Street is signed for school-bus load/unload. The site frontages along 1st Avenue NE, N 120th Street, and Corliss Avenue N have signage indicating school-load only. Some family-vehicle load/unload and staff parking also occurs at the St. Andrew Kim Korean Catholic Church located across 1st Avenue NE to the east of the school. The school and church have maintained an informal, cooperative understanding of shared parking-facility use. Some school use occurs in the church lot on weekdays and for some events; the church uses the school lot for regular church services and events. The school Principal coordinates events schedules with the church to ensure no overlapping large events. The project site location and vicinity are shown in Figure 1.

[1] Existing building areas from NAC Architects, March, 2020.



Northgate Elementary School Replacement

Figure 1

Site Location and Vicinity

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04.20.2020

According to information published in *Building for Learning, Seattle Public Schools Histories, 1862-2000,*[2] the school, originally known as South Haller Lake School, opened as an all-portable school in 1953 with 14 portables serving 388 students. It was officially named Northgate School in 1954 and enrollment grew to 465 students in 17 portables. A permanent building was constructed in 1956. Construction of Interstate 5 (I-5) and commercial development around the Northgate shopping mall resulted in declining enrollment in the mid-1960s. The school faced closure due to budget restrictions and declining attendance in the early 1970's.

In October 2019, at the time traffic data were collected for this analysis, enrollment was 250 students,[3] which was effectively at the school's reported capacity of 252 students.[4] The school lists a total of 62 employees;[5] SPS indicated that 40 are full-time and the remaining 22 are part-time or volunteers).[6]

1.1.2. Proposed Site Changes

The proposed project would replace the existing school with a new multi-story building on the northern portion of the school site. Once the new building is ready for occupancy, the existing building will be demolished and all portable classrooms would be removed. The site work would create new landscape and play areas. The school replacement would be funded by the BEX V Capital Levy, which was approved by voters in February 2019. The school would be designed to accommodate up to 650 students including up to 40 in pre-school and before- and after-school care programs (a net increase of about 400 students compared to current enrollment). SPS estimates that total staffing at the school could increase up to 72 employees—an increase of 10 compared to current conditions; with an increase in the number of full-time employees up to 47 employees.[7]

The proposed project would provide a total of 30 on-site parking spaces. The existing 28-space staff and visitor parking lot would be replaced with a new 26-space parking lot with a single two-way access driveway on 1st Avenue NE; vehicular access from N 120th Street would be eliminated. South of the main parking lot access on 1st Avenue N, a delivery/service driveway would provide access to four employee parking spaces, the service yard, loading dock, and would allow occasional evening event parking (for about 29 vehicles) to occur on the hard-surface play area. A gated emergency-access driveway would be provided on Corliss Avenue N.

The project would provide a curb-side passenger-vehicle drop-off/pick-up lane along the site's N 120th Street frontage. The on-street school-bus load/unload zone would be relocated from N 117th Street to the west side of 1st Avenue NE, adjacent to the new school building. The project would improve frontages along 1st Avenue NE, N 120th Street, N 117th Street, and Corliss Avenue N. The proposed site plan is shown in Figure 2.

Construction is planned to begin in summer 2021 with the new school opening in fall 2023. During construction; the students and staff would remain in the building. Future analyses (without and with the project) presented in this report reflect year 2023 conditions.

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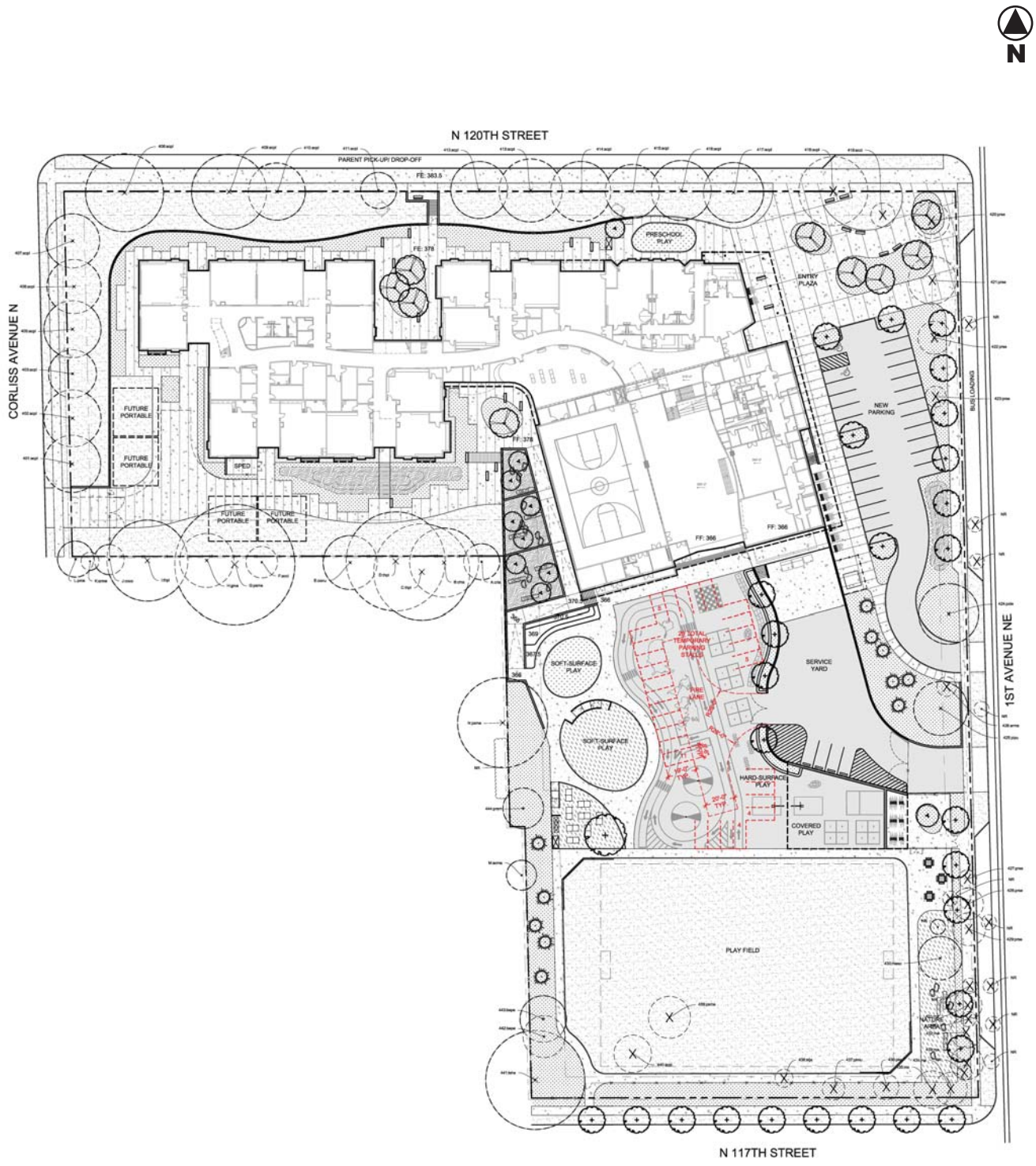
2 Nile Thompson and Carolyn J. Marr; *Building for Learning, Seattle Public Schools Histories, 1862-2000;* 2002.
3 Seattle Public Schools, P223 Enrollment Report, October 2019.
4 Seattle Public Schools, School Capacity Summary, Updated October 16, 2019. Reflects number of students that will fit into the school based on the number of teaching spaces and class sizes in the Weighted Staffing Standards (WSS) model.
5 Northgate Elementary Online staff directory, accessed April 2020.
6 Email communication from Vince Gonzales at Seattle Public Schools, May 2020.
7 Email communication from Vince Gonzales at Seattle Public Schools, April 2020.



Source: NAC Architects, May 2020

Northgate Elementary School Replacement

Figure 2

Proposed Site Plan

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05.19.2020

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 2023 without-project conditions assume the existing Northgate Elementary School would continue to operate at its current 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).

Five intersections were selected for study based on traffic counts and field observations of the travel routes used by family drivers, buses, and staff to access and egress the site area. The following study area intersections were identified for analysis for both the morning and afternoon peak hours.

All-Way Stop Controlled Intersection

- N 117th Street / 1st Avenue NE

Two-Way Stop Controlled Intersections

- N 120th Street / 1st Avenue NE

Traffic Circle-Controlled Intersections

- N 117th Street / Corliss Avenue N
- N 115th Street / Corliss Avenue N

Uncontrolled Intersection

- N 120th Street / Corliss Avenue N

2.1. Roadway Network

The following describes key roadways in the site vicinity. Roadway classifications are based on the City's Street Classification Map.[8]

1st Avenue NE is a north-south Collector Arterial extending north from N 117th Street adjacent to the school site and beyond the northern City limits. It is also classified as a Minor Transit Route. The street has one travel lane in each direction. Sidewalks and curbs are provided along the school's frontage and along the St. Andrew Kim Korean Catholic Church frontage on the east side of the street. A separated paved pedestrian path is provided intermittently along the west side of the street beyond the site. Sharrows[9] are located along this roadway. Parallel parking is permitted intermittently on both sides of the roadway. The posted speed limit is 30 miles per hour (mph); a photo-radar-enforced school zone speed limit of 20 miles per hour (mph) in the vicinity of the school that is in effect when the speed zone beacon is flashing.

N 120th Street is an east-west non-arterial local access street that connects from Ashwood Avenue N to 3rd Avenue NE. This unstriped roadway accommodates two-way travel with parallel parking and school load (along the site frontage) permitted intermittently. There are no curbs, gutters, or sidewalks along the roadway; a gravel path separated from the roadway by pre-fabricated concrete wheel-stop curbs is located along the site frontage on the south side of the street. There is a school zone speed limit of 20 mph in the vicinity of the school that is in effect when children are present and advisory 15-mph signage indicating speed humps along the roadway.

Corliss Avenue N is a north-south non-arterial local access street that connects from N 120th Street to just south of N 113th Place. This unstriped roadway accommodates two-way travel with parallel parking permitted. There are no curbs, gutters, or sidewalks along the roadway; a gravel path separated from the roadway by pre-fabricated concrete wheel-stop curbs, is located along the site frontage on the east side of the street. There is a 20-mph school zone speed limit in effect when children are present and advisory 15-mph signage indicating speed humps along the roadway.

8 Seattle Department of Transportation (SDOT), Interactive Street Classification Maps, accessed April 2020.

9 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.

N 117th Street is an east-west, non-arterial local access street between Meridian Avenue N to 1st Avenue NE. This roadway is classified as a Collector Arterial east of I-5 and continues as 1st Avenue NE. There is one travel lane in each direction. West of 1st Avenue NE, there are gravel shoulders with no curbs, gutters, or sidewalks; there are speed humps, and parallel parking is permitted with some restrictions along the school frontage. East of 1st Avenue NE, there are curbs, and gutters on both sides with a sidewalk on the north side and a short segment of narrow sidewalk on the south side. On-street parking is prohibited east of 1st Avenue NE. The speed limit is 20 mph west of 1st Avenue NE, and 30 mph to the east. A 20-mph school zone speed limit is in effect near the site when children are present.

N 115th Street is a two-lane east-west roadway that extends from Aurora Avenue N (State Route [SR] 99) on the west to a dead end near I-5. It is classified as a Collector Arterial and Minor Transit Route between Meridian Avenue N and Aurora Avenue N and is a non-arterial local access street east of Meridian Avenue N. East of Meridian Avenue N, the roadway has gravel shoulders with no curbs, gutters, or sidewalks, and a 20-mph speed limit. West of Meridian Avenue N there are curbs and gutters on both sides, with sidewalks on the north side and intermittently on the south side. The speed limit is 30 mph.

Several documents were reviewed to determine if any planned transportation improvements could affect the roadways and intersections near Northgate Elementary School by 2023 when the new school would be completed and occupied. These documents are listed below.

City of Seattle's Adopted 2019-2024 and Proposed 2020-2025 Capital Improvement Programs (CIP) [10] – No improvements to the transportation network were identified in the site vicinity.

City of Seattle's Pedestrian Master Plan Update [11] ***and Pedestrian Master Plan 5-Year Implementation Plan and Progress Report***[12] – The plans include the area around the school as part of the North Sector's Priority Investment Network and Village Network identifying missing sidewalks around the school on arterials and non-arterials. As listed below and funded by the Levy to Move Seattle, non-arterial sidewalk improvement projects are listed for N 117th Street between Meridian Avenue N and 1st Avenue NE (in 2021) and on N 115th Street between Meridian Avenue N and Corliss Avenue N (in 2022). As part of the Safe Routes to Schools 5-Year Action Plan (and Vision Zero), school safety improvement needs are ranked: Northgate Elementary School is ranked #2 for walkway project needs and #20 for crosswalk project needs.[13]

Adopted Seattle Bicycle Master Plan (BMP)[14] – The plan proposes future improvements along roadways within the site vicinity. An east-west neighborhood greenway is recommended along N 117th Street between Meridian Avenue N and 1st Avenue NE. A cycle track (protected bike lanes) is recommended along N 117th Street east of 1st Avenue NE. It also lists improvements to continue the minor in-street bicycle lanes along Meridian Avenue N from N Northgate Way to N 122nd Street. The ***Seattle Bicycle Master Plan – 2019-2024 Proposed Implementation Plan***[15] which defines the BMP priorities identifies project #30 Safe Routes to Schools (SRTS) Ingraham High School Connection Phase 1 Neighborhood Greenway (target year 2021) project is funded through construction. This project is described below.

The ***Neighborhood Greenways***[16] website (updated November 4, 2019) indicates the Ingraham High School Connection (Ashworth Avenue N) (identified as #30 SRTS Ingraham High School

10 City of Seattle, online access April 2020. https://www.seattle.gov/city-budget-office/capital-improvement-program-archives
11 City of Seattle June 2017.
12 City of Seattle, December 2019.
13 City of Seattle, online access April 2020. https://www.seattle.gov/transportation/projects-and-programs/safety-first/safe-routes-to-school/5-year-action-plan
14. City of Seattle, April 2014.
15 SDOT, June 13, 2019.
16 https://www.seattle.gov/transportation/projects-and-programs/programs/greenways-program, April 2020.

Connection in the BMP Implementation Plan) is in the design phase. The greenway would include a connection between Ingraham High School, Madison Pool, and Northgate Elementary School. The route would include N 135th Street, Ashworth Avenue N, N 120th Street, and Corliss Avenue N. The greenway improvement would include a future crossing signal at N 130th Street / Ashworth Avenue N, and crossing improvements at N 125th Street / Ashworth Avenue N, and N 120th Street / Meridian Avenue N. Trail and lighting improvements are also proposed along Ashworth Avenue N.

Levy to Move Seattle – Workplan Report[17] – This document outlines the Seattle Department of Transportation's (SDOT's) workplan to deliver 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) documents achievements and challenges and sets the agency's plan for future years. As part of the 2019 North Seattle Sidewalks project, new sidewalks are planned on Meridian Avenue N between N 115th Street and N 117th Street, and on N 117th Street, between Meridian Avenue N and the Northgate Elementary School frontage.

The planned non-motorized facility improvements near the school could affect the study area transportation system. However, these projects are not expected to change the lane geometry or traffic control for vehicles at study-area intersections. Therefore, the existing roadway and intersection configurations were assumed to remain unchanged for the 2023 analysis presented in this report.

2.2. Traffic Volumes

2.2.1. Existing Conditions

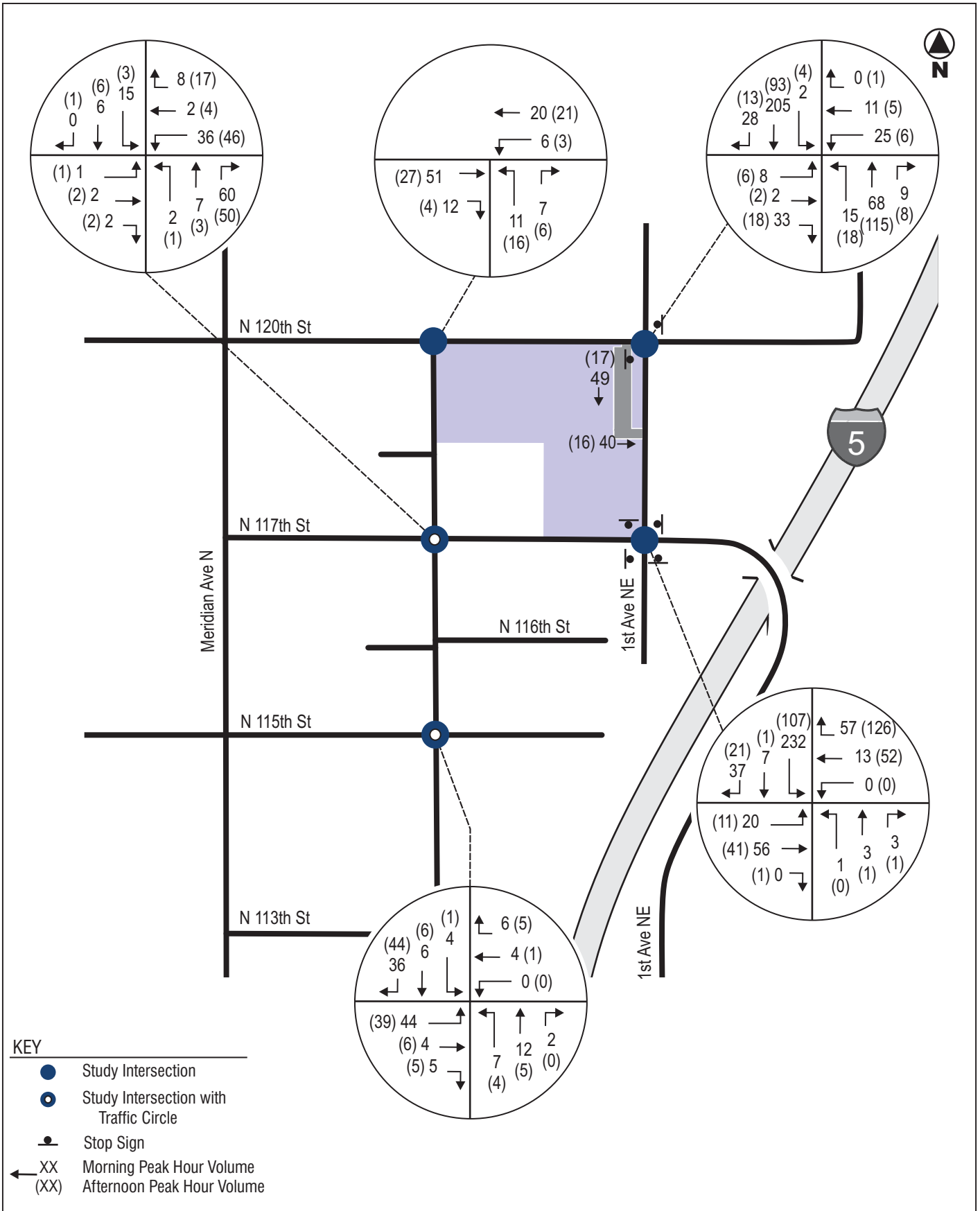
At the time of this analysis, the school day at Northgate School started at 7:55 A.M. and ended at 2:25 P.M. To capture the existing traffic conditions during the current arrival and dismissal peak periods, traffic counts were performed from 7:00 to 9:00 A.M. and from 1:30 to 3:30 P.M. on Thursday, October 3, 2019 at each of the five study intersections. The counts indicated that the morning and afternoon peak hours for school traffic occurred from 7:15 to 8:15 A.M. and from 2:00 to 3:00 P.M., respectively; Figure 3 shows the existing traffic volumes for the school peak hours.

2.2.2. Future Without-Project Conditions

Future traffic volume forecasts for 2023 conditions without the project were developed using a compound annual growth rate. SDOT's historical traffic count data include counts at the following locations: 5th Avenue NE near NE Northgate Way, N 125th Street west of Aurora Avenue N, and N Northgate Way west of Ashworth Avenue N. Based on the data available at these locations, daily, AM peak hour, and PM peak hour volumes have decreased somewhat over the years between about 2008 and 2018. Although volumes have declined, to reflect the possibility of traffic growth in non-school traffic that could occur by 2023, 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 2023. Figure 4 shows the 2023-without-project morning and afternoon peak hour traffic volumes.

It is acknowledged that Sound Transit's Northgate Link Extension is currently under construction with a new light-rail station planned to open at the Northgate Transit Center (about a mile to the southeast) in 2021. Sound Transit's Lynnwood Link Extension will continue the line to the north opening in 2024 with a future station planned at N 130th Street (about a mile to the northeast) by 2031.

[17] SDOT, February 2020.

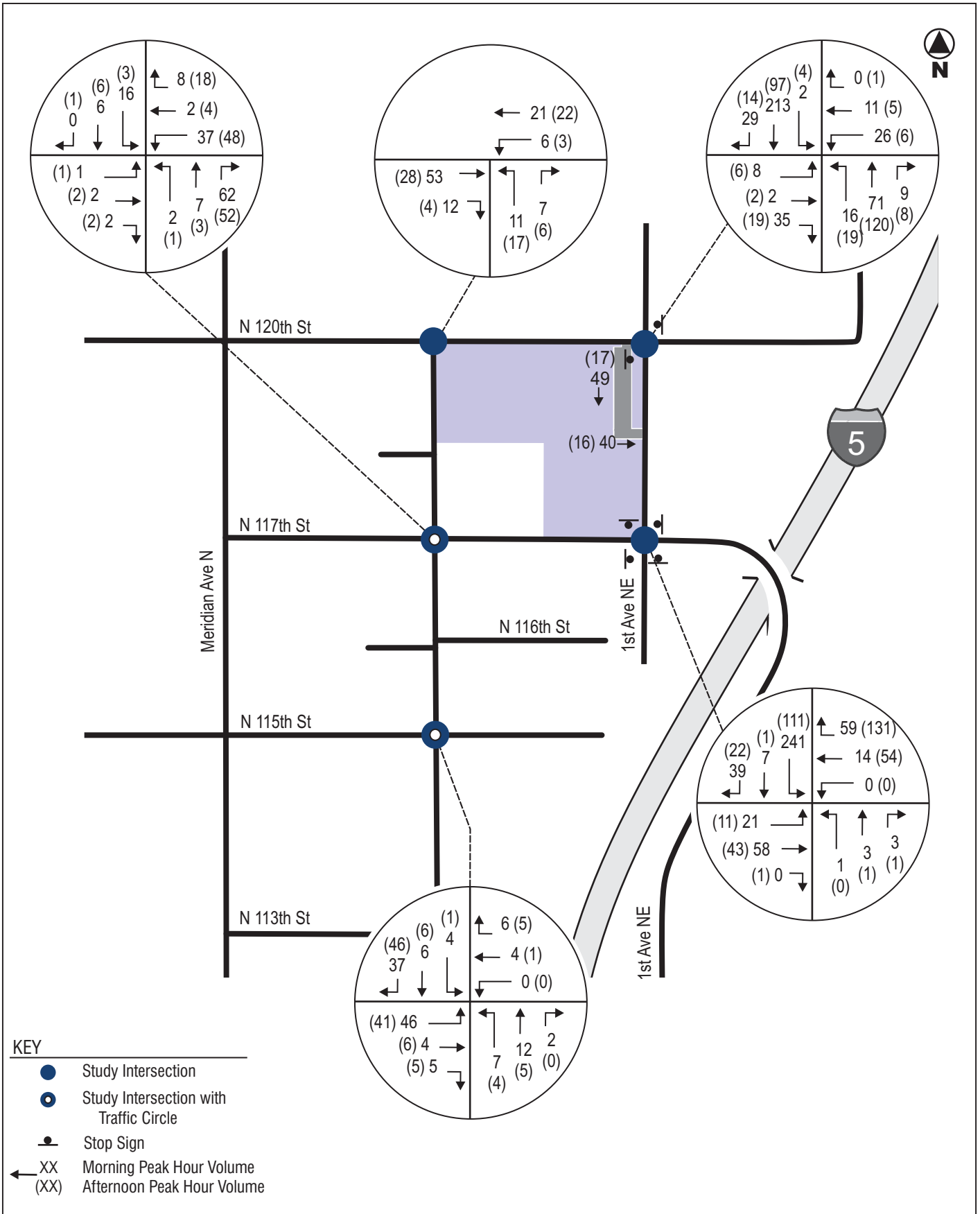


Northgate Elementary School Replacement

Figure 3
Existing Traffic Volumes
Morning and Afternoon Peak Hours

heffron transportation inc

04.20.2020



Northgate Elementary School Replacement

Figure 4
Forecast (2023) Without-Project Traffic Volumes
Morning and Afternoon Peak Hours

heffron transportation inc

04.20.2020

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.*[18] Appendix A summarizes HCM level of service thresholds and definitions for signalized and unsignalized intersections. Levels of service for the study area intersections were determined using the *Synchro 10.3* analysis software. The geometries at the study area intersections and key roadways were all field-verified. The models reflect existing intersection geometries and channelization; these characteristics were assumed to remain unchanged for future 2023 conditions.

One of the study-area intersections is all-way-stop controlled, one is two-way stop controlled, one is uncontrolled, and two have traffic circles. Table 1 summarizes existing and forecast 2023 levels of service without the proposed project for both the morning and afternoon peak hour conditions. As shown, all of the study area intersections currently operate at LOS A overall during both the morning and afternoon peak hours with all movements operating at LOS B or better. All intersections are expected to continue operating at LOS B or better in 2023 without the project with all movements at LOS B or better.

Based on observations at the existing school during morning arrival and afternoon dismissal, passenger vehicles arrive from all directions and short-term parking for load/unload activities occur on-site, at the St. Andrews Kim Korean Catholic Church on 1st Avenue NE, and on roadways around the school site. During the periods of peak load / unload activity, on-street parking and maneuvering into and out of the parking spaces slows travel around the school.

[18] Transportation Research Board 2016.

Table 1. Level of Service Summary – Existing and 2023-Without-Project Conditions

Control Type / Intersections	Morning Peak Hour				Afternoon Peak Hour			
	Existing		Without-Project		Existing		Without-Project	
All-Way Stop Controlled	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
N 117th Street / 1st Avenue NE	A	9.9	B	10.1	A	8.3	A	8.4
Two-Way Stop Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 120th Street / 1st Avenue NE	A	2.7	A	2.7	A	2.1	A	2.1
Northbound Left Turns	A	8.0	A	8.0	A	7.5	A	7.6
Southbound Left Turns	A	7.5	A	7.5	A	7.6	A	7.6
Eastbound Movements	B	11.3	B	11.4	A	10.0	B	10.1
Westbound Movements	B	14.2	B	14.6	B	11.4	B	11.5
Traffic-Circle Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 117th Street / Corliss Avenue N	A	3.3	A	3.3	A	3.1	A	3.1
Eastbound Movements	A	2.9	A	2.9	A	2.9	A	2.9
Westbound Movements	A	3.1	A	3.1	A	3.1	A	3.2
Northbound Movements	A	3.5	A	3.5	A	3.0	A	3.0
Southbound Movements	A	3.0	A	3.0	A	2.9	A	2.9
N 115th Street / Corliss Avenue N	A	3.2	A	3.2	A	3.1	A	3.1
Eastbound Movements	A	3.2	A	3.3	A	3.1	A	3.1
Westbound Movements	A	3.3	A	3.3	A	2.9	A	2.9
Northbound Movements	A	3.4	A	3.4	A	3.3	A	3.3
Southbound Movements	A	3.0	A	3.0	A	3.0	A	3.0
Uncontrolled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 120th Street / Corliss Avenue N	A	2.4	A	2.4	A	3.0	A	3.1
Westbound Left-Turn	A	7.5	A	7.5	A	7.3	A	7.3
Northbound Movements (assumed stop)	A	9.3	A	9.3	A	9.2	A	9.2

Source: Heffron Transportation, Inc., April 2020.

1. *LOS = Level of service.*
2. *Delay = Average seconds of delay per vehicle.*

2.4.2. Site Access

The entry to the school's main parking lot (with 28 spaces) is located on N 120th Street, just west of 1st Avenue NE; the exit driveway is located on 1st Avenue NE. Access to the small 4-space lot is on 1st Avenue NE, and access to the gravel 2-space school bus parking is on N 117th Street. A gated access driveway on 1st Avenue NE, south of the main parking lot exit driveway allows for occasional vehicle access to the hard-surface play area. The site access driveways operate at LOS A and are anticipated to continue operating at LOS A in the future without the project.

2.5. Parking Supply and Occupancy

On-street parking at and around the Northgate Elementary School site was surveyed to determine the existing parking supply and parking occupancy. This information was then used to estimate how parking utilization could be affected by new parking demand generated 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

A detailed on-street parking study was performed, and supply was documented according to the methodology outlined in the City of Seattle's Tip #117.[19] 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 to just west of Meridian Avenue N, just north of N 122nd Street, just south of N 116th Street, and east of I-5. Details about parking supply and occupancy are provided in the following sections. The study area consists primarily of single-family residential land uses, the subject school and two nearby churches. Most residents have some off-street parking in driveways and/or garages; however, some residents regularly use on-street parking.

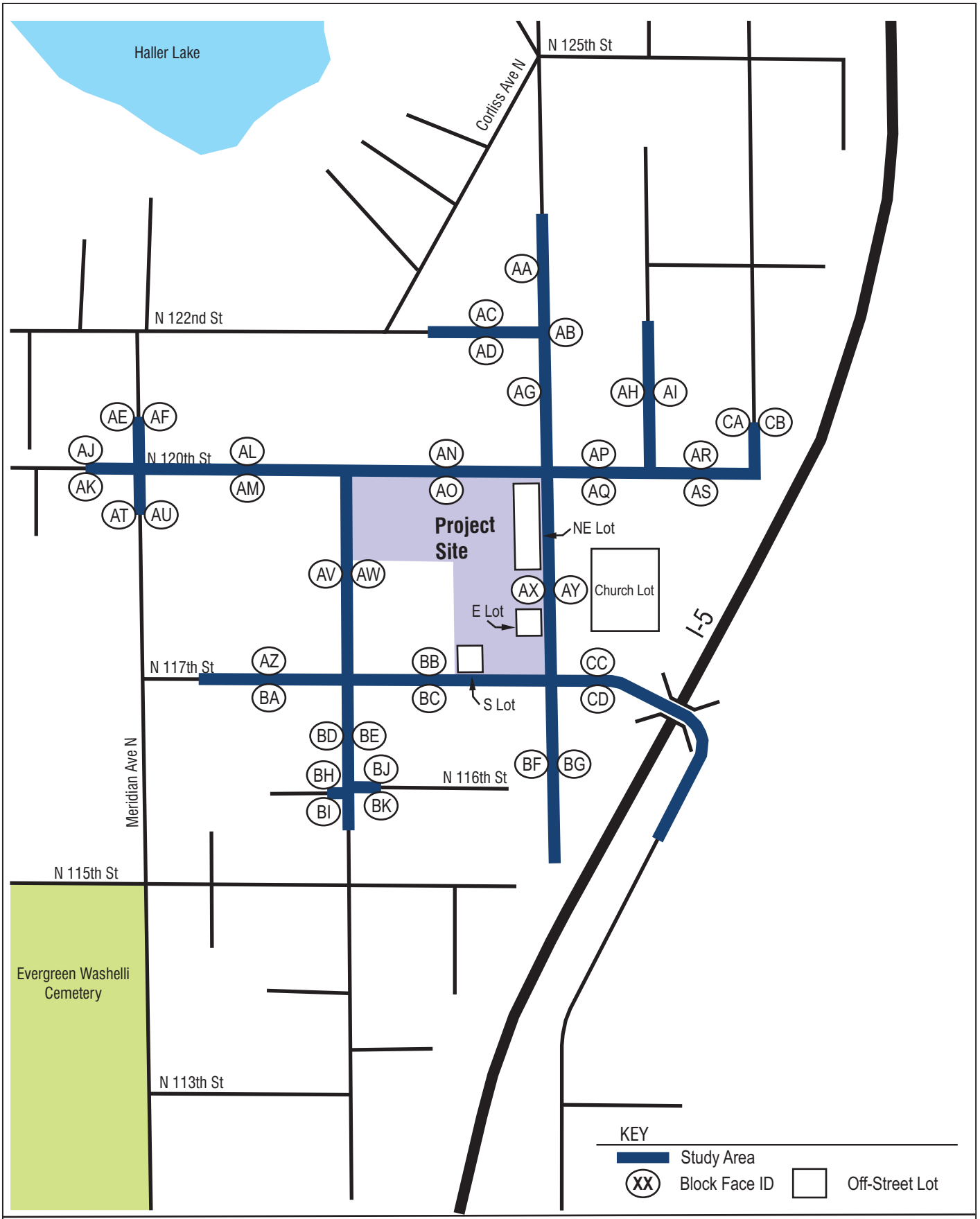
Existing On-Street Parking Supply

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 east side of 1st Avenue NE, between N 117th Street and N 120th Street is one block face (identified as block face 'AY' for this study). The study area and block face designations are shown on Figure 5.

Each block face was measured and analyzed to determine the number of available on-street parking spaces. First, common street features—such as driveways, fire hydrants, and special parking zones—were noted and certain distances adjacent to the street features were noted. No on-street parking capacity is 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 293 on-street parking spaces within the study area and 204 have no signed restrictions. After accounting for school-bus and time-dependent no parking zones along the school frontage (totaling 49 spaces), the total supply is 233 spaces in the morning, 293 spaces mid-morning, and 293 spaces in the evening.

[19] Seattle Department of Planning and Development, Tip 117, *Parking Waivers for Accessory Dwelling Units*, Updated May 12, 2011.



Northgate Elementary School Replacement

Figure 5
Study Area for On-Street Parking Utilization Surveys

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Existing On-Street Parking Occupancy

Existing parking occupancy counts within the study area were performed in August and October 2019. School-day occupancy counts were performed during early morning (between 7:00 and 7:45 A.M.) to reflect conditions when some staff may be arriving at the school and using on-street supply and mid-morning (between 10:30 and 11:15 A.M.) to reflect conditions when school-day parking is typically highest. Evening counts were performed (between 7:30 and 8:15 P.M.) to reflect conditions when occasional school events could occur. The counts were performed on Thursday, October 10, Tuesday, October 22, and Thursday, October 24, 2019. The October 24th counts included parking demand for the school's Literacy Night & Food Lifeline event (6:00 to 7:00 P.M.). Counts were also performed on Thursday, August 29, 2019 to document parking conditions when school is not in session. The counts for each day were compiled and averaged. The results of the parking occupancy surveys are summarized in Table 2. Detailed summaries of the on-street parking occupancy by block face for all counts are provided in Appendix B.

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 summarized in Table 2. For the purpose of evaluating the potential on-street parking impacts associated with the new school, the City considers utilization rates of 85% or higher to be effectively full. The survey determined that parking utilization was well below this threshold during all time periods. During the evening event on October 24th, parking utilization reached 32%. As would be expected, a few of the block faces closest to the school were full or over capacity during the event, while block faces farther from the school had unused spaces.

Within the study area when school was in session, unused parking ranged between 187 and 255 spaces over six separate observations, and there were 199 unused spaces on the event night. In August, when school was not in session there were between 193 and 252 unused spaces.

Table 2. Parking Occupancy Survey Results – August and October 2019

Time Period Surveyed	Parking Supply	Total Vehicles Parked	% Utilization
Weekday Early Morning (7:00 to 7:45 A.M.) [a]			
Thursday, October 10, 2019	233	46	20%
Tuesday, October 22, 2019	233	43	18%
Average	233	*45*	19%
Thursday, August 29, 2019 (summer)	233	*40*	17%
Weekdays Mid-Morning (10:30 to 11:15 A.M.)			
Thursday, October 10, 2019	293	38	13%
Tuesday, October 22, 2019	293	53	18%
Average	293	*46*	*16%*
Thursday, August 29, 2019 (summer)	293	*41*	*14%*
Weekday Evenings (7:30 to 8:15 P.M.)			
Tuesday, October 10, 2019	293	39	13%
Thursday, October 22, 2019	293	43	15%
Average	*293*	*41*	*14%*
Thursday, August 29, 2019 (summer)	*293*	*43*	*15%*
Weekday Event (6:30 to 7:15 P.M.)			
Thursday October 24, 2019	293	94	32%

Source: Heffron Transportation, Inc., January 2020.

a. School Bus Only (7-10 A.M. & 1-6 P.M.), 5-min. School Load Only (7-10 A.M. & 1-4 P.M.), 30-min. School Load Only (7-10 A.M. & 1-4 P.M.), and School Load Only (7-10 A.M. & 1-6 P.M.) along frontages excluded from total supply this period.

2.5.2. Off-Street Parking

There are two on-site parking lots on the east side of the site; one with four spaces accessed from 1st Avenue NE that is restricted during peak times, and one with 28 spaces with an entry from N 120th Street and an exit to 1st Avenue NE. The larger main parking lot is used for student drop-off/pick-up as well as staff and visitor parking. There is also a gravel area on the south end of the school signed for school bus parking with room for about two vehicles. Parking occupancy counts of these lots were performed in October 2019 on the same days and time periods as the on-street parking occupancy counts. In the smaller lots, occupancy ranged from zero vehicles during the non-event evening counts to two vehicles throughout the school day and during the evening event. The main lot had an average of 15 vehicles in the lot during the school day, one during the non-event evening counts, and 30 vehicles during the evening event.

The St. Andrew Kim Korean Catholic Church across 1st Avenue NE from Northgate Elementary has a parking lot with 178 parking spaces. This parking lot is utilized by school staff and parents during the day, and during evening events. The October 2019 occupancy counts found an average of 17 vehicles in this lot during the school day, 7 during the non-event evening counts, and 33 during the evening event.

2.6. Traffic Safety

Collision data for the study area intersections and the roadway segments along the school's frontages were obtained from SDOT. These data, reflecting the period between January 1, 2016 and September 22, 2019 (3.7 years), were examined to determine if there are any unusual traffic safety conditions that could impact or be impacted by the proposed project.

Historically, unsignalized intersections with five or more collisions per year and signalized intersections with 10 or more collisions per year are considered high collision (HCL) locations by the City. Intersections are also considered high collision locations if there are five or more pedestrian or cyclist collisions in the preceding three years. Mid-block roadway segments are considered high collision locations if there are 10 or more collisions in the previous year. SDOT staff conducts an annual analysis of high collision locations. The *2019 Candidate Locations for HCL Reviews*,[20] which lists locations based on the previous three years (2016 through 2018) of recorded collisions, was reviewed for this analysis. None of the study area intersections or mid-block segments are included in the list or meet the definition of an HCL. Table 3 below summarizes the collision data.

All of the study intersections and roadway segments averaged less than one collision per year. No collisions had been reported in 2019 at the time the data were provided. None of the reported collisions involved pedestrians or bicyclists, and there were no fatalities. Overall, these data do not indicate any unusual traffic safety conditions in the study area. It is noted, that in 2015 as part of the Safe Routes to School program, Northgate Elementary was one of 11 schools chosen to have school safety cameras installed in the school vicinity (along 1st Avenue NE) to reduce speeds and improve safety.

Table 3. Collision Summary (January 1, 2016 through September 22, 2019)

Unsignalized Intersections	Rear-End	Side-Swipe	Right Turn	Left Turn	Right Angle	Ped / Cycle	Other [a]	Total for 3.7 Yrs	Average/ Year
N 117th Street / 1st Avenue NE	0	0	0	0	1	0	0	1	0.3
N 120th Street / 1st Avenue NE	0	0	0	0	1	0	0	1	0.3
N 117th Street / Corliss Avenue N	0	0	0	0	0	0	0	0	0.0
N 115th Street / Corliss Avenue N	0	0	0	0	1	0	0	1	0.3
N 120th Street / Corliss Avenue N	0	0	0	0	0	0	0	0	0.0
Roadway Segment	**Rear-End**	**Side-Swipe**	**Right Turn**	**Left Turn**	**Right Angle**	**Ped / Cycle**	**Other [a]**	**Total for 3.7 Yrs**	**Average/ Year**
N 120th St (between Corliss Ave N and 1st Ave NE)	0	0	0	0	0	0	0	0	0.0
N 117th St (between Corliss Ave N and 1st Ave NE)	0	0	0	0	1	0	0	1	0.3
Corliss Ave N (between N 120th St and N 117th St)	0	0	0	0	0	0	0	0	0.0
1st Ave NE (between N 120th St and N 117th St)	0	0	0	0	0	0	2	2	0.5

Source: City of Seattle Department of Transportation, October 2019.

a. Other collision types include no diagram available, vehicle struck parked vehicle.

[20] SDOT, received April 2019.

2.7. Transit Facilities and Service

King County Metro Transit (Metro) provides bus service in the area. The closest bus stops are located about 0.3 mile from the site to the west on Meridian Avenue N. Stops for both northbound and southbound buses are located just north of N 120th Street and at N 115th Street. These stops are served by Metro Routes 316, 345, and 346. Route 316 provides weekday service for peak commute directions only (southbound in the morning and northbound in the evening) between Meridian Park and Downtown Seattle. Route 345 provides all day, daily service between Shoreline Community College, Northgate Transit Center (TC), and Downtown Seattle. Route 346 provides all day, daily service between Aurora Village TC, Northgate TC, and Downtown Seattle.

In January 2017, King County Metro adopted 'Metro Connects,'[21] 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 2023 when the school addition project is complete.

School bus transportation is made available to Northgate Elementary School students who qualify for transportation. The existing school is served by two full-size school buses and three smaller Special Education (SPED) bus.[22]

2.8. Non-Motorized Transportation Facilities

As described in the *Roadway Network* section, few roadway segments immediately near the school have sidewalks. 1st Avenue NE has sidewalks along the west side of the street north of N 117th Street, including along the school frontage. On the east side of the street sidewalks are located along the St. Andrews Kim Korean Catholic Church frontage, across from the school. Three of the five study area intersections (all unsignalized) have marked crosswalks as listed below.

- N 117th Street / 1st Avenue NE: *crosswalk on all legs*
- N 120th Street / 1st Avenue NW: *crosswalk on south leg*
- N 117th Street/ Corliss Avenue N: *crosswalk south leg*

The count data do not indicate a high level of pedestrian or bicycle activity at intersections around the school during the analysis hours. The N 120th Street / 1st Avenue NE intersection experienced the highest pedestrian volume with fewer than 30 pedestrians crossing this location during the morning peak hour. There were six or fewer bicyclists counted at each of the study intersections. It is noted that the counts were conducted in October when weather on the count day was dry and temperatures were mild. The school Principal indicated that bicycle usage at the school site is relatively low, with three staff members that bike regularly and two parents that bike to school on a regular basis with their students. The Principal has not seen students biking to school on their own. During the morning arrival and afternoon dismissal times, pedestrians were observed crossing 1st Avenue NE at mid-block locations. Pedestrians were walking between the school and the on-street parking and church parking lot (on the east side of the street).

The City of Seattle's currently adopted *CIP* and the *Safe Routes to School 5-Year Action Plan for Seattle*[23] were reviewed to determine if any pedestrian facility improvements are planned in the area. The proposed *2020-2025 CIP* includes funding over the next five years to advance the *Pedestrian Master Plan*[24] recommendations. However, no specific planned non-motorized facility improvements

21 King County Metro, adopted January 2017.
22 Seattle Public Schools, March 2020.
23 Seattle Department of Transportation; *Safe Streets, Healthy Schools and Communities*; Fall 2015.
24 SDOT, June 2017.

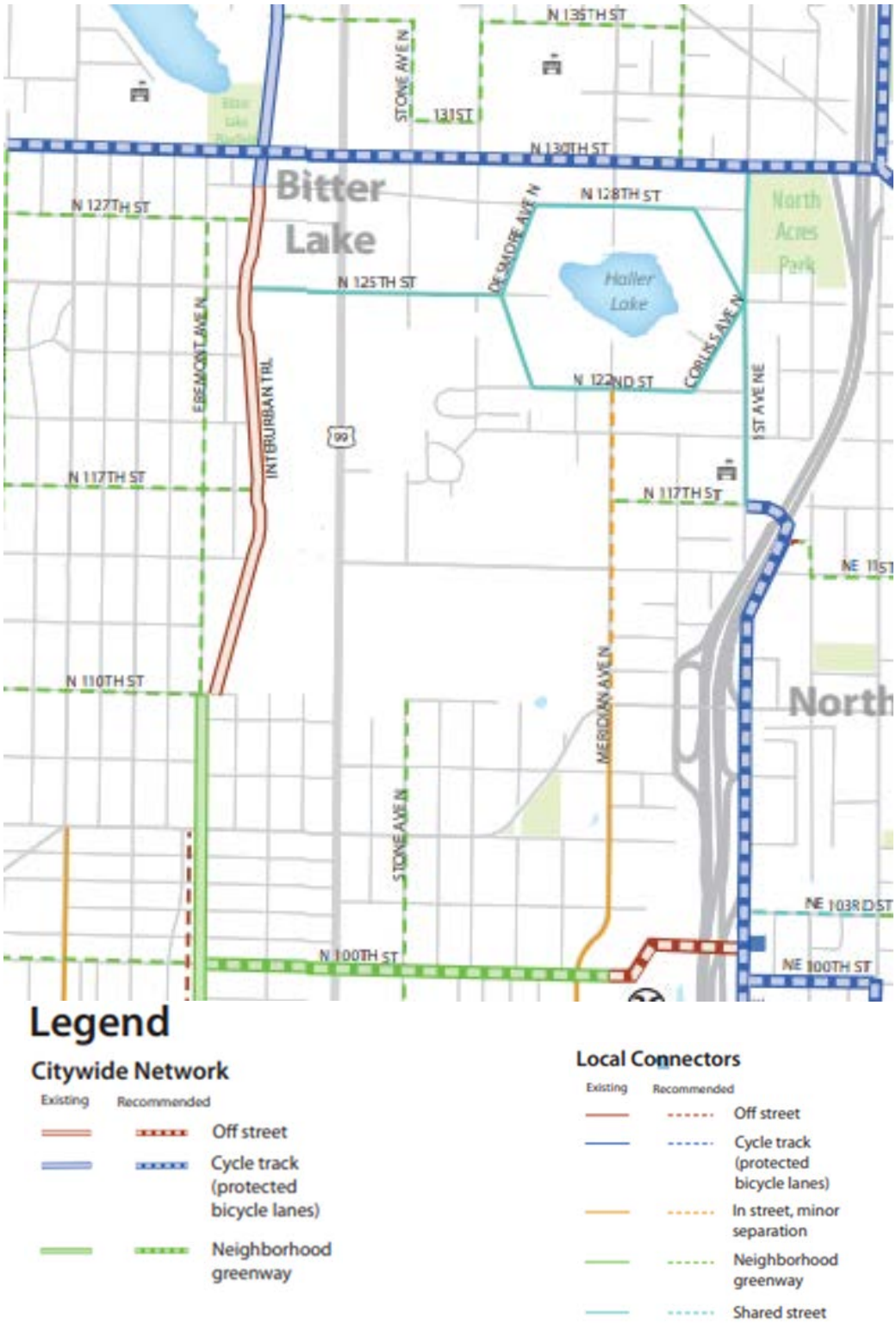
are listed for the study area roadways or intersections in the *CIP*. *Seattle Pedestrian Master Plan 2020-2024 Implementation Plan and Progress Report*[25] lists the planned installation of a sidewalk along N 117th Street between Meridian Avenue N and 1st Avenue NE by year 2021. It also lists the planned installation of a separated asphalt walkway on N 115th Street between Meridian Avenue N and Corliss Avenue N by year 2022. The SDOT action plan identifies the priority of improvements for Seattle schools; Northgate Elementary School is ranked #2 for walkway project needs and #20 for crosswalk project needs.

The Seattle Safe Routes to School program is partnering with Seattle Department of Education and Early Learning, and Seattle Public School's Northgate Elementary for a Learning Landscapes pilot project.[26] Northgate's Learning Landscape would include sidewalk designs along both sides of 1st Avenue NE, north of N 117th Street and on the east side of Meridian Avenue N, just north of N 115th Street at the Metro bus stop. The plans include installing the designs in spring of 2020.

The *BMP* identifies planned bicycle infrastructure improvements. An east-west neighborhood greenway is recommended along N 117th Street between Meridian Avenue N and 1st Avenue NE. A cycle track (protected bike lanes) is recommended along N 117th Street east of 1st Avenue NE. It also lists improvements to continue the minor in-street bicycle lanes along Meridian Avenue N from N Northgate Way to N 122nd Street. The ***Seattle Bicycle Master Plan – 2019-2024 Proposed Implementation Plan***[27] which defines the BMP priorities identifies project #30 Safe Routes to Schools (SRTS) Ingraham High School Connection Phase 1 Neighborhood Greenway project is funded through construction. The *BMP* recommended network is shown on Figure 6. The *Neighborhood Greenways* website indicates the Ingraham Connection is in the design phase.

25 SDOT, Appendices, December 2019.
26 SDOT website, accessed April 2020. https://www.seattle.gov/transportation/projects-and-programs/safety-first/safe-routes-to-school/learning-landscapes
27 SDOT, June 13, 2019.

Figure 6. Bicycle Master Plan Recommended Network



Source: Adopted Seattle Bicycle Master Plan (BMP), City of Seattle, April 2014.

3. PROJECT IMPACTS

This section describes the conditions that would exist with the Northgate Elementary School replacement operating with up to 650 students. Vehicle trip estimates associated with the school addition were added to the 2023-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 28-space staff and visitor parking lot would be replaced with a new 26-space parking lot with a single two-way access driveway on 1st Avenue NE; vehicular access from N 120th Street would be eliminated. South of the parking lot access on 1st Avenue N, a delivery/service driveway would provide access to four employee parking spaces, the service yard, loading dock, and would allow occasional evening event parking (for about 29 vehicles) to occur on the hard-surface play area. A gated emergency-access driveway would be provided on Corliss Avenue N.

The project would provide a curb-side passenger-vehicle drop-off/pick-up lane along the site's N 120th Street frontage. The on-street school-bus load/unload zone would be relocated from N 117th Street to the frontage along the west side of 1st Avenue NE. The project would improve all frontages, including replacing the curb, planter strip, and providing a widened sidewalk along 1st Avenue to accommodate the school bus load/unload space. Curbs, gutters, planter strips, and 6-foot sidewalks would be installed along the other frontages.

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 650 students, and is expected to generate an increase in daily and peak hour traffic compared to existing conditions. 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 and/or expansions of existing schools, actual counts of the existing school can be used. This latter method works best for schools located in areas where school-related traffic can easily be isolated and identified, and traffic counts can be used to develop rates specifically for that school. Trip generation estimates were derived from the video traffic counts performed at surrounding intersections, the site access driveways, and along the roadways adjacent to the school (including at the church driveways across from the school along 1st Avenue NE). The resulting estimates were compared to published trip generation rates.

Based on the data collected, the school currently generates an estimated 0.80 trips per student in the morning peak hour and 0.44 trips per student in the afternoon peak hour. The rates are higher than the average rates published for Elementary Schools (Land Use 520) in the *Trip Generation Manual* (0.67 trips per student in the morning peak hour and 0.34 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 were derived specifically for the existing school, they are most appropriate for use in evaluating future conditions with the Northgate Elementary School replacement and added enrollment capacity.

[28] ITE, 10th Edition, September 2017.

The derived rates were applied to the proposed new enrollment capacity at Northgate Elementary (650 students), and Table 4 presents the resulting trip generation estimates. These estimates include school bus trips, employee trips, and family-vehicle trips. These estimates include 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. It is estimated that one additional school bus could be added with the school enrolled to its planned capacity.[29]

Table 4. Northgate Elementary School Project – Trip Generation Estimates

Site Condition	Enrollment	Morning Peak Hour			Afternoon Peak Hour		
		In	Out	Total	In	Out	Total
Proposed Northgate ES Replacement	650 students [a]	289	234	523	140	143	283
Existing Northgate ES	250 students [b]	111	90	201	54	55	109
Net Change	400 students	178	144	322	86	88	174

Source: Heffron Transportation, Inc., April 2020.

a. Proposed future capacity of the school.

b. Enrollment (at capacity) of the existing school at the time of site traffic counts (October 2019).

3.2.2. Trip Distribution & Assignment

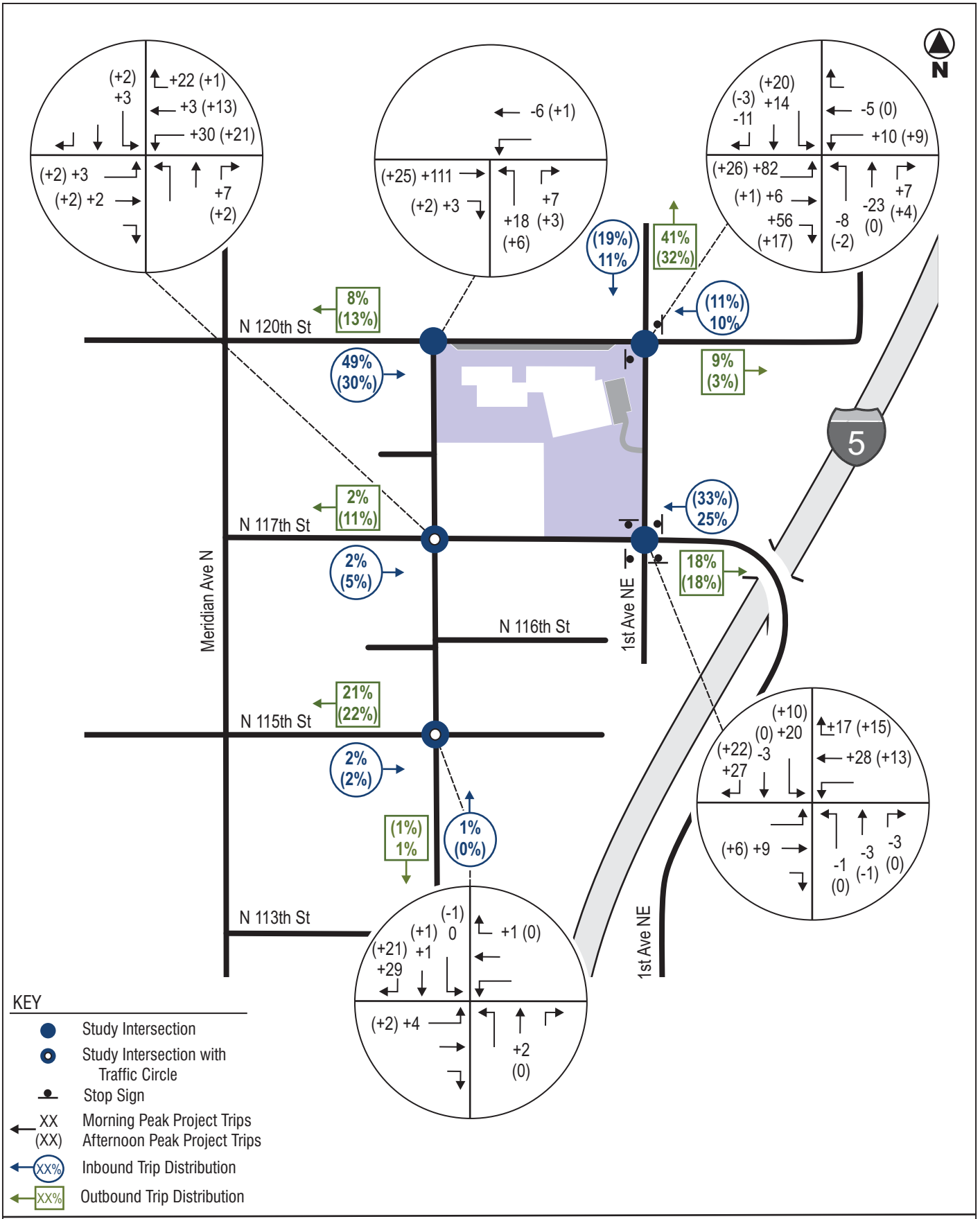
The expanded Northgate Elementary School is expected to accommodate growth largely within the existing enrollment area for the school. Trip distribution patterns for the new elementary school trips within the project study area were developed based on observed existing patterns surrounding the school. These distribution patterns reflect the existing and expected future travel characteristics of the local roadway network including the revised access to the relocated parking lot, the designated new student drop-off/pick-up area, and the new bus load/unload area. For both the existing 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 a few trips generated by teachers or staff.

In the morning, school buses are expected to travel southbound along 1st Avenue NE and access the new bus loading area adjacent to the school. With the frontage improvements planned for N 120th Street (designated curb-side passenger-vehicle load/unload area) and Corliss Avenue N, these areas are anticipated to be the focus of family-vehicle load/unload activity during peak arrival and dismissal periods. Family drivers are expected to select travel routes that would allow them to approach the school from the south on Corliss Avenue N and/or from the west along N 120th Street to use the new designated curb-side load/unload areas.

The replacement school layout would provide a staff and visitor parking lot with access on 1st Avenue NE, but this lot would not be designated for student drop-off/pick-up during peak times. It is expected that some staff, and family drivers would continue to park in the St. Andrew Kim Korean Catholic Church parking lot across 1st Avenue NE and escort students to and from the school. The N 117th Street frontage would also be available for passenger-vehicle load/unload since the bus load/unload area would be relocated to 1st Avenue NE.

The estimated net changes in traffic at the study intersections along with the project trip distribution percentages are shown on Figure 7 for both the morning and afternoon peak hours. The net changes in peak hour trips were combined with the forecast 2023 without-project traffic volumes to reflect future conditions with the replacement school. The forecast 2023 with-project morning and afternoon peak hour traffic volumes are shown on Figure 8.

[29] Seattle Public Schools, March 2020.



Northgate Elementary School Replacement

Figure 7
Net Project Trips and Distribution
Morning and Afternoon Peak Hour

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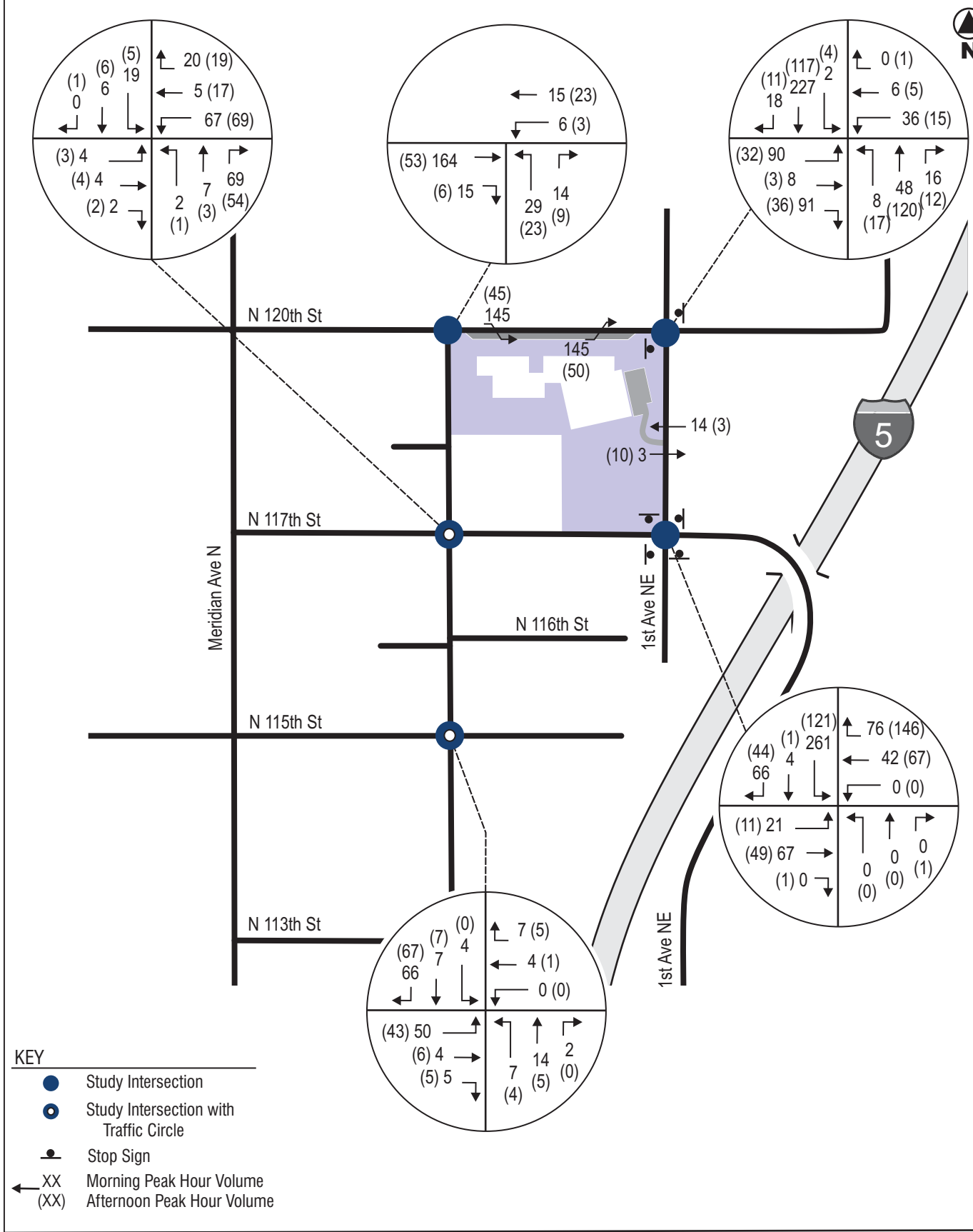

Northgate Elementary School Replacement

Figure 8
Forecast (2023) With-Project Traffic Volumes
Morning and Afternoon Peak Hours

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3.3. Traffic Operations

Intersection levels of service for future with-project conditions were evaluated using the same methodology described previously. The additional enrollment capacity could result in increased pedestrian trips and pedestrian crossings at the nearby study intersections. The operational analyses accounted for these potential increases 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).

3.3.1. Off-Site Study Area Intersections

Levels of service for the off-site study area intersections were calculated using the 2023-with-project traffic volumes. Table 5 shows the results of the analysis; levels of service for the 2023-without-project conditions are provided for comparison. All of the study-area intersections are forecast to continue operating at LOS B or better overall, with all movements at LOS C 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.

Table 5. Level of Service Summary – Forecast 2023 Without- and With-Project Conditions

Control Type / Intersections	Morning Peak Hour				Afternoon Peak Hour			
	Without-Project		With-Project		Without-Project		With-Project	
All-Way Stop Controlled	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
N 117th Street / 1st Avenue NE	B	10.1	B	11.2	A	8.4	A	8.8
Two-Way Stop Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 120th Street / 1st Avenue NE	A	2.7	A	7.5	A	2.1	A	3.7
Northbound Left Turns	A	8.0	A	8.0	A	7.6	A	7.6
Southbound Left Turns	A	7.5	A	7.5	A	7.6	A	7.6
Eastbound Movements	B	11.4	C	17.3	B	10.1	B	11.5
Westbound Movements	B	14.6	C	16.6	B	11.5	B	12.4
Traffic-Circle Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 117th Street / Corliss Avenue N	A	3.3	A	3.5	A	3.1	A	3.3
Eastbound Movements	A	2.9	A	3.2	A	2.9	A	3.0
Westbound Movements	A	3.1	A	3.6	A	3.2	A	3.4
Northbound Movements	A	3.5	A	3.6	A	3.0	A	3.1
Southbound Movements	A	3.0	A	3.2	A	2.9	A	3.0
N 115th Street / Corliss Avenue N	A	3.2	A	3.3	A	3.1	A	3.2
Eastbound Movements	A	3.3	A	3.3	A	3.1	A	3.1
Westbound Movements	A	3.3	A	3.4	A	2.9	A	2.9
Northbound Movements	A	3.4	A	3.4	A	3.3	A	3.3
Southbound Movements	A	3.0	A	3.3	A	3.0	A	3.2
Uncontrolled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 120th Street / Corliss Avenue N	A	2.4	A	2.7	A	3.1	A	2.9
Westbound Left-Turn	A	7.5	A	7.9	A	7.3	A	7.4
Northbound Movements (assumed stop)	A	9.3	A	10.9	A	9.2	A	9.5

Source: Heffron Transportation, Inc., April 2020.

1. *LOS = Level of service.*
2. *Delay = Average seconds of delay per vehicle.*

3.3.2. Site Access

Analysis of the main site access driveway indicate it would operate at LOS A overall with all movements at LOS B or better during both peak hours.

3.4. Parking Supply and Demand

The project would decrease the on-site parking supply from 32 spaces to 30 spaces (for staff and visitors). Because the site would continue to have less off-street parking than would be required by Seattle land use code, it would necessitate a City of Seattle Departure process approval. 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 by the Seattle Public Schools.

The school's frontages that currently prohibit parking or have time restrictions on school days, would not significantly change with project. The 1st Avenue NE frontage prohibits parking, except for a short section that is allowed outside of restricted times on school days for student load/unload. The new layout would accommodate school bus load/unload on this roadway, and the other school frontages would be used for passenger-vehicle load/unload on school days during peak times (expected to remain from 7:00 to 10:00 A.M. and 1:00 to 4:00 P.M.). These areas could continue to be used for on-street parking outside of these restricted times and on non-school days. The St. Andrew Kim Korean Catholic Church parking lot area to the east of the site, across 1st Avenue NE is currently utilized by some staff and parents; this is likely to continue with the proposed project. As mentioned previously, the school and church maintain an informal, cooperative understanding of shared parking-facility use.

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 (650 students), the school could have up to 72 total employees (10 additional compared to existing staffing with about 7 full-time and 3 part-time).[30] Future parking demand estimates were developed based on studies at similar elementary schools in the area and rates published by ITE. Observations performed by Heffron Transportation at numerous Seattle elementary schools indicate school-day parking demand rates ranging from 1.06 to 1.23 vehicles parked per employee. ITE's *Parking Generation*[31] includes rates of 0.13-vehicles-per-student and 0.95-vehicles-per-employee. Based on the range of rates available, the proposed project with the enrollment capacity increase and staff up to 72 employees, the project could generate an additional parking demand of 10 to 40 vehicles. 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. The school demand would be partially accommodated by the on-site parking lot. The increase in on-street demand is estimated to range from 5 to 35 vehicles, depending on the number that continue to use the nearby church lot. As detailed previously, on-street parking within the site vicinity averages between 16% and 19% occupied depending on the time of day, with between about 190 and 250 unused spaces. Some of the spaces near the school will continue to be restricted during parts of the school day, but may be available for midday use by part-time staff or family volunteers. The increase in school-day on-street parking demand could be accommodated by unused supply and typical utilization is estimated to remain below 35%.

30 Seattle Public Schools, May 2020.
31 ITE, 5th Edition, January 2019.

3.4.2. Evening Event Parking

Northgate Elementary School would continue to host events periodically throughout the school year. The school currently hosts school- and PTO/Friends-of-Northgate-sponsored events as well as monthly PTO & Friends of Northgate meetings (monthly). Events occur about once per month during the school year and include: Back to School Ice Cream Social, Curriculum Night, Literacy Night and Food Lifeline, Art Night, Math & Cookie Night and Food Lifeline, Health and Fitness Night, and Multicultural Night. Some events, such as the LGBTQ Family Dinners, Fall Harvest Party, and Chili Feed Fundraiser / Neighborhood Festival of Lights are held off-site at other venues.

As described previously, parking demand counts were performed during one of the school's representative events—Literacy Night and Food Lifeline on October 24, 2019. When parking demand from that evening event are compared to counts performed on nights without an event (summarized in Table 2), it can be estimated that the event generated peak demand of about 110 vehicles. On-street parking within the study area was 32% utilized.

The larger enrollment that would be accommodated by the proposed new Northgate Elementary School could result in higher attendance for some events. The new school layout would provide 30 on-site spaces (26 spaces in the main parking lot and 4 spaces in the service area) plus temporary on-site event parking for about 29 vehicles on the hard-surface play area. The proposed new on-street bus load/unload area would increase on-street parking capacity by 11 vehicles compared to existing conditions. For events like the observed Literacy Night, some increased use of the St. Andrew Kim Korean Catholic Church parking lot is likely; however, even if event demand in that lot is unchanged from current conditions, the unused on-street parking supply could accommodate the remaining event demand and overall utilization would remain at or below 75%. As noted, the City of Seattle generally considers on-street parking to be full when over 85%. The largest events for schools are typically Curriculum Night, which occurs once per year; this event could generate higher demand on-street and within the nearby church lot. As part of the informal shared parking-facility use with the church, the school Principal would continue to coordinate event schedules to avoid concurrent large evening events at both sites.

These analyses indicate that demand from typical large events can be accommodated and would occur very infrequently (once per month or every other month during the school year). Due to the relative infrequency of the largest event, the event-related parking impacts would not be considered significant. However, to minimize the potential impact, the school should develop a neighborhood communication plan to inform nearby neighbors of events each year. In addition, if needed, the school could modify the largest event (Curriculum Night) to reduce total peak demand, such as by separating it into two sessions or into two nights based on grade levels as occurs at some other SPS elementary schools.

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, speed enforcement cameras, and crossing guards, are expected to continue. Additional sidewalks planned as part of the project and the learning landscapes planned separately along the site frontages would further enhance safety during peak arrival and dismissal periods. The project is not expected to result in significant adverse safety impacts.

3.6. Transit

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 on Meridian Avenue N, just north of N 120th Street and at N 115th Street. The project is not expected to result in adverse impacts to transit facilities or service.

3.7. Non-Motorized Transportation Facilities

Northgate Elementary School, with increased enrollment capacity, is expected to generate some additional pedestrian trips within the site vicinity. It is anticipated that the largest increases in pedestrian activity would occur along 1st Avenue NE adjacent to the school. There may also be increases in bicycle trips within the site vicinity due to the proposed project. The project proposes to accommodate bike racks for up to 60 bicycles along the east side of the building and racks for another 36 bicycles under the covered play structure. Based on the current level of bicycle usage, these facilities are expected to adequately accommodate the likely level of demand for the replacement school.

As mentioned, pedestrians were observed crossing 1st Avenue NE at mid-block locations between the school, on-street parking, and the St. Andrew Kim Korean Catholic Church parking lot to access the existing school entrance located about mid-block. The proposed new school layout would locate the school entrance and plaza near the northeast corner of the site. The new site layout is intended to encourage arrivals from the N 120th Street frontage. Since there are no sidewalks along the east side of 1st Avenue NE north of the Korean Catholic Church, pedestrians arriving from on-street parking on the east side of 1st Avenue NE or the church parking lot would be encouraged to walk south to the N 117th Street intersection to cross.

The project would provide improvements on each of its frontages. Along the 1st Avenue NE frontage, a pullout area would be provided for school bus load/unload and parking during non-peak periods and the existing sharrow markings would be retained. A curb, gutter, sidewalk and landscape amenities would be installed along the N 117th Street and Corliss Avenue N frontages. The N 120th Street frontage will be redesigned to provide curb, gutter, planter strip, a sidewalk, and passenger-vehicle load/unload lane.

3.8. Short-term Impacts from Construction

The school would remain open during construction, which is planned to start in spring 2021 with the new building ready for occupancy in fall 2023. The remaining site and playground areas would be completed in December 2023.

3.8.1. Construction-Period Access Operations

Preliminary planning suggests that construction staging would occur within the existing on-site parking lot, facilitated by a construction access driveway. During construction, pedestrians (including students) would be routed around or directed to avoid construction areas using temporary walkways, fencing, and signage. Movements around the northeastern portion of the campus could be partially restricted. With the on-site parking lot used for construction staging, the passenger-vehicle drop-off/pick-up activity would continue to occur around the school on-street, and in the church parking lot. Existing designated on-street passenger-vehicle load/unload areas for students around the site may be temporarily unavailable during different phases of construction and communication and signage should be provided to school families as restrictions are put in place throughout construction. The existing school bus load/unload area on N 117th Street would likely remain and is not expected to be affected by construction.

3.8.2. Construction-Period Parking Conditions

During the construction effort, construction personnel may park on site or on-street in the site vicinity. The existing on-site day-time school demand would also be displaced to on-street parking in the surrounding neighborhood (about 15 vehicles). Although parking demand displaced from the lot and generated by construction workers would likely be noticeable to local residents, the parking occupancy on the surrounding roadways was found to be between 16% and 19% utilized during weekdays with about 190 or more unused spaces. Therefore, the unused supply is expected to accommodate the temporary added demand during the two-year construction period and is not expected to result in significant adverse impacts to study area parking conditions.

3.8.3. Construction-Period Demolition, Earthwork, and Employee Activity

The construction effort would include earthwork that would consist of excavation and fill for foundations and grading. It is estimated to require removal of about 15,800 cubic yards (cy) of material from the site and import of about 2,500 cy of structural fill for a total transport amount of about 18,300 cy. Assuming an average of 20-cubic yards per truck (truck/trailer combination), the excavation and material removal would generate about 915 truckloads (915 trucks in and 915 trucks out). The main earthwork activities are likely to consist of excavation in late March 2021 and final grading in September 2021. This activity is estimated to require 25 to 30 days to complete with an average of 32 truckloads per day and an average of about four truckloads per hour during periods of earthwork transport.[32] This volume of truck traffic would likely be noticeable to residents living adjacent to the site, but would occur during off-peak times and would not result in significant impacts to traffic operations in the site vicinity.

The construction of the project would also generate employee and equipment 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. Workers would typically arrive between 6:30 and 6:45 A.M., but work not starting 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.

[32] Personal communication, email from D. Reeves, Lydig Construction, May 2020.

4. FINDINGS AND RECOMMENDATIONS

The following sections summarize the findings and recommendations of the analysis.

4.1. Short-Term Conditions – Construction

- The proposed school-replacement project is proposed to begin construction during the summer of 2021. During construction, the students and staff would remain on-site. The new replacement school is planned to open in fall 2023.
- During construction, pedestrians (including students) would be routed around or directed to avoid construction areas using temporary walkways, fencing, and signage. Movements around the northeastern portion of the campus could be partially restricted.
- Existing designated on-street passenger-vehicle load/unload areas for students around the site may be temporarily unavailable during different phases of construction and communication and signage should be provided to school families as restrictions are put in place throughout construction.
- Construction personnel may park on site or on-street in the site vicinity. The existing on-site day-time school demand would also be displaced to on-street parking in the surrounding neighborhood (about 15 vehicles). Although parking demand displaced from the lot and generated by construction workers would likely be noticeable to local residents, the parking occupancy on the surrounding roadways was below 20% occupied during weekdays with 190 or more unused spaces. The unused supply is expected to accommodate the temporary added demand during the two-year construction period.
- Earthwork transport during construction is estimated to require an average of 64 truck trips per day (32 in, 32 out) and about 8 truck trips per hour (4 in, 4 out), which may be noticeable to residents living adjacent to the site, but would not result in significant impacts to traffic operations.

Because construction would occur while students remain at Northgate Elementary School, 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 proposed replacement project is expected to increase the student capacity to 650 students (up from its current enrollment of 250 students) and could have up to 72 employees (up from the current 62 employees, though it would increase the number and proportion of full-time staff).
- At the proposed capacity and compared to the site's current enrollment, the new school is projected to generate a net increase of 322 trips during the morning peak hour (from 7:15 to 8:15 A.M.) and 174 trips during the afternoon peak hour (from 2:00 to 3:00 P.M.).
- The project would decrease the on-site parking supply from 32 spaces to 30 spaces (for staff and visitors). The project would provide a curb-side passenger-vehicle drop-off/pick-up lane along the site's N 120th Street frontage. The on-street school-bus load/unload zone would be relocated from N 117th Street to the frontage along the west side of 1st Avenue NE.
- The additional traffic and pedestrian activity generated by the school with a larger enrollment capacity is expected to add small amounts of delay to several of the study area intersections and turning movements during morning and afternoon peak hours; however, all of the study-area intersections are forecast to continue operating at LOS B or better overall, with all movements

operating at LOS C 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.

- At the proposed enrollment capacity of 650 students, school-day parking demand may increase by about 10 to 40 vehicles. Demand is likely to vary somewhat depending on the number of part-time staff and volunteers on site at any one time. The increase would be partially accommodated by the on-site parking lot and the increase in on-street demand is estimated to range from 5 to 35 vehicles, depending on the number that continue to use the nearby church lot. On-street parking within the site vicinity was consistently below 20% occupied on school days with more than 190 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 35%.
- With larger enrollment, Northgate Elementary School could draw higher attendance for some events. For events like the observed Literacy Night, some increased use of the St. Andrew Kim Korean Catholic Church parking lot is likely; however, even if event demand in that lot is unchanged from current conditions, the unused on-street parking supply could accommodate the remaining event demand and overall utilization would remain at or below 75%. The largest events for schools are typically Curriculum Night, which occurs once per year; this event would generate higher demand on-street and within the nearby church lot.
- The project would provide improvements on each of its frontages as required by SDOT. The project would improve all frontages, including replacing the curb, planter strip, and providing a widened sidewalk along 1st Avenue to accommodate the school bus load/unload space. Curbs, gutters, planter strips, and 6-foot sidewalks would be installed along the other frontages.

Based the above findings, the school replacement project would not result in significant adverse impacts to traffic operations or parking. However, because the site would be reconfigured to accommodate a larger enrollment capacity and would change access, parking, and load/unload areas around the site, several 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 Northgate Elementary replacement.

A. **Construction Transportation Management Plan (CTMP):** The District will require the selected contractor to develop a CTMP that addresses traffic and pedestrian control during school construction. It would define truck routes, lane closures, walkway closures, and parking or load/unload area disruptions, as necessary. Pedestrians (including students) would be routed around or directed to avoid construction areas using temporary walkways, fencing, and signage. To the extent possible, truck movements (including earthwork transport and deliveries of materials to the site) would not occur during morning arrival or afternoon dismissal periods for the school and 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. The CTMP would identify parking locations for the construction staff and/or displaced on-site school parking demand.

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 site layout. The TMP should also encourage school bus ridership, carpooling,

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. **Engage Seattle School Safety Committee:** The District should continue the ongoing engagement with the Seattle School Safety Committee (led by SDOT) to review the new access for pedestrian and bicycles and determine if any changes should be made to crosswalks, traffic control, crossing guard locations, or to help encourage pedestrian and non-motorized flows at designated crosswalk locations.

D. **Develop Neighborhood Communication Plan for School Events:** The District and school administration should develop a neighborhood communication plan to inform nearby neighbors of large events each year. The plan should be updated annually (or as events are scheduled) and should provide information about the dates, times, and rough magnitude of large-attendance events. The communication would be intended to allow neighbors to plan for the occasional increase in on-street parking demand that would occur with large events. As part of the informal shared parking-facility use with the church, the school Principal would continue to coordinate event schedules to avoid concurrent large evening events at both sites.

E. **Update right-of-way and curb-side signage:** The District should work with SDOT to confirm the locations, restrictions, and durations for curb-side parking and load/unload zones adjacent to the school.

APPENDIX A
Level of Service Definitions

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

Project **Northgate ES School Replacement**

				Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parallel Parking	2-Hour Parking 7a - 6p Except Sun/Hol	5 min School Load Only 7-10am, 1-4pm exc Sat, Sun, & Hol	30-Minute School Load Only 7-10am, 1-4pm exc Sat, Sun & Hol	School Load Only 7-10a, 1-6p exc Sat, Sun & Hol	School Bus Only 7-10a, 1-6p exc Sat, Sun, & Hol	**Total Available Parking Spaces 7:00a - 7:45a**	**Total Available Parking Spaces 10:30a -11:15a**	**Total Available Parking Spaces After 6:30p**
AA	1st Ave NE	800' boundary N 122nd St	W	1	0	0	0	0	0	**1**	**1**	**1**
AB	1st Ave NE	800' boundary and N 120th St	E	1	0	0	0	0	0	**1**	**1**	**1**
AC	N 122nd St	800' boundary and 1st Ave NE	E	9	0	0	0	0	0	**9**	**9**	**9**
AD	N 122nd St	800' boundary and 1st Ave NE	W	3	0	0	0	0	0	**3**	**3**	**3**
AE	Meridian Ave N	N 120th St and 800' boundary	W	0	0	0	0	0	0	**0**	**0**	**0**
AF	Meridian Ave N	N 120th St and 800' boundary	E	0	0	0	0	0	0	**0**	**0**	**0**
AG	1st Ave NE	N 120th St and N 122nd St	W	3	0	0	0	0	0	**3**	**3**	**3**
AH	2nd Ave NE	N 120th St and 800' boundary	W	13	0	0	0	0	0	**13**	**13**	**13**
AI	2nd Ave NE	N 120th St and 800' boundary	E	7	0	0	0	0	0	**7**	**7**	**7**
AJ	N 120th St	Meridian Ave N and 800' boundary	N	0	0	0	0	0	0	**0**	**0**	**0**
AK	N 120th St	Meridian Ave N and 800' boundary	S	0	3	0	0	0	0	**3**	**3**	**3**
AL	N 120th St	Meridian Ave N and Corliss Ave N	N	0	9	0	0	0	0	**9**	**9**	**9**
AM	N 120th St	Meridian Ave N and Corliss Ave N	S	0	15	0	0	0	0	**15**	**15**	**15**
AN	N 120th St	Corliss Ave N and 1st Ave NE	N	9	0	0	0	0	0	**9**	**9**	**9**
AO	N 120th St	Corliss Ave N and 1st Ave NE	S	0	0	0	29	0	0	**0**	**29**	**29**
AP	N 120th St	1st Ave NE and 2nd Ave NE	N	10	0	0	0	0	0	**10**	**10**	**10**
AQ	N 120th St	1st Ave NE and 2nd Ave NE	S	7	0	0	0	0	0	**7**	**7**	**7**
AR	N 120th St	2nd Ave NE and 3rd Ave NE	N	8	0	0	0	0	0	**8**	**8**	**8**
AS	N 120th St	2nd Ave NE and 3rd Ave NE	S	4	0	0	0	0	0	**4**	**4**	**4**
AT	Meridian Ave N	800' boundary and N 120th St	E	0	2	0	0	0	0	**2**	**2**	**2**
AU	Meridian Ave N	800' boundary and N 120th St	W	0	0	0	0	0	0	**0**	**0**	**0**
AV	Corliss Ave N	N 120th St and N 117th St	W	18	0	0	0	0	0	**18**	**18**	**18**
AW	Corliss Ave N	N 120th St and N 117th St	E	9	0	0	14	0	0	**9**	**23**	**23**
AX	1st Ave NE	N 120th St and N 117th St	W	0	0	5	0	0	0	**0**	**5**	**5**
AY	1st Ave NE	N 120th St and N 117th St	E	10	0	0	0	0	0	**10**	**10**	**10**
AZ	N 117th St	800' boundary and Corliss Ave N	N	10	0	0	0	0	0	**10**	**10**	**10**

Project **Northgate ES School Replacement**

				Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parallel Parking	2-Hour Parking 7a - 6p Except Sun/Hol	5 min School Load Only 7-10am, 1-4pm exc Sat, Sun, & Hol	30-Minute School Load Only 7-10am, 1-4pm exc Sat, Sun & Hol	School Load Only 7-10a, 1-6p exc Sat, Sun & Hol	School Bus Only 7-10a, 1-6p exc Sat, Sun, & Hol	**Total Available Parking Spaces 7:00a - 7:45a**	**Total Available Parking Spaces 10:30a -11:15a**	**Total Available Parking Spaces After 6:30p**
BA	N 117th St	800' boundary and Corliss Ave N	S	7	0	0	0	0	0	**7**	**7**	**7**
BB	N 117th St	Corliss Ave N and 1st Ave NE	N	5	0	0	0	3	9	**5**	**17**	**17**
BC	N 117th St	Corliss Ave N and 1st Ave NE	S	18	0	0	0	0	0	**18**	**18**	**18**
BD	Corliss Ave N	N 117th St and 800' boundary	W	9	0	0	0	0	0	**9**	**9**	**9**
BE	Corliss Ave N	N 117th St and 800' boundary	E	9	0	0	0	0	0	**9**	**9**	**9**
BF	1st Ave NE	N 117th St and Dead End	W	14	0	0	0	0	0	**14**	**14**	**14**
BG	1st Ave NE	N 117th St and Dead End	E	5	0	0	0	0	0	**5**	**5**	**5**
BH	N 116th St	Corliss Ave N and 800' boundary	N	3	0	0	0	0	0	**3**	**3**	**3**
BI	N 116th St	Corliss Ave N and 800' boundary	S	4	0	0	0	0	0	**4**	**4**	**4**
BJ	N 116th St	800' boundary and Corliss Ave N	N	4	0	0	0	0	0	**4**	**4**	**4**
BK	N 116th St	800' boundary and Corliss Ave N	S	4	0	0	0	0	0	**4**	**4**	**4**
CA	3rd Ave NE	N 120th St and 800' boundary	N	0	0	0	0	0	0	**0**	**0**	**0**
CB	3rd Ave NE	N 120th St and 800' boundary	S	0	0	0	0	0	0	**0**	**0**	**0**
CC	N 117th St	1st Ave NE 800' boundary	N	0	0	0	0	0	0	**0**	**0**	**0**
CD	N 117th St	1st Ave NE 800' boundary	S	0	0	0	0	0	0	**0**	**0**	**0**
			TOTAL	**204**	**29**	**5**	**43**	**3**	**9**	**233**	**293**	**293**

Project **Northgate ES School Replacement**

				Parking Supply			Occupancy												
							Morning				Midday				Evening				Event
							7:00 A.M. to 7:45 A.M				10:30 A.M. to 11:15 A.M.				7:00 P.M to 7:45 P.M.				6:30 P.M to 7:15 P.M
Block Face ID	Street Name	Street Segment	Side of Street	**Total Available Parking Spaces 7:00a - 7:45a**	**Total Available Parking Spaces 10:30a -11:15a**	**Total Available Parking Spaces After 6:30p**	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 10/24/19
AA	1st Ave NE	800' boundary N 122nd St	W	**1**	**1**	**1**	0	0	1	1	0	0	1	1	0	1	1	1	1
AB	1st Ave NE	800' boundary and N 120th St	E	**1**	**1**	**1**	0	0	0	0	0	0	1	1	1	0	0	0	0
AC	N 122nd St	800' boundary and 1st Ave NE	E	**9**	**9**	**9**	2	2	1	2	2	1	2	2	2	3	1	2	1
AD	N 122nd St	800' boundary and 1st Ave NE	W	**3**	**3**	**3**	5	1	1	1	2	0	2	1	4	1	3	2	0
AE	Meridian Ave N	N 120th St and 800' boundary	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
AF	Meridian Ave N	N 120th St and 800' boundary	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
AG	1st Ave NE	N 120th St and N 122nd St	W	**3**	**3**	**3**	1	1	1	1	0	0	2	1	0	1	1	1	1
AH	2nd Ave NE	N 120th St and 800' boundary	W	**13**	**13**	**13**	5	4	6	5	3	3	4	4	2	3	5	4	3
AI	2nd Ave NE	N 120th St and 800' boundary	E	**7**	**7**	**7**	0	0	1	1	0	0	1	1	0	0	1	1	1
AJ	N 120th St	Meridian Ave N and 800' boundary	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
AK	N 120th St	Meridian Ave N and 800' boundary	S	**3**	**3**	**3**	1	1	1	1	0	0	0	0	1	0	0	0	0
AL	N 120th St	Meridian Ave N and Corliss Ave N	N	**9**	**9**	**9**	4	5	6	6	2	5	4	5	5	2	4	3	5
AM	N 120th St	Meridian Ave N and Corliss Ave N	S	**15**	**15**	**15**	2	2	2	2	0	2	1	2	1	1	1	1	1
AN	N 120th St	Corliss Ave N and 1st Ave NE	N	**9**	**9**	**9**	3	5	4	5	1	4	4	4	3	4	3	4	14
AO	N 120th St	Corliss Ave N and 1st Ave NE	S	**0**	**29**	**29**	0	2	0	1	3	0	0	0	4	0	2	1	25
AP	N 120th St	1st Ave NE and 2nd Ave NE	N	**10**	**10**	**10**	0	0	0	0	0	0	0	0	0	0	0	0	0
AQ	N 120th St	1st Ave NE and 2nd Ave NE	S	**7**	**7**	**7**	0	2	2	2	0	0	2	1	1	2	3	3	1
AR	N 120th St	2nd Ave NE and 3rd Ave NE	N	**8**	**8**	**8**	6	2	4	3	6	3	4	4	5	4	2	3	4
AS	N 120th St	2nd Ave NE and 3rd Ave NE	S	**4**	**4**	**4**	1	1	1	1	1	1	1	1	1	1	1	1	0
AT	Meridian Ave N	800' boundary and N 120th St	E	**2**	**2**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
AU	Meridian Ave N	800' boundary and N 120th St	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	Corliss Ave N	N 120th St and N 117th St	W	**18**	**18**	**18**	2	3	2	3	4	3	4	4	6	2	3	3	4
AW	Corliss Ave N	N 120th St and N 117th St	E	**9**	**23**	**23**	0	0	0	0	1	1	0	1	1	1	2	2	9
AX	1st Ave NE	N 120th St and N 117th St	W	**0**	**5**	**5**	0	0	0	0	0	0	0	0	0	0	0	0	5
AY	1st Ave NE	N 120th St and N 117th St	E	**10**	**10**	**10**	1	1	1	1	7	7	10	9	0	0	0	0	7
AZ	N 117th St	800' boundary and Corliss Ave N	N	**10**	**10**	**10**	1	0	0	0	1	0	0	0	0	2	1	2	1

Project **Northgate ES School Replacement**

				Parking Supply			Occupancy												
							Morning				Midday				Evening				Event
							7:00 A.M. to 7:45 A.M				10:30 A.M. to 11:15 A.M.				7:00 P.M to 7:45 P.M.				6:30 P.M to 7:15 P.M
Block Face ID	Street Name	Street Segment	Side of Street	**Total Available Parking Spaces 7:00a - 7:45a**	**Total Available Parking Spaces 10:30a -11:15a**	**Total Available Parking Spaces After 6:30p**	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 10/24/19
BA	N 117th St	800' boundary and Corliss Ave N	S	**7**	**7**	**7**	0	3	1	2	0	1	1	1	0	2	1	2	3
BB	N 117th St	Corliss Ave N and 1st Ave NE	N	**5**	**17**	**17**	0	1	1	1	1	1	2	2	1	2	1	2	0
BC	N 117th St	Corliss Ave N and 1st Ave NE	S	**18**	**18**	**18**	1	2	1	2	2	3	2	3	1	3	3	3	3
BD	Corliss Ave N	N 117th St and 800' boundary	W	**9**	**9**	**9**	2	2	1	2	2	2	2	2	2	2	1	2	2
BE	Corliss Ave N	N 117th St and 800' boundary	E	**9**	**9**	**9**	1	4	2	3	1	0	1	1	1	1	1	1	2
BF	1st Ave NE	N 117th St and Dead End	W	**14**	**14**	**14**	0	0	1	1	0	0	1	1	0	0	0	0	0
BG	1st Ave NE	N 117th St and Dead End	E	**5**	**5**	**5**	2	2	2	2	2	1	1	1	1	1	2	2	1
BH	N 116th St	Corliss Ave N and 800' boundary	N	**3**	**3**	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0
BI	N 116th St	Corliss Ave N and 800' boundary	S	**4**	**4**	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0
BJ	N 116th St	800' boundary and Corliss Ave N	N	**4**	**4**	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0
BK	N 116th St	800' boundary and Corliss Ave N	S	**4**	**4**	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0
CA	3rd Ave NE	N 120th St and 800' boundary	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
CB	3rd Ave NE	N 120th St and 800' boundary	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
CC	N 117th St	1st Ave NE 800' boundary	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
CD	N 117th St	1st Ave NE 800' boundary	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
			TOTAL	**233**	**293**	**293**	**40**	**46**	**43**	**45**	**41**	**38**	**53**	**46**	**43**	**39**	**43**	**41**	**94**

Project **Northgate ES School Replacement**

				Parking Supply			Utilization												
							Morning				Midday				Evening				Event
							7:00 A.M. to 7:45 A.M				10:30 A.M. to 11:15 A.M.				7:00 P.M to 7:45 P.M.				6:30 P.M to 7:15 P.M
Block Face ID	Street Name	Street Segment	Side of Street	Total Available Parking Spaces 7:00a - 7:45a	Total Available Parking Spaces 10:30a -11:15a	Total Available Parking Spaces After 6:30p	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 10/24/19
AA	1st Ave NE	800' boundary N 122nd St	W	**1**	**1**	**1**	0%	0%	100%	50%	0%	0%	100%	50%	0%	100%	100%	100%	100%
AB	1st Ave NE	800' boundary and N 120th St	E	**1**	**1**	**1**	0%	0%	0%	0%	0%	0%	100%	50%	100%	0%	0%	0%	0%
AC	N 122nd St	800' boundary and 1st Ave NE	E	**9**	**9**	**9**	22%	22%	11%	17%	22%	11%	22%	17%	22%	33%	11%	22%	11%
AD	N 122nd St	800' boundary and 1st Ave NE	W	**3**	**3**	**3**	167%	33%	33%	33%	67%	0%	67%	33%	133%	33%	100%	67%	0%
AE	Meridian Ave N	N 120th St and 800' boundary	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AF	Meridian Ave N	N 120th St and 800' boundary	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AG	1st Ave NE	N 120th St and N 122nd St	W	**3**	**3**	**3**	33%	33%	33%	33%	0%	0%	67%	33%	0%	33%	33%	33%	33%
AH	2nd Ave NE	N 120th St and 800' boundary	W	**13**	**13**	**13**	38%	31%	46%	38%	23%	23%	31%	27%	15%	23%	38%	31%	23%
AI	2nd Ave NE	N 120th St and 800' boundary	E	**7**	**7**	**7**	0%	0%	14%	7%	0%	0%	14%	7%	0%	0%	14%	7%	14%
AJ	N 120th St	Meridian Ave N and 800' boundary	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AK	N 120th St	Meridian Ave N and 800' boundary	S	**3**	**3**	**3**	33%	33%	33%	33%	0%	0%	0%	0%	33%	0%	0%	0%	0%
AL	N 120th St	Meridian Ave N and Corliss Ave N	N	**9**	**9**	**9**	44%	56%	67%	61%	22%	56%	44%	50%	56%	22%	44%	33%	56%
AM	N 120th St	Meridian Ave N and Corliss Ave N	S	**15**	**15**	**15**	13%	13%	13%	13%	0%	13%	7%	10%	7%	7%	7%	7%	7%
AN	N 120th St	Corliss Ave N and 1st Ave NE	N	**9**	**9**	**9**	33%	56%	44%	50%	11%	44%	44%	44%	33%	44%	33%	39%	156%
AO	N 120th St	Corliss Ave N and 1st Ave NE	S	**0**	**29**	**29**	NS	NS	NS	NS	10%	0%	0%	0%	14%	0%	7%	3%	86%
AP	N 120th St	1st Ave NE and 2nd Ave NE	N	**10**	**10**	**10**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AQ	N 120th St	1st Ave NE and 2nd Ave NE	S	**7**	**7**	**7**	0%	29%	29%	29%	0%	0%	29%	14%	14%	29%	43%	36%	14%
AR	N 120th St	2nd Ave NE and 3rd Ave NE	N	**8**	**8**	**8**	75%	25%	50%	38%	75%	38%	50%	44%	63%	50%	25%	38%	50%
AS	N 120th St	2nd Ave NE and 3rd Ave NE	S	**4**	**4**	**4**	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	0%
AT	Meridian Ave N	800' boundary and N 120th St	E	**2**	**2**	**2**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AU	Meridian Ave N	800' boundary and N 120th St	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AV	Corliss Ave N	N 120th St and N 117th St	W	**18**	**18**	**18**	11%	17%	11%	14%	22%	17%	22%	19%	33%	11%	17%	14%	22%
AW	Corliss Ave N	N 120th St and N 117th St	E	**9**	**23**	**23**	0%	0%	0%	0%	4%	4%	0%	2%	4%	4%	9%	7%	39%
AX	1st Ave NE	N 120th St and N 117th St	W	**0**	**5**	**5**	NS	NS	NS	NS	0%	0%	0%	0%	0%	0%	0%	0%	100%
AY	1st Ave NE	N 120th St and N 117th St	E	**10**	**10**	**10**	10%	10%	10%	10%	70%	70%	100%	85%	0%	0%	0%	0%	70%
AZ	N 117th St	800' boundary and Corliss Ave N	N	**10**	**10**	**10**	10%	0%	0%	0%	10%	0%	0%	0%	0%	20%	10%	15%	10%

Project **Northgate ES School Replacement**

				Parking Supply			Utilization												
							Morning				Midday				Evening				Event
							7:00 A.M. to 7:45 A.M				10:30 A.M. to 11:15 A.M.				7:00 P.M to 7:45 P.M.				6:30 P.M to 7:15 P.M
Block Face ID	Street Name	Street Segment	Side of Street	**Total Available Parking Spaces 7:00a -7:45a**	**Total Available Parking Spaces 10:30a-11:15a**	**Total Available Parking Spaces After 6:30p**	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 8/29/19 (Summer)	Thursday 10/10/19	Tuesday 10/22/19	Average	Thursday 10/24/19
BA	N 117th St	800' boundary and Corliss Ave N	S	**7**	**7**	**7**	0%	43%	14%	29%	0%	14%	14%	14%	0%	29%	14%	21%	43%
BB	N 117th St	Corliss Ave N and 1st Ave NE	N	**5**	**17**	**17**	0%	20%	20%	20%	6%	6%	12%	9%	6%	12%	6%	9%	0%
BC	N 117th St	Corliss Ave N and 1st Ave NE	S	**18**	**18**	**18**	6%	11%	6%	8%	11%	17%	11%	14%	6%	17%	17%	17%	17%
BD	Corliss Ave N	N 117th St and 800' boundary	W	**9**	**9**	**9**	22%	22%	11%	17%	22%	22%	22%	22%	22%	22%	11%	17%	22%
BE	Corliss Ave N	N 117th St and 800' boundary	E	**9**	**9**	**9**	11%	44%	22%	33%	11%	0%	11%	6%	11%	11%	11%	11%	22%
BF	1st Ave NE	N 117th St and Dead End	W	**14**	**14**	**14**	0%	0%	7%	4%	0%	0%	7%	4%	0%	0%	0%	0%	0%
BG	1st Ave NE	N 117th St and Dead End	E	**5**	**5**	**5**	40%	40%	40%	40%	40%	20%	20%	20%	20%	20%	40%	30%	20%
BH	N 116th St	Corliss Ave N and 800' boundary	N	**3**	**3**	**3**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
BI	N 116th St	Corliss Ave N and 800' boundary	S	**4**	**4**	**4**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
BJ	N 116th St	800' boundary and Corliss Ave N	N	**4**	**4**	**4**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
BK	N 116th St	800' boundary and Corliss Ave N	S	**4**	**4**	**4**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CA	3rd Ave NE	N 120th St and 800' boundary	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CB	3rd Ave NE	N 120th St and 800' boundary	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CC	N 117th St	1st Ave NE 800' boundary	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CD	N 117th St	1st Ave NE 800' boundary	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			TOTAL	**233**	**293**	**293**	**17%**	**20%**	**18%**	**19%**	**14%**	**13%**	**18%**	**16%**	**15%**	**13%**	**15%**	**14%**	**32%**

TECHNICAL MEMORANDUM

Project: Northgate Elementary School Replacement

Subject: Addendum for Bus Loading Area Update

Date: August 19, 2020

Authors: Michelle M. Brown, Senior Transportation Engineer
Tod s. McBryan, P.E., Principal

This memorandum presents additional information related to the planned school bus load/unload areas for the Northgate Elementary School. It is intended as an addendum to analysis presented in the *Transportation Technical Report for the Northgate Elementary School Replacement*[1] and information presented in the SEPA Checklist for this project.

Background and Requested Change

As part of development permitting, a School Design Departure process was initiated pursuant to Seattle Municipal Code (SMC) 23.44.006.F and 23.79, to request departures from several code requirements, including to allow a relocation of on-street school-bus load/unload from its existing N 117th Street frontage to the 1st Avenue NE frontage. The referenced *Transportation Technical Report*, prepared for the project evaluated conditions with the proposed school bus load/unload area on 1st Avenue NE and assumed some automobile load/unload activities would occur on the north side of N 117th Street.

Evaluation of Requested Change

During the code departures process, and in coordination with Seattle Department of Transportation (SDOT) and Seattle Department of Construction and Inspections (SDCI), Seattle Public Schools (SPS) identified that, while the proposal would relocate school bus load/unload operations to the frontage on the east side of 1st Avenue NE, SPS would like to retain the option of using the existing school bus load/unload area along N 117th Street, if needed. In retaining the option of using the N 117th Street frontage, it would be possible that school-bus load/unload could occur at both locations. For example, this could occur if the school desired to have Special Education (SPED) buses use a different access point than general education buses. It could also occur temporarily if more school buses are required to adjust ridership patterns for physical distancing needs in response to the COVID-19 pandemic.

Based on traffic counts and field observations performed for the referenced traffic analysis, travel patterns for arriving buses are not expected to change since buses were observed arriving from the north on 1st Avenue N. Both school frontages would be supported by adequate pedestrian facilities and access to and from the school building, and both areas currently have time restrictions for on-street parking on school days. Based on review of the traffic operations models and adjusting for potential added school buses using both frontages, all study area intersections are expected to operate at LOS A overall with all movements operating at LOS C or better during morning and afternoon peak hours.

[1] Heffron Transportation, Inc. May 21, 2020.

If used for school-bus load/unload, the frontage of N 117th Street would not be available for long-term school-day parking by staff due to peak period restrictions. However, based on the parking utilization surveys performed and documented in the referenced report, on-street parking within 800 feet of the school could accommodate the additional demand generated on school days and occupancy is expected to remain below 35%. Both frontage areas would be available for evening event parking.

Based on the additional evaluation described above, retaining the option to use the existing school bus load/unload area along N 117th Street, if needed, is not expected to result in significant adverse impacts to traffic or parking conditions in the study area. The results and recommendations presented in the *Transportation Technical Report* would not be affected by this change.

SPS Northgate ES Addendum Bus Loading.docx

TECHNICAL MEMORANDUM

Project: Northgate Elementary School Replacement

Subject: Addendum for Parking Change – Analyses Update

Date: October 28, 2020

Authors: Michelle M. Brown, Senior Transportation Engineer
Tod S. McBryan, P.E., Principal

This memorandum presents updated analysis to address a change to Northgate Elementary School's use of the neighboring parking lot at the St. Andrew Kim Korean Catholic Church. The *Transportation Technical Report for the Northgate Elementary School Replacement*[1] assumed that the prior informal shared use of this parking lot would continue. However, after the analysis was complete, Seattle Public Schools (SPS) was notified by the Archdiocese that school staff and parents would no longer be permitted to use the church parking lot during the day (for staff parking or student drop-off or pick-up) or for the occasional evening events. The change in church lot use will occur whether the school is redeveloped or not.

This memorandum updates the future-conditions analysis to address the elimination of school use of the church parking lot. The updates include revised future traffic volumes and project trip assignments, updated intersection operations analysis, revised on-street parking analysis, a queueing analysis, and mitigation options. It is an addendum to the referenced *Transportation Technical Report* (TTR).

1. Change in Church Lot Use

The St. Andrew Kim Korean Catholic Church, located across from the school on 1st Avenue NE, has 178 parking spaces. Through an informal shared-parking arrangement between the school and church, the lot was utilized by some school staff for school-day parking, by parents for student drop-off and pick-up, and for parking during occasional evening school events. The analysis of existing conditions in the TTR represented conditions observed at the time of the analysis with in-person learning (pre COVID-19 pandemic). The elimination of church parking lot use will affect future conditions without- or with the replacement project.

2. Updated Traffic Volumes

The forecast 2023-without-project traffic volumes presented in the TTR were updated to eliminate assumed school use of the church parking lot. Trips that were counted entering and exiting the church lot during morning arrival and afternoon dismissal were re-assigned to the load/unload areas used within the school parking lot and along the school's frontages. Figure 1 (attached) shows the updated 2023-without-project morning and afternoon peak hour traffic volumes.

The project trip assignments (the net increase in school-generated trips expected from added enrollment made possible by the project) were also revised to account for the elimination of assumed church lot use for some student drop-off and pick-up activities. New trips previously assumed to use the church lot for student drop-off and pick-up were re-assigned to the load/unload areas used within the school parking lot

[1] Heffron Transportation, Inc. May 21, 2020.

and along the school's frontages. Figure 2 (attached) shows the revised project trip assignments, which were added to forecast without-project traffic volumes to estimate revised with-project volumes. Figure 3 (attached) shows the updated 2023-with-project morning and afternoon peak hour traffic volumes.

3. Updated Traffic Operations

Intersection operations analysis for future conditions were updated to reflect elimination of church-lot use by school generated trips. The revised analysis was prepared using the same methods as presented in the TTR. As shown in Table 1, without the use of the church parking lot, the study-area intersections would continue to operate at LOS B or better overall, with all movements operating at LOS C or better with the proposed school replacement project. The largest increase in average delay (5.6 seconds) is forecast for eastbound movements from N 120th Street at 1st Avenue NE in the morning peak hour. This movement would serve the largest increases in trips with the reconfigured site and load/unload areas, but would not be considered a significant adverse impact.

Table 1. Level of Service Summary – **Updated** 2023-Without- and With-Project Conditions

Control Type / Intersections	Morning Peak Hour				Afternoon Peak Hour			
	Without-Project		With-Project		Without-Project		With-Project	
All-Way Stop Controlled	LOS [1]	Delay [2]	LOS	Delay	LOS	Delay	LOS	Delay
N 117th Street / 1st Avenue NE	B	10.0	B	11.0	A	8.4	A	8.8
Two-Way Stop Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 120th Street / 1st Avenue NE	A	2.4	A	7.6	A	1.8	A	4.0
Northbound Left Turns	A	8.0	A	7.9	A	7.6	A	7.5
Southbound Left Turns	A	7.5	A	7.4	A	7.6	A	7.6
Eastbound Movements	B	11.4	C	17.0	B	10.2	B	11.3
Westbound Movements	B	14.2	B	14.7	B	11.4	B	11.5
Traffic-Circle Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 117th Street / Corliss Avenue N	A	3.3	A	3.6	A	3.1	A	3.3
Eastbound Movements	A	3.0	A	3.2	A	2.9	A	3.1
Westbound Movements	A	3.1	A	3.8	A	3.2	A	3.5
Northbound Movements	A	3.5	A	3.7	A	3.0	A	3.1
Southbound Movements	A	3.0	A	3.3	A	2.9	A	3.1
N 115th Street / Corliss Avenue N	A	3.2	A	3.3	A	3.1	A	3.2
Eastbound Movements	A	3.3	A	3.3	A	3.1	A	3.1
Westbound Movements	A	3.3	A	3.4	A	2.9	A	2.9
Northbound Movements	A	3.4	A	3.4	A	3.3	A	3.3
Southbound Movements	A	3.0	A	3.3	A	3.0	A	3.2
Uncontrolled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
N 120th Street / Corliss Avenue N	A	2.3	A	2.7	A	3.0	A	2.8
Westbound Left-Turn	A	7.6	A	8.1	A	7.3	A	7.5
Northbound Movements (assumed stop)	A	9.5	A	11.6	A	9.2	A	9.8

Source: Heffron Transportation, Inc., October 2020.

1. *LOS = Level of service.*
2. *Delay = Average seconds of delay per vehicle.*

As stated in the TTR, some congestion around the school (typical in school areas during peak conditions) would likely continue to occur for about 20 minutes before and after school. Intersection queueing results from the operational analysis of N 120th Street / 1st Avenue NE were examined. Specifically, vehicle queuing at the eastbound approach to the intersection—the approach forecast to be most affected by increased school traffic—was evaluated.

The future without- and with-project conditions were evaluated using the results from the Synchro software—used for the level-of-service analysis presented previously. During the morning school arrival peak, the 95th percentile vehicle queue (which would only be exceeded 5% of the time) is estimated to increase from one vehicle without the project to three vehicles with the project. During the afternoon dismissal peak, the 95th percentile queue is expected to remain at about one vehicle. On occasion, the easternmost vehicle in the student pick-up/drop-off lane may need to wait for the vehicle queue to clear or create a gap before entering the travel lane. These results account for the anticipated frequency and extent of queues over the entire peak hour. Since peak school-related flows are typically limited to about 20 minutes, the queues during most of the peak hour are negligible (with one or zero cars). The queue results are consistent with the level of service results and support the finding that the project would not result in significant adverse impacts to study area traffic operating conditions.

4. Parking Supply and Demand

On-street parking supply and utilization at and around the Northgate Elementary School site, including the parking lot at St. Andrew Kim Korean Catholic Church (with 178 spaces), was evaluated in the referenced TTR. The parking supply survey determined that there are 293 on-street parking spaces within the study area (within an 800-foot walking distance of the school site) and 204 have no signed restrictions (unrestricted). After accounting for school-bus and time-dependent no parking zones along the school frontage (totaling 60 spaces), the total supply is 233 spaces in the morning, 293 spaces mid-morning, and 293 spaces in the evening.

4.1. Existing Demand and Occupancy

The occupancy surveys determined that parking utilization ranged from 16% to 19% on weekdays and declined to 14% on evenings with no school event. During an evening school event on October 24th, parking utilization reached 32%. As a reference, the City considers utilization rates of 85% or higher to be effectively full for on-street parking. As stated in the TTR, the church lot was utilized by some school staff for school-day parking and by some attendees of the evening school event. The pre-COVID 19 occupancy counts found an average of 17 vehicles in the church lot during the school day, 7 vehicles during non-event evening counts, and 33 vehicles during the evening school event.

4.2. Updated Forecast Demand and Occupancy

With the elimination of the church lot for shared school use, school staff and event attendees would be displaced. With school-related vehicles relocated from the church lot to on-street spaces and combined with new demand that may result from the larger capacity replacement-school, on-street parking utilization could increase to between 20% and 36% on school days (about 150 to 200 spaces unused).

With the larger school, some events are also likely to attract larger attendance. The proposed new school layout would provide 30 on-site spaces, plus temporary on-site event parking for about 29 vehicles on the hard-surface play area. The revisions to the frontage along 1st Avenue NE would also result in 11 new on-street spaces that would be available for evening event parking. After accounting for the new on-site and on-street supply with the proposed project and assuming no event use of the church lot, the few larger events (expected a couple times per year), could result in on-street parking utilization increasing to about 85% (up from 75% estimated in the TTR). This would reach the level considered to be full by the City; however, due to the relative infrequency of the largest events, event-related parking impacts would not be considered a significant adverse impact.

4.3. Event Parking Management

The updated analysis indicates that school-day demand and demand from most events can be accommodated by the on-site and on-street parking supply with on-street parking utilization remaining below 85%. However, the largest events (such as Curriculum Night) could cause on-street demand to reach 85% utilization (up from 75% with current levels of use of the church lot). As recommended in the TTR and to minimize the potential event-related parking impacts, the school should develop a neighborhood communication plan to inform nearby neighbors of its large events each year. The school Principal should continue to coordinate event schedules with the church to avoid concurrent large evening events at both sites.

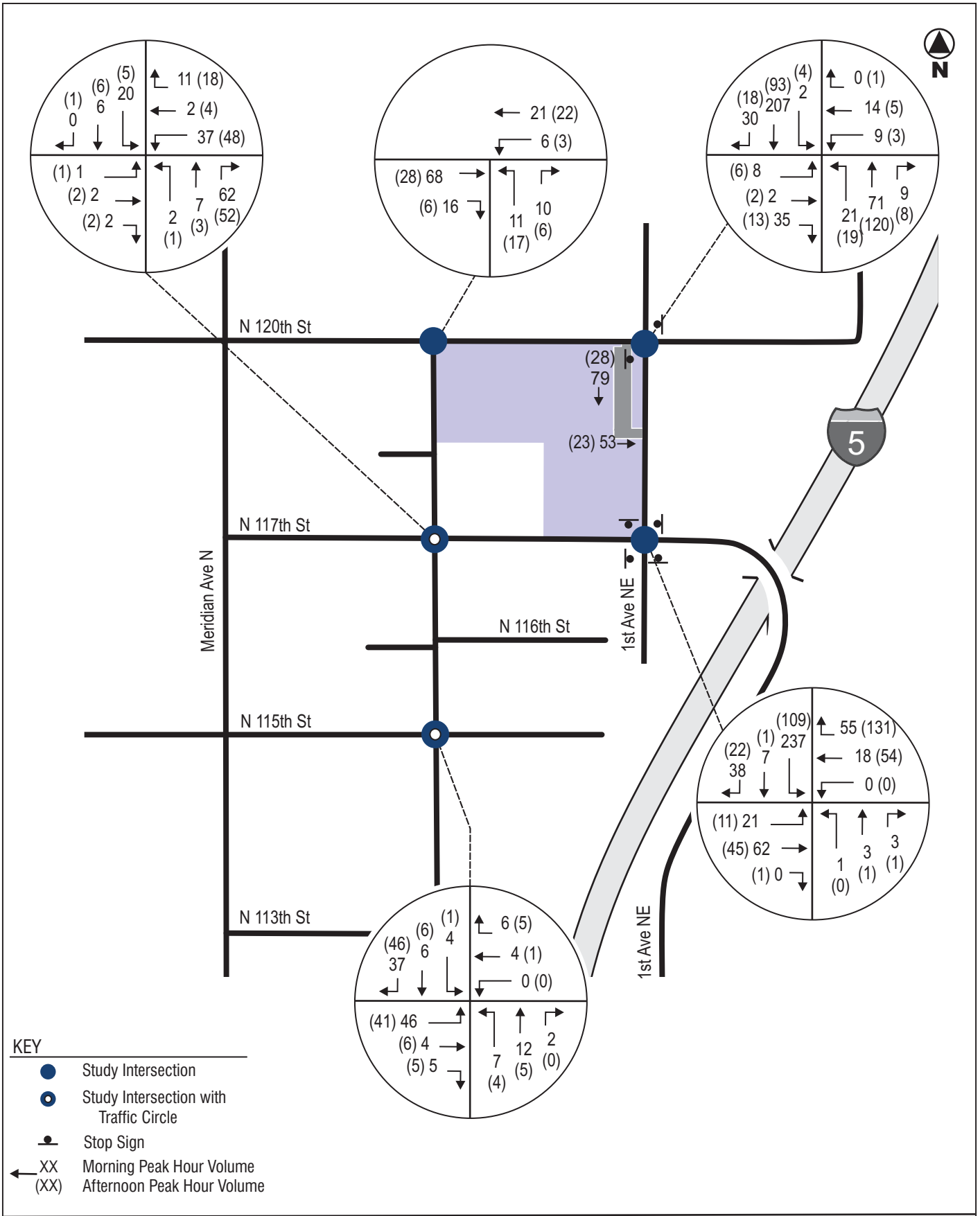
In addition, SPS should explore options for a formal agreement with the Archdiocese and church that would allow occasional evening use of the church lot for the largest school events. If a shared-parking agreement for events is not possible, the school should consider modifying the largest events (including Curriculum Night) to reduce total peak demand, by separating it into two sessions or into two nights based on grade levels as occurs at some other SPS elementary schools.

5. Summary

Based on the analysis presented, the elimination of school use of the neighboring St. Andrew Kim Korean Catholic Church parking lot does not change the results or conclusions of the traffic and parking analysis presented in the original TTR prepared for the Northgate Elementary School Replacement project. The school replacement project would not result in significant adverse impacts to study area traffic operating conditions and the combination of on-site and unused on-street parking would accommodate typical school-day parking demand. With the largest events (such as Curriculum Night), on-street demand could reach 85% utilization and the following parking management options are recommended.

1) **Explore Shared-Parking Agreement for Events** – SPS should explore options for a formal agreement with the Archdiocese and St. Andrew Kim Korean Catholic Church that would allow occasional evening use of the church lot for the largest school events.
2) **Modify Largest Events** – If a shared-parking agreement for events is not possible, the school should consider modifying the largest events (including Curriculum Night) to reduce total peak parking demand, by separating it into two sessions or into two nights based on grade levels as occurs at some other SPS elementary schools.

Attachments:
Figure 1. Updated Forecast (2023) Without-Project Traffic Volumes – Morning and Afternoon Peak Hours
Figure 2. Updated Net Project Trip Distribution and Assignment – Morning and Afternoon Peak Hours
Figure 3. Updated Forecast (2023) With-Project Traffic Volumes – Morning and Afternoon Peak Hours

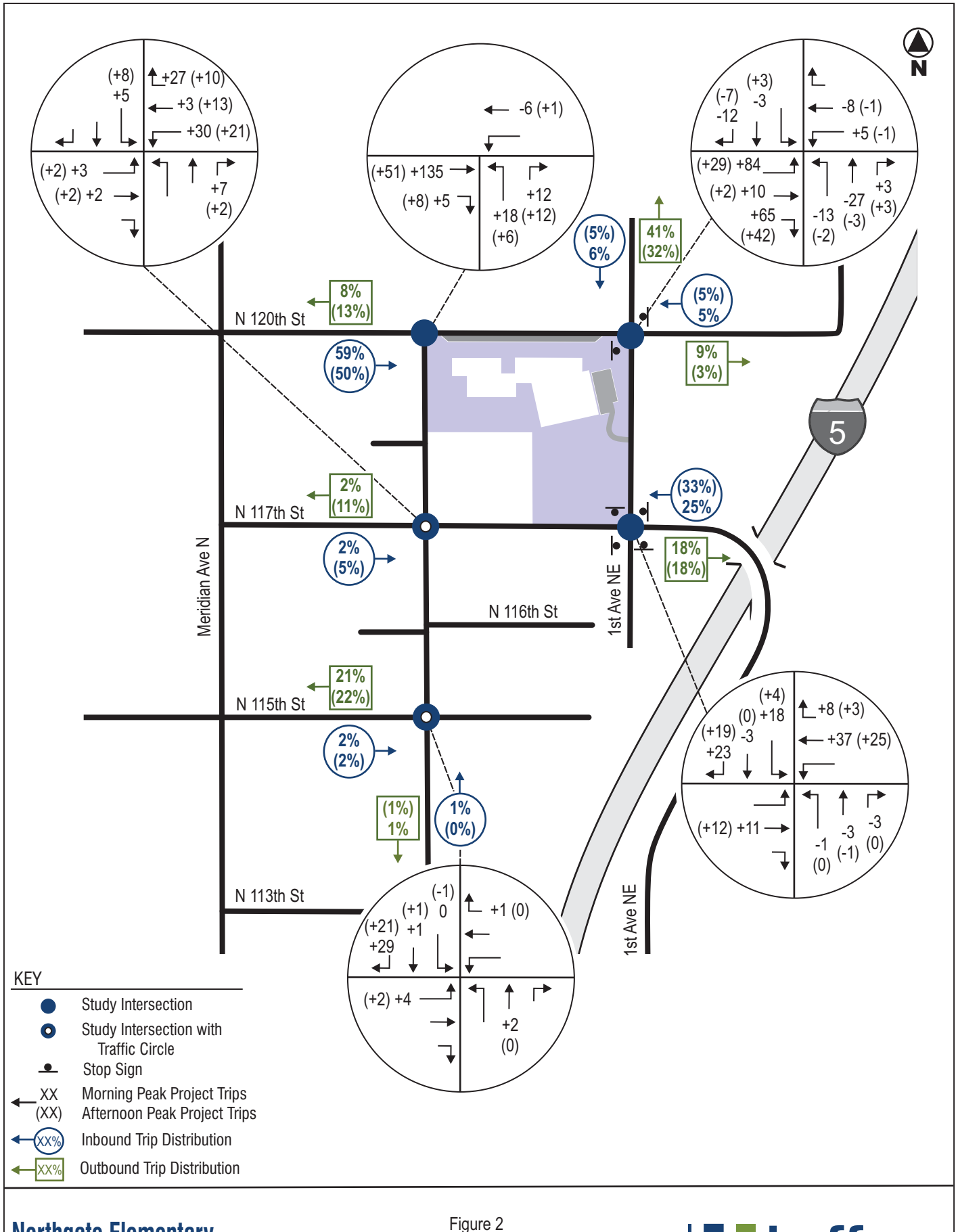


Northgate Elementary School Replacement

Figure 1
Updated Forecast (2023) Without-Project Traffic Volumes
Morning and Afternoon Peak Hours

heffron transportation inc

10.26.2020

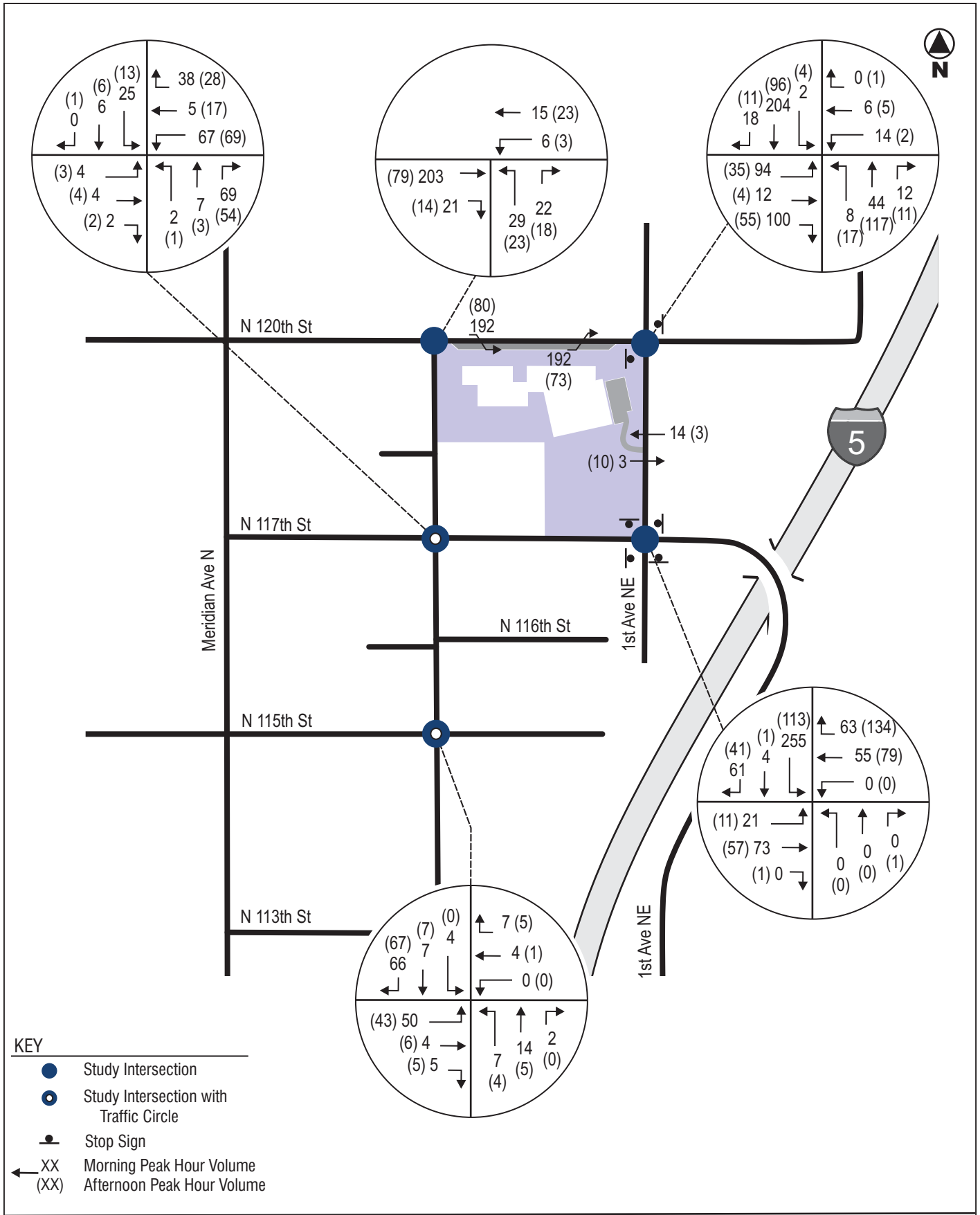


Northgate Elementary School Replacement

Figure 2
Updated Net Project Trips and Distribution
Morning and Afternoon Peak Hour

heffron transportation inc

10.26.2020



Northgate Elementary School Replacement

Figure 3
Updated Forecast (2023) With-Project Traffic Volumes Morning and Afternoon Peak Hours

heffron transportation inc

10.26.2020

Appendix H

PUBLIC COMMENTS AND RESPONSES

Appendix H

PUBLIC COMMENTS AND RESPONSES

Northgate Elementary Project – Public Comments and Responses

#	Comment	Response	Document Reference
Bayard, Donald & Deborah			
1	I am attaching a letter from Chris Jenkins that raises concerns regarding the replacement of the Northgate Elementary School. I totally agree with every concern that Chris Jenkins has raised.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. Responses to Mr. Jackins' comments are included in this document.	N/A
2	I am extremely concerned with doubling the number of students and loading/unloading of buses on the street. When the Northgate light rail becomes operational 1st Ave will be used to access the Northgate parking lot for the light rail. By doubling the number of students you will also potentially double the number of parents that drop off and pick up their children in addition to the busses the residents will be forced to fight traffic just to get to 1st Ave.	As described in the SEPA Checklist and the *Transportation Technical Report*, an increase in traffic is expected before and after school due to the increase in school capacity. However, the analysis demonstrated that with the increases in peak period traffic, all of the study-area intersections would continue operating at Level of Service (LOS) B or better overall, with all movements at LOS C or better during both peak hours (see Appendix G for further discussion on LOS standards). The project is forecast to add small amounts of delay (less than 5 seconds of average delay per vehicle) during the peak hours. The traffic volumes used in the evaluation included additional background growth not associated with the school, some of which could be associated with trips to and from the Northgate Transit Center. However, Sound Transit's Northgate Link light rail station is being constructed adjacent to the existing Northgate Transit Center and Park-and-Ride facility, which already supports extensive transit service to and from the same service areas as the future Link extension. As a result, it is not expected to substantially change traffic patterns in the area. Based on the analyses prepared, the project would not result in significant adverse impacts to study area traffic operating conditions. School buses currently travel along 1st Avenue NE to access the existing load/unload on the north side of N 117th Street. The relocated bus loading area on 1st Avenue NE would include a bus-pullout area outside of the southbound travel lane.	SEPA Checklist Section B.14 and Appendix G
3	That being said I believe that there should be an Environmental Impact Statement prepared before this project goes any further.	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 under the proposal. [1]	N/A

[1] Seattle Public Schools review conducted consistent with WAC 197-11-330

#	Comment	Response	Document Reference
Hylander, Ruthie			
4	I am a close neighbor of Northgate Elementary School where both of my children attended from kindergarten through 5th grade, between 1994 and 2000. They both had (for the most part) a wonderful elementary experience with great teachers! We (both my husband Dennis and I) volunteered in the classrooms almost weekly, on our weekday off. We live right next to the playfield on Corliss Ave N (11730). My grandparents (Raymond F. and Grace N. Isbell) built this house in 1947 and lived here in this home with my father (Ray H Isbell) before us. My grandfather originally also owned the lots just to the north, south and east of the current address. Our understanding is that he sold the property that is (at least part) of the current playfield, to either King county, or the city, with the condition that part of it remain a "nature park". Up until the mid 1980's, other neighbors remember a sign up in this area that referred to a "nature park". My grandparents and parents were avid nature lovers, as am I! Our backyard is like a park as well, with old trees and bushes that they planted in the 50's. We have grave concerns about the disruption of this lovely open play space and it's surrounding beautiful trees! And also the legality of taking that away. I have contacted a real-estate LAWYER who is looking into the records to search these issues and statements I have made.	Based on property records for the site, there are no deed restrictions on the property that would require it to be maintained as park space. Ms. Hylander also followed up with subsequent email that also confirmed that her research indicated there were no restrictions on the property. As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, the existing upper grass field area is used infrequently by the school due student supervision issues in that area. The proposed project would provide enhanced and more usable recreation space in the form of a new play field and trails. New hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment would also be provide on the campus. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved for a scheduled use (e.g. Seattle Parks and Recreation uses). As noted in Section B.4 of the SEPA Checklist, the proposed project intends to retain as many existing trees as feasible. The majority of the existing Norway Maple trees around the perimeter of the existing field would be retained and protected. Based on schematic design plans, a total of approximately 22 existing regulated trees (including an exceptional Vine maple (Tree 419) are proposed to be removed as part of project construction. In addition, 11 trees that are below regulated size would be removed within the proposed development area (see Figure 3 for an illustration of the site plan and Appendix D for details on existing trees and proposed trees to be removed). 13 of the trees that are proposed for removal are in fair to poor health and structural condition, including the exceptional tree that would be removed. Consistent with City of Seattle regulations, new replacement trees would be provided on the site at a 1:1 ratio to replace those trees that would be removed as part of the construction process; trees removed from the public right-of-way would be replaced at a 2:1 ratio.	SEPA Checklist Section B.4 and B.12
5	My hope is that Seattle schools will do the ethical/right thing and reconsider this project action as it stands currently. I wonder why a new school can't be built on the existing spot where the school currently stands, and let the open play space remain (or even at least half of it along Corliss and 122nd??	Seattle Public Schools considered these comments in making a final SEPA determination for the project. There is currently no interim site available to relocate the existing Northgate Elementary during project construction. Additionally, the existing 1962 building does not meet Seattle Public Schools educational specifications. Multiple design	N/A

#	Comment	Response	Document Reference
		scenarios were contemplated for the proposed new building, including constructing the new building on the site of the existing building. However, to provide adequate, equitable, and fully accessible education for all students, the building program must meet the educational specification standards which would be best achieved through the construction of a new building in the proposed location. New play space would be constructed in the location of the existing building. The new recreation areas would include a new play field and trails, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment.	
Jackins, Chris			
6	The District should issue a DS for the project and provide further detailed environmental review through an EIS. I believe that this project has probable significant adverse environmental impacts and therefore SEPA regulations require a DS and 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 under the proposal.	N/A
7	Background. The proposed project to demolish and replace the school would occur from June 2021 to September 2023 with the playground complete by December 2023 and with the existing school remaining operational and onsite until the new buildings are complete, at which time the existing buildings would be demolished. “The proposed project would include the development of a new two-story school on the site with approximately 95,000 gsf of building space….The proposed new building would include 36 classrooms; a music room; an art/project lab; a gymnasium; a dining/commons area; learning commons areas; offices; and, other associated support and building infrastructure space. The proposed project would increase the student capacity of the school from an existing capacity of approximately 231 students (approximately 252 students when including the existing portable buildings) to a new capacity of approximately 650 students, including up to approximately 40 preschool students.” “Bus loading/unloading would occur along the west side of 1st Avenue NE in front of the school building. Parent vehicle loading/unloading would occur along N 120th Street. The existing parking lot that is adjacent to 1st Avenue NE would be replaced with a new parking lot with space for approximately 28 vehicles (including two ADA accessible spaces). Fire lane access to the building would be provided from the west side of the site, via Corliss Avenue N.” “Upon completion of the new school building, the existing building would be demolished and a new play field and recreational area would be constructed for the site.”	Seattle Public Schools considered these comments in making a final SEPA determination for the project.	N/A

#	Comment	Response	Document Reference
8	Significant loss of playground space – the playground will be less than half its current size. The playground would shrink to less than half its current size, shrinking from the current 159,690 sf down to 77,700 sf. New school buildings would be built on the existing playground, with a much smaller playground located where the school buildings are currently located. We appreciate that the Checklist clearly listed the change in playground space. This is information we have requested for years on other projects and the District has generally refused to provide.	As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and trails in the south portion of the site. In addition, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment would be provided on campus. The proposed project would also provide a separate preschool/early learning play area that would be designed to provide specific recreation opportunities and enhanced safety for younger students. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved by another scheduled use (e.g. Seattle Parks and Recreation use, etc.).	SEPA Checklist Section B.12
9	The project as proposed will not meet City zoning code. This indicates the project will have probable significant adverse impacts. The District is asking for five departures from the zoning code: Higher than allowed buildings; Less than required onsite parking; Allowing buses to load on the street (onsite bus loading is the default for safety); Less than required bicycle parking; and an electronically lit message board. Bright electronic night-time signs are not consistent with residential neighborhoods and many school neighborhoods have successfully rejected allowing such signs.	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 size of the site and configuration of the site and existing building, the project would require land use for building height, on-site parking, off-site bus loading, bicycle parking, and an electric message 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
10	Trees. 14 significant trees (6" or more in diameter) would be removed, including an Exceptional Vine maple. Nine other trees would also be removed.	Based on further review by the project arborist and as noted in Section B.4 of the SEPA Checklist, a total of approximately 22 existing regulated trees (including an exceptional Vine maple (Tree 419)) are proposed to be removed as part of project construction. In addition, 11 trees that are below regulated size would be removed within the proposed development area (see Figure 3 for an illustration of the site plan and Appendix D for details on existing trees and proposed trees to be removed). 13 of the trees that are proposed for removal are in fair to poor health and structural condition, including the exceptional tree. Consistent with City of Seattle regulations, new replacement trees would be provided on the site at a 1:1 ratio to replace those trees that would be removed as part of the construction process; trees removed from the public right-of-way would be replaced at a 2:1 ratio.	SEPA Checklist Section B.4
11	Noise. Noise is a probable significant adverse impact. The Checklist states that construction activities are allowed to exceed the maximum noise levels between 7AM and 10PM on weekdays	As noted in Section B.7 of the SEPA Checklist, the project would comply with provisions of the City's Noise Ordinance (*SMC 25.08*); specifically:	SEPA Checklist

#	Comment	Response	Document Reference
	and 9AM and 10PM on weekends. There would also be noise associated with the drilling and installation of approximately 80 geothermal wells.	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 noted in the SEPA Checklist. The primary source of noise from the construction of the geothermal wells would be from the operation of equipment's diesel engine. Such noise would be temporary and is not anticipated to result in a significant impact.	Section B.7
12	Mega-School impacts. Such school involve large impacts. Enrollment capacity would more than double from the current 252 to 650. The size of the buildings will more than double from the current 39,300 gsf to 95,000 gsf. The height of the school buildings will nearly double from 23 ft tall to 42 ft tall. Despite more than doubling in size the project would decrease onsite parking supply from 32 spaces to 20 spaces.	SPS 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. SPS must utilize the sites that it currently owns in Seattle. The proposed building height is generally within the height limits for residential zoning, but the building penthouses enclosing the building HVAC systems for long-term maintenance requirements and weather protection would be slightly above the height limits. Since there is no specific land use code for school buildings in the City of Seattle, the City Code includes a departure process which allows school building development in residential zones. The City of Seattle Land Use code allows a departure process for the height the building that is above what the residential code allows. 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. Parking supply, utilization and proposed parking demand are analyzed	SEPA Checklist Section B.8, B.14 and Appendix G

#	Comment	Response	Document Reference
		as part of the SEPA Checklist (Section B.14) and the *Transportation Technical Report.*	
13	There will be a large increase in impervious surface. 45% of the school campus is currently covered in impervious surface. This would increase to 75%. This will require the installation of detention and flow control for stormwater runoff.	As noted in Section B.3 of the SEPA Checklist, the site stormwater design for the project would be compliant with the City of Seattle's 2017 storm water manual. Since the project would add more than 10,000 sq. ft. of impervious surface, the project would require detention and flow control for stormwater. A detention system would be installed under the proposed play field at the south end of the site with a flow control structure at the downstream end. The project would also provide onsite stormwater management best management practices (BMPs) to the maximum extent feasible. BMPs could include but would not be limited to bioretention, porous pavements, roof rainwater reclamation and other low impact development strategies.	SEPA Checklist Section B.3
14	Transportation. Traffic and parking are probable significant adverse impacts. The Checklist indicates that there is plenty of room for school parking on the street, but such daily parking and traffic impacts tend to affect nearby neighbors to a significant extent: nearby the school is where vehicles wind up day in and day out. The Checklist acknowledges that there will be large impacts from large events at the school, but asserts that due to "the relative infrequency of the largest event, the event-related parking impacts would not be considered significant. Approximately 15,600 cubic yards of material would be excavated from the site during construction activities and approximately 2,600 cubic yards of structural fill would be imported to the site. Earthwork transportation during construction is estimated to require an average of 64 trucks per day (32 in, 32 out) and about 8 truck trips per hour (4 in, 4 out) which may be noticeable to residents living adjacent to the site.	Please refer to the response to Comment #2 above related to traffic impacts. As detailed in the *Transportation Technical Report and associated Addendums*, on-street parking utilization within the site vicinity on school days ranges from 16% to 19%, depending on the time of day, with between 190 and 250 unused spaces. With the project, during the school-day, on-street parking utilization rate is estimated to be below 37%. The unused spaces could adequately accommodate the additional staff and volunteer parking demand that may be added due to the project and would not result in significant adverse impacts to parking in the neighborhood. The school has historically been using the parking lot at the nearby St. Andrew Kim Korean Catholic Church, however SPS was notified that school staff and parents are no longer permitted to use the church parking lot during the day for staff parking or student drop-off or pick-up or for the occasional evening events. This change in church lot use will occur whether the school is redeveloped or not. The parking demand described above reflects the elimination of the church parking lot from the available supply. As noted in the report, if the school enrollment increases to the proposed capacity, parking demand for some events would also likely increase. The revised site layout would provide additional temporary parking for evening events, along with additional parking provided along the site frontages. Occasional evening events are expected to draw larger attendance and result in increased use of the unused on-street parking supply which could accommodate the increased demand. However, with the recent loss of use of the adjacent church parking lot, the largest events (such as Curriculum Night) could cause on-street parking demand to reach 85 percent utilization (up from 75 percent	SEPA Checklist B.14 and Appendix G

#	Comment	Response	Document Reference
		with current levels of use of the adjacent church parking lot). SPS will develop a neighborhood communication plan to inform nearby neighbors of large events each year. The plan will be updated annually (or as events are scheduled) and will provide information about the dates, times, and rough magnitude of large-attendance events. The communication will be intended to allow neighbors to plan for the occasional increase in on-street parking demand that could occur with large events. The school Principal will continue to coordinate event schedules to avoid concurrent large evening events at the school and St. Andrew Kim Korean Catholic Church. In addition, SPS will explore options for a formal agreement with the Archdiocese and St. Andrew Kim Korean Catholic Church that would allow occasional evening use of the church lot for the largest school events. If this shared-parking agreement is not possible, when the school reaches 90 percent of its enrollment capacity, the school will modify the largest events (including Curriculum Night) to reduce total peak parking demand, by separating it into two sessions or into two nights based on grade levels, similar to other SPS elementary schools. The truck activity during construction would be noticeable by neighbors located along the truck routes but would occur during non-peak times and would not result in significant impacts to traffic operations in the area. The truck activity would occur at various times throughout the construction phases but is a short-term temporary condition that would cease when the project is complete.	
15	Historic and cultural preservation. It feels like the District and the Checklist are not fully informing the public on these impacts. The District has already argued to the City that there is no important history at the site, without giving the public much of a chance to say anything. The public is only now getting a quick chance to look at the environmental documents, after the District has already gotten the City Landmarks Board to give an OK to demolishing everything. One member of the Landmarks Board objected, voting "No". Neither the City nor the District send out notices to the public when a school is quietly brought by the District to have the school's history torpedoed before the Landmarks Board. 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. The Checklist acknowledges that it produced a cultural resources assessment for the project, a copy of it should be included as an appendix but this should not be the only further step. Include some interviews with people familiar with the school? Parents, students, alumni, neighbors? Reference information kept by the District archives department about the school. Further, the Checklist acknowledges that "the site and surrounding areas are considered moderate to high potential for archaeological resources" but then concludes that any past historic deposits were "likely" to have been removed. We appreciate the District has nevertheless developed an inadvertent discovery plan which includes notification of local tribes including the Duwamish Tribe.	As indicated in Section B.13 of the SEPA Checklist, consist 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 March 2020, the Landmark Nomination was denied by the Landmark Preservation Board. The Landmarks Preservation Board hearing was noticed, open to the public, and attended by several community members. As noted, a cultural resources assessment was also prepared for the project and is included as an appendix to the SEPA Checklist. Due to the confidential nature of some information contained in the assessment, a redacted copy of this document is available from Seattle Public Schools upon request.	SEPA Checklist Section B.13 and Appendix F

#	Comment	Response	Document Reference
16	Further reasons that there are probable significant adverse impact from the project. 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.	As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and trails in the south portion of the site. In addition, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment would be provided on campus. The proposed project would also provide a separate preschool/early learning play area that would be designed to provide specific recreation opportunities and enhanced safety for younger students. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved by another scheduled use (e.g. Seattle Parks and Recreation use, etc.).	SEPA Checklist Section B.12
17	No public meeting. On other projects, for decades, the District has held a public meeting to discuss the Draft Checklist. Why is the Northgate community not being provided such a meeting? The District started dropping these meetings in late 2019; it had nothing to do with the coronavirus. If the District is finding that it can no longer rigorously perform SEPA review on its own projects, perhaps it is time for the District to consider relinquishing its special status of being allowed to perform SEPA review on its own projects. Please provide information on who in state government can be contacted about this issue.	Public meetings are not required for SEPA Checklists and are not required as part of the City permit process for this project. A public comment period was included as part of the issuance of the Draft Checklist to solicit comments from the public, agencies and organizations. Public comments are also accepted as part of the City's departure process.	N/A
18	Comments in Final Checklist. When publishing Final Checklists after public review of Draft Checklist, the District has sometimes been choosing not to reproduce actual public comments, but rather summarizing the comments instead and responding to the summary. 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
Meyerhoff, Deanna			
19	I am very concerned about your plans for Northgate Elementary. You will be eliminating a huge green space that is used by the community, by softball, baseball, soccer and ultimate teams from all over the North End. You will be cutting huge trees that line the field, and your plans will basically change the whole feel of an entire city block. I'm not sure why the new school can't be built on the same area footprint of the old school? Plenty of Seattle kids have been misplaced while their school was being torn down or redone.	As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and trails in the south portion of the site. In addition, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment would be provided on campus. The proposed project would also provide a separate preschool/early learning play area that would be designed to provide specific recreation	SEPA Checklist B.4 and B.12

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		opportunities and enhanced safety for younger students. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved by another scheduled use (e.g. Seattle Parks and Recreation use, etc.). As noted in Section B.4 of the SEPA Checklist, the proposed project intends to retain as many existing trees as feasible and the majority of the Norway Maples and other trees surrounding the existing field would be retained and protected. Based on further review by the project arborist, project construction is anticipated to result in the removal of approximately 22 regulated trees (including one exceptional tree); 11 trees that are below regulated size would also be removed and replaced (see Figure 3 for an illustration of the site plan and Appendix D for details on existing trees and proposed trees to be removed). 13 of the trees that are proposed for removal are in fair to poor health and structural condition, including the exceptional tree. Consistent with City of Seattle regulations, new replacement trees would be provided on the site at a 1:1 ratio to replace those trees that would be removed as part of the construction process; trees removed from the public right-of-way would be replaced at a 2:1 ratio. There is currently no interim site available to relocate the existing Northgate Elementary during project construction. Additionally, the existing 1962 building does not meet Seattle Public Schools educational specifications. To provide adequate, equitable, and fully accessible education for all students, the building program must meet the educational specification standards which requires the construction of a new building.	
20	This building will have a huge effect on every house that borders the field, which is quite a few. It will change our properties feel, looks, and our property values.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. Seattle Public Schools and their project team worked in collaboration with students, parents, staff and community members to come up with a design that is intended to meet the needs of the school and complement the landscape and site context within the neighborhood.	N/A

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21	The streets here cannot handle the additional traffic coming from tripling the school size and increased use of the field.	As described in the SEPA Checklist and the *Transportation Technical Report*, an increase in traffic before and after school is expected due to the increase in school capacity. However, the analysis demonstrated that, with the added trips and assumed increases in pedestrian activity, all of the study-area intersections would continue operating at LOS B or better overall, with all movements at LOS C or better during both peak hours. The project would contribute small amounts of increased delay (average of less than 5 seconds per vehicle) during morning and afternoon peak times. Based on these analyses, the streets and intersections surrounding the school have adequate capacity to accommodate the estimated additional school traffic. Traffic associated with play field use would typically occur outside of the school's operating hours and is expected to be minimal.	SEPA Checklist Section B.14 and Appendix G
22	Lights in the field will be loud and off-putting.	The proposed project design for the playfield area would not include field lighting.	N/A
23	Please reconsider a smaller footprint that doesn't irreversibly change our neighborhood. This is the worst possible outcome that I could have imagined with this project. Please do an environmental impact study and also have public meetings where people can express concerns.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. Seattle Public Schools and their project team worked in collaboration with students, parents, staff and community members to come up with a design that is intended to meet the needs of the school and complement the landscape and site context within the neighborhood. Public meetings are not required for SEPA Checklists and are not required as part of the City permit process for this project. A public comment period was included as part of the issuance of the Draft SEPA Checklist to solicit comments from the public, agencies and organizations.	N/A
Olmsted, Teresa			
24	I'd like to address a few issues I have with the proposed building of the new Northgate Elementary. The first one is with parking. The school capacity will be almost three times the existing capacity and yet the proposed on-site parking will be several spaces less than the existing spots! Where will all the staff, volunteers and SPS staff visitors park when they visit the new building? Not to mention families who are picking up early released students? Your proposal mentions neighborhood parking, but that will put a huge burden on the neighborhood with young children crossing 120th ST. At the very least, several spots should be allocated in front of the entrance to the building, including designated disabled spots. Using the Korean Church does NOT work well as young children are crossing a busy street (1st Ave) already.	Please refer to the response to Comment #14 above related to parking. The project would provide approximately 30 on-site parking spaces (including ADA spaces) for staff and visitor daily use. The school frontages would continue to have time restrictions on school days. However, these areas, could continue to be used for short-term parking outside of restricted times and on non-school days. As detailed in the *Transportation Technical Report and associated Addendums*, on-street parking utilization within the site vicinity on school days ranges from 16 to 19%, depending on the time of day, with between 190 and 250 unused spaces during the day. With the project, the increase in school-day, on-street parking demand could be accommodated by the unused supply in the site vicinity, with a typical utilization estimated below 37 percent. This also accounts for the	SEPA Checklist Section B.14 and Appendix G

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		recent elimination of school use of the nearby St. Andrew Kim Korean Catholic Church parking lot. The unused spaces could adequately accommodate the additional staff and volunteer parking demand that may be added due to the project and would not result in significant adverse impacts to parking in the neighborhood. The project would construct sidewalks along all school frontages and the new school entrance would be relocated from the middle of 1st Avenue NE to the northeast corner of the site. These changes were developed in coordination with Seattle Department of Transportation (SDOT) staff as part of the Seattle School Traffic Safety Committee (SSTSC) review in order to help encourage pedestrians to cross roadways at intersections instead of at mid-block locations. Two measures were also included in the *Transportation Technical Report*—development of a Transportation Management Plan (TMP) and continued engagement of the SSTSC—intended to further address pedestrian access when the school re-opens.	
25	Also, there are several birds that inhabit the area right around Northgate School that have not even received mention in your environmental study. There are several Bald Eagles in residence at Haller Lake, plus numerous ospreys and other water fowl. These birds will be affected by a two year construction plan.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. The SEPA Checklist (Section B.5) has been updated to note the presence of these birds in the site vicinity. Birds and other wildlife may experience impacts from noise during construction periods but these impacts would be temporary and are not anticipated to be significant given the urban location of the site. In addition, the project would comply with all construction and noise requirements from the City of Seattle and potential BMPs and mitigation.	SEPA Checklist Section B.5
26	Finally, with so much land available to SPS, is it truly necessary to build an overheight two story building on this lot? It seems like a lot of building when there are many new schools in the area such as Licton Springs, Hazel Wolf, and Olympic Hills (not to mention Olympic View and Broadview Thomson). Will they continue to be at capacity when everyone in the area wants to attend the new school because of better technology, etc.? Does this design reflect the residential look and feel of the surrounding neighborhood?	Seattle Public Schools does not have additional land available to provide additional capacity for the projected enrollment and must utilize the sites that it currently owns in Seattle. 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 proposed building height is generally within the height limits for residential zoning, but the building penthouses enclosing the building HVAC systems for long-term maintenance requirements and weather protection would be slightly above the height limits. Since there is no specific Land Use code for school buildings in the City of Seattle, the City Code includes a departure process which allows school building development in residential zones. The City of the Seattle Land Use code allows a departure process for the height the building that is above what the residential code allows. 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	SEPA Checklist Section B.8

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		comply with the City's requirements for the process.	
27	Thank you for allowing me to voice my concerns with the new school. It is very true that Northgate needs more than a new coat of very interesting turquoise paint, but I ask you to consider the points made above before making a final decision.	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 under the proposal.	N/A
Sujan, Vishal			
28	**EIS and DS:** Request that the district issue a Determination of Significance (DS) and detailed environmental review through an Environmental Impact Statement (EIS), to assess if this project has the possibility of significant adverse environmental impact.	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 under the proposal.	N/A
29	**Zoning Departures:** This project will not meet city zoning code and hence will have a probable significant adverse impact, especially to the residents within a 1-2 block radius of the school property. This impact would be due to the following (just a few noted) departures from the zoning code: · Higher than allowed buildings. This changes the landscape for the residential property owners around the school, reducing natural light, obstructing open sky views in residential neighborhoods. · Less than required on-site parking. This impacts neighborhood property owners by more vehicles now needing to street park right in front of homeowner's properties and more traffic from folks looking for parking causing disruption to homeowners. · Allowing buses to load/unload on the streets. · An electronically lit message board. This increases light pollution in a residential neighborhood. · Potential for playground lighting being kept lit up into late evenings. This causes additional light pollution and encourages more non-neighborhood traffic from activities during late evenings in a fairly quiet neighborhood.	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 size of the site and configuration of the site and existing building, the project would require land use for building height, on-site parking, off-site bus loading, bicycle parking, and an electric message 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. Playground lighting is not proposed as part of this project.	SEPA Checklist Section B.8

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30	**Playground Area Reduction:** Significant loss of playground area, reducing playground area to less than half of the current size.	As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and trails in the south portion of the site. New hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment would also be provided on the campus. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved for scheduled uses (e.g., Seattle Parks and Recreation use, etc.).	SEPA Checklist Section B.12
31	**Mega school impact:** With an increase in size by two and half times of the existing school's enrollment, volume and height of buildings by double, with insufficient on-site parking (parking capacity being reduced from 32 to 30 spaces while enrollment increasing from 252 to 650); this will have a significant impact to the neighborhood property owners in the form of increased traffic, reduced street parking available for residents, and obstruction to open sky views and air circulation.	Seattle Public Schools does not have additional land available to provide additional capacity for the projected enrollment and must utilize the sites that it currently owns in Seattle. 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 proposed building height is generally within the height limits for residential zoning, but the building penthouses enclosing the building HVAC systems for long-term maintenance requirements and weather protection would be slightly above the height limits. Since there is no specific Land Use code for school buildings in the City of Seattle, the City Code includes a departure process which allows school building development in residential zones. The City of the Seattle Land Use code allows a departure process for the height the building that is above what the residential code allows. 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. As detailed in the *Transportation Technical Report and associated Addendum*, on-street parking utilization within the site vicinity on school days ranges from 16% to 19%, depending on the time of day, with between 190 and 250 unused spaces during the day. With the project, the increase in school-day, on-street parking demand could be accommodated by the unused supply in the site vicinity, with a typical utilization estimated below 37 percent. This also accounts for the recent elimination of school use of the nearby St. Andrew Kim Korean Catholic Church parking lot. The unused spaces could adequately accommodate the additional staff and volunteer parking demand that may be added due to the project and would not result in significant	SEPA Checklist Section B.2, B.8, B.14 and Appendix G

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		adverse impacts to parking in the neighborhood. A discussion on air quality conditions is include in Section B.2 of the SEPA Checklist.	
32	**Traffic and Parking:** With the school not providing sufficient on-site parking facilities and loading/unloading area, this would lead to parking and traffic overflow into the school's residential neighbors, impacting us significantly. a. The checklist states there will be plenty of room for on-street parking, but I don't believe this to be the case as resident and property owner in this area. Currently, prior to the school being built up, we already see a lot of the street parking in front of the properties around the perimeter of the school. Additionally, on the West side (Corliss Ave) of the school property, there are signs stating no street parking permitted on the school side of the street. After this project, would this side of the street be opened up for street parking? If so, the concern would be the narrowness of the street for permitting vehicles to park on each side of the street. b. Additionally, we have concerns regarding a significant increase in ingress and egress traffic from a total enrollment increase by 2.5+ times, during school hours and also during evening/weekend activities at the school, which would lead to more bottlenecks and disruption to residents needing to drive to/from their homes.	Please see responses to Comments #2, #14, #21, and #24. Please note that the City of Seattle considers on-street parking within City right-of-way to be a public resource for all users. The school frontage on Corliss Avenue N does allow for on-street parking with time restrictions during peak morning and afternoon times (restricted to 30-minute load/unload from 7:00 to 10:00 a.m. and from 1:00 to 4:00 p.m. on school days). This frontage would be improved to include curb, gutter, sidewalk, and landscape amenities. The time restrictions are likely to remain with the project. It is typical for residential streets throughout the City of Seattle to allow parking on both sides of roadways with curb-to-curb widths of 25 feet. When cars are parked on both sides, it does effectively limit travel to one direction at a time, slowing and calming traffic, and is preferred by the City. Traffic associated with elementary schools during most evenings and weekends are much lower than what is presented in the report during peak morning and afternoon times. These peak times represent worst-case time frames during the weekday when school is in session. As shown, during these peak times, traffic operations at the adjacent intersections are anticipated to continue to operate at acceptable levels. Thus, operating conditions surrounding the school during other (non-peak) times of the day would be better than shown for peak times. Some congestion is likely before and after the infrequent larger evening school events; however, bottlenecks during evening and weekend events are not anticipated to occur on a regular basis.	SEPA Checklist Section B.14 and Appendix G
33	**Construction Disruptions**: Per the checklist it is indicated that construction activities are allowed to exceed maximum noise levels and during extended hours from early morning to late evenings both on weekdays and weekends. This is significantly disruptive to residents around the school property grounds, several with young children and babies.	As noted in Section B.7 of the SEPA Checklist, 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 will 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.	SEPA Checklist Section B.7

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		• 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.	
34	**Historical and Cultural Preservation:** We and several others, as part of the neighborhood and community, were not engaged and consulted in the determination of historical and cultural impact of this project. The checklist content seems scanty and missing any detailed source data on the conclusions that there is no important historical or cultural impact of this project. I request to please provide more details in the Appendix with the assessments and studies that were performed to evaluate for historical and cultural preservation.	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 March 2020, the Landmark Nomination was denied by the Landmark Preservation Board. The Landmarks Preservation Board hearing was noticed, open to the public, and attended by several community members. As noted, a cultural resources assessment was also prepared for the project and is included as an appendix to the SEPA Checklist. Due to the confidential nature of some information contained in the assessment, a redacted copy of this document is available from Seattle Public Schools upon request.	SEPA Checklist Section B.13 and Appendix F
35	**Cramming high-density development in a residential area:** This project leads to the community losing the open space and instead leading to a more over-crowded feel in the neighborhood by cramming more higher-density population development creating an over-crowded and less livable city (e.g. for residents to go for walks, children riding their bikes, etc.)	As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and trails in the south portion of the site. In addition, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment would be provided on campus. The proposed project would also provide a separate preschool/early learning play area that would be designed to provide specific recreation opportunities and enhanced safety for younger students. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved by another scheduled use (e.g. Seattle Parks and Recreation use, etc.).	SEPA Checklist Section B.12

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36	**Community Engagement, Transparency, and Public Meetings**: There has been lack of complete transparency and community engagement around the decision making and proposals for this project and the SEPA checklist. The community (at the minimum, residential property owners within a 2-3 block radius) should be involved in an inclusive fashion in decisions being made or proposed for this project. These decisions need to be reviewed via the appropriate public meetings (could be virtual in light of coronavirus) and all comments/feedback transparently documented for others to preview.	Public meetings are not required for SEPA Checklists and are not required as part of the City permit process for this project. A public comment period was included as part of the issuance of the Draft Checklist to solicit comments from the public, agencies and organizations. Public comments are also accepted as part of the City's departure process.	N/A
Tan, Amanda			
37	My concerns for the project are as follows: 1. Higher than allowed buildings 2. Less that required on-site parking leading to overflow parking to surrounding areas. 3. Allowing buses to load on the street and parents to load and park on surrounding areas (in front of N 120th St). This will significantly affect the quality of life for those living directly in this area. 4. Lack of tree planting on N 120th St 5. Electronic message board. There is no need for this especially in a residential neighborhood. 6. Lack of sidewalks in the surrounding neighborhood and inadequate bicycle parking, making commute to school unsafe and significantly impacting traffic. 1st Ave traffic will be adversely affected.	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 size of the site and configuration of the site and existing building, the project would require land use for building height, on-site parking, off-site bus loading, bicycle parking, and an electric message 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 would comply with the City's requirements for the process. For comments related to traffic and parking, please refer to the responses to Comments #2 #14, #21, #24, and #32. The existing bus load/unload area is located on the north side of N 117th Street in a gravel shoulder. With the project, school bus load / unload would occur along the west side of 1st Avenue NE within a designated bus-pull-out area, outside of the southbound travel lane. The school frontage on N 120th Street currently allows for on-street parking with time restrictions (restricted for 30-minute load/unload from 7:00 to 10:00 a.m. and from 1:00 to 4:00 p.m. on school days). This frontage would be improved to include curb, gutter, sidewalk, and landscape amenities. The time restrictions are expected to remain with the project. The majority of the existing trees along N 120th Street would be retained and protected. Those trees that would be removed along N 120th Street would be removed due to poor health and structural conditions. Consistent with City of Seattle regulations, new replacement trees would also be provided on the site at a 1:1 ratio to replace those trees that would be removed as part of the construction process; trees removed from the public right-of-way would be replaced at a 2:1 ratio. As stated in the *Transportation Technical Report*, the project would	SEPA Checklist Section B.4, B.8, B.14, and Appendix G

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		include sidewalks along all school frontages. There are also City-planned improvements in the area where sidewalks are planned for installation. The project would include parking for 96 bicycles. According to the count data and observations of the school Principal; bicycle use at this school is minimal and the proposed 96 bicycle spaces would more than adequate to accommodate the demand.	
38	Please include me on the list of people to be notified and consulted regarding zoning departures, including required public meetings.	By submitting a comment during the SEPA process you are now a party of record and will be included in notifications as the SEPA process progresses. Individuals would need to contact the City of Seattle to be notified regarding the zoning departures process as that is a City-led process. A public meeting is not required for SEPA Checklists and are not required as part of the City permit process for this project.	N/A
Willman, Neil & Emily			
39	We are writing today to express our concerns regarding the currently proposed plan for the development of the new Northgate Elementary School. While we are in favor of updating the school, even rebuilding it, we have some major concerns regarding the re-development of the existing site. First, and of primary concern, the plan as currently drawn up is taking the natural heart out of the community. This is a high use community park, used for soccer, baseball, and frisbee practices and games, dog walking, picnics, learning to ride bikes, and other community recreation and gathering. By removing public access to the park, you are hurting the community that you are supposed to be serving. The parks that are listed as "mitigating" this impact are insufficient for this purpose. Addressed below are the concerns for each one: <u>Northacres Park</u>: while this park is within a relatively, safe walkable distance, the open space at this park is taken up during the warmer months of the year (Spring and Summer) by the Northwest Seattle Little League, and are therefore inaccessible for use by the larger community. <u>Hubbard Homestead Park</u>: listed as .35 miles away in your document, is documented at .8 miles away (walking) by Google maps, crosses a major freeway, and is in a higher crime area. Additionally, there is a lot of pedestrian traffic cutting through the park on a regular basis, given its proximity to bus routes and major shopping areas. <u>Mineral Springs Park</u>: listed as .60 miles away in your document, is documented as 1.0 miles away (walking) by Google maps, crosses a major arterial (Northgate Way), and is a disc golf course. There is no space for most of the activities for which Orr Park/Northgate Elementary Upper Playfield is utilized.	As noted in Section B.12 of the SEPA Checklist, the parks that are listed in the vicinity of the site are not listed as mitigation for the project but are intended to identify existing recreation facilities in the vicinity the site in response to the question in the SEPA Checklist. The proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and trails, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment. The proposed project would also provide a separate preschool/early learning play area that would be designed to provide specific recreation opportunities and enhanced safety for younger students. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school.	SEPA Checklist Section B.12

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	Pinehurst Park: listed as .65 miles away in your document, is documented as at minimum 1.6 miles away (by car), and crosses a major freeway. Jackson Park Golf Course: listed as .75 miles away in your document, is documented as 1.8 miles away (by car), crosses a major freeway, and is solely a golf course. There is no space for any of the activities for which Orr Park/Northgate Elementary Upper Playfield is utilized. You might as well have included the Evergreen Washelli cemetery for all the usefulness this space has to the neighborhood. It is obvious that the planning committee did not carefully consider the usefulness of the spaces when including them as mitigations to removing Orr Park/Northgate Elementary Upper Playfield. They all have serious flaws in their recommendation, as listed above, not the least of which, for each of them, is the ACTUAL distance that must be traveled (both distance and safety wise) in order to potentially utilize the suggested spaces. Two of them, are entirely inappropriate as suggestions to start with, as they are not flexible spaces, but rather assigned for a specific function (disc and regular golf).		
40	We propose that the new school be constructed at the site of the existing school, and that Orr Park/NE Upper Playfield be left as it is for the benefit of the community. Given the current situation with COVID restrictions, redistributing the existing students to other schools or online learning would be more feasible in the current environment than any other school year.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. There is no interim site available to relocate the existing Northgate Elementary program and the project will be constructed while the site is occupied. To provide adequate and equitable and fully accessible education for all students the building program must meet the educational specifications standards which necessitates the construction of a new building.	N/A
41	If the current plan must move forward, then there NEEDS to be a community park on THIS SITE that is accessible for use by the community that the school is being built to serve.	As noted in Section B.12 of the SEPA Checklist, the proposed project would provide a new play field and trails, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment. As with other school playground/field facilities, the proposed recreation spaces that would be included as part of the project would be open for community use when not in use by the school or reserved for a scheduled use such as Seattle Parks and Recreation uses.	SEPA Checklist Section B.12
42	Further, it is ironic that the current proposal is detrimental to the very people that donated the land to the city for use as a park in the first place. While I have not seen any legal documentation, it was well established by neighborhood anecdote all through my growing up years, that Mr. Isabell (currently the Isabell/Highlanders on Corliss Ave N) donated the land to the city for use as a community park. If the city decided that it no longer could maintain the land as a city park, it should have returned the land to the Isabell/Highlander family for it's continued use of benefit to the community. As the land was given over to the school district for recreation space, the district also should have either left the land as is or returned it to the original family. Additionally, when the Willman family (on Corliss Ave N) purchased an adjacent property in the 1960s, the property abutted Orr Park. It is appalling that the house that I came home to in 1970, the house and neighborhood that I chose to return to as an adult, are being negatively impacted by the "improvement" (as currently proposed) of the school that I attended as a child, whose	Based on property records for the site, there are no deed restrictions on the property that would require it to be maintained as park space. In a subsequent message from Ms. Hylander, her research also confirmed that there were no restrictions on the property. The project site is owned by Seattle Public Schools and is not a City-owned park. As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues.	SEPA Checklist Section B.12

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	purpose is to serve and improve the lives of the members of the neighborhood.	The proposed recreation areas onsite are designed for use by the school for students and would provide enhanced and more usable recreation space for the school in the form of a new play field and trails in the south portion of the site. In addition, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment would be provided on campus. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved by another scheduled use (e.g. Seattle Parks and Recreation use, etc.).	
43	If Orr Park is going to be consumed in this process, then another park and playground needs to be provided that is accessible and useable by the community at this location. The Olmsted idea of parks is that there are useable and accessible parks throughout the city for the benefit of the community. Completely removing this from the neighborhood creates too large of a gap in recreational utility for the members of the Northgate/Haller Lake community.	The project site is owned by Seattle Public Schools and is not a City-owned park. The proposed recreation areas onsite (including a new play field) are designed for use by the school for students and would provide enhanced and more usable recreation space for the school. As with other school playground/field facilities, the proposed recreation spaces that would be included as part of the project would be open for community use when not in use by the school or reserved for a scheduled use.	SEPA Checklist Section B.12
44	Secondly, the neighborhood is not zoned for a building of this height. A new building within the current building footprint would have less overall impact on the normative height of the neighborhood, given the current 12' retaining wall and slope of the land.	The proposed building height is generally within the height limits for residential zoning, but the building penthouses enclosing the building HVAC systems for long-term maintenance requirements and weather protection would be slightly above the height limits. Since there is no specific land use code for school buildings in the City of Seattle, the City Code includes a departure process which allows school building development in residential zones. The City of the Seattle Land Use Code allows a departure process for the height the building that is above what the residential code allows. 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
45	Which brings me to the final point – rain/stormwater drainage. The block currently slopes high to low from the northwest to the southeast. In spite of your mitigation plans (detention system, bioretention, rooftop rainwater reclamation, porous pavement, etc.), it is difficult to believe that going from a 45% impervious surface area to a 75% impervious surface area will not negatively impact water flow across my property, potentially to detrimental effect.	As noted in Section B.3 of the SEPA Checklist, the site stormwater design for the project would be compliant with the City of Seattle's 2017 storm water manual. Since the project would add more than 10,000 sq. ft. of impervious surface, the project would require detention and flow control for stormwater. A detention system would be installed under the proposed play field at the south end of the site with a flow control structure at the downstream end. The project would also provide onsite stormwater management BMPs to the maximum extent feasible. BMPs could include but would not be limited to bioretention, porous pavements, roof rainwater reclamation and other low impact development strategies.	SEPA Checklist Section B.3

#	Comment	Response	Document Reference
46	If the purpose of building is to serve the community, then more needs to be done to ensure that the natural heart of the community, currently embodied in the open spaces of Orr Park/Northgate Elementary Upper Playfield, is preserved for use by the members of this neighborhood. If the current site of the physical building is to move, the replacement recreation area (field and playground) needs to be publicly accessible to the neighborhood's members.	As with other school playground/field facilities, the proposed recreation spaces that would be included as part of the project would be open for community use when not in use by the school or reserved for scheduled uses (e.g., Seattle Parks and Recreation uses, etc.).	SEPA Checklist Section B.12
Lang, Becky			
47	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
48	Very concerned about traffic on 1st Avenue NE as it is already pretty bad during peak traffic hours.	Please refer to the response to Comments #2 and #21 for details about traffic operations with the project.	SEPA Checklist Section B.14
Krygier, Earl			
49	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
50	The building would be too high (3 stories?).	The proposed building would be two stories tall and is generally within the height limits for residential zoning, but the building penthouses enclosing the building HVAC systems for long-term maintenance requirements and weather protection would be slightly above the height limits. Since there is no specific Land Use code for school buildings in the City of Seattle, the City Code includes a departure process which allows school building development in residential zones. The City of the Seattle Land Use code allows a departure process for the height the building that is above what the residential code allows. 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
51	Loss of green space which I thought is illegal in Seattle.	The project site is owned by Seattle Public Schools and is not a City-owned park. As noted in Section B.12 of the SEPA Checklist, the proposed project would result in a reduction in overall recreation space on the campus when compared to the existing conditions, primarily due to the relocation of the upper grass field area. However, as noted above, the upper field area is currently used infrequently by the school due to security and student supervision issues. The proposed project would provide enhanced and more usable recreation space for the school in the form of a new play field and trails, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment. The proposed project would also provide a separate preschool/early learning play area that would be designed to provide specific recreation opportunities and enhanced safety for younger students. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved for schedule uses such as Seattle Parks and Recreation use.	SEPA Checklist Section B.12
52	Insufficient parking.	Please refer to the responses to Comments #14, and #24 for details about parking in the site vicinity.	SEPA Checklist Section B.14 and Appendix G
Arenirar, Marleen			
53	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
Smith, Larry			
54	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A

#	Comment	Response	Document Reference
Hylander, Dennis and Ruth			
55	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
56	Our property would be most impacted by this current plan and project. The property where the playfield stands originally belonged to my grandfather Raymond F Isabel and was sold with the stipulation that a nature park be preserved on part of it.	Based on property records for the site, there are no deed restrictions on the property that would require it to be maintained as park space. Ms. Hylander also followed up with subsequent email that confirmed that her research also indicated there were no restrictions on the property. As noted in Section B.12 of the SEPA Checklist, the proposed project would provide enhanced and more usable recreation space for the school in the form of a renovated play field and trails, updated hard surface play area, a new covered play area, new learning gardens, new nature play areas, and an updated soft surface play area with play equipment. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school or reserved for scheduled uses such as Seattle Parks and Recreation use.	SEPA Checklist Section B.12
Woodruff, Pamela			
57	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal. All parties of record will be notified on the status of the environmental review for the project.	N/A
Meyerhoff, Deanna			
58	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A

#	Comment	Response	Document Reference
Sabado, Deanna			
59	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
60	Our streets aren't big enough to take on more traffic.	Please refer to the responses to Comments #2, #21, #32, and #37 for details about traffic operations and the ability of surrounding streets to accommodate the proposed project.	SEPA Checklist Section B.14 and Appendix G
Hammer, Brian			
61	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
Mayer, Scott			
62	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
Emerson, Ken			
63	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A

#	Comment	Response	Document Reference
64	A terrible project for neighborhood. EIS badly needed. Project needs every effort that can be done to defeat this plan.	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 under the proposal.	N/A
Reinke, KC			
65	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
66	Why 1st Avenue NE for loading buses – an arterial? And drivers treat N 117th as an arterial as well. A good place for police to issue traffic tickets for failure to yield the right of way.	As presented in the *Transportation Technical Report*, the morning and afternoon peak hour traffic volumes using N 117th Street, which is designated by the City as a local access street, are relatively low compared to other roadways in the area, and compared to 1st Avenue NE, which is designated as a Collector Arterial. The collision data presented in the report do not indicate any traffic safety concerns in the area. In addition, the school safety cameras installed along 1st Avenue NE are expected to remain to help reduce speeds and encourage safe driving. Given the location of the building entry, and the lengths of site frontage available, loading of some variety would need to occur on 1st Avenue NE. Locating the bus loading area on 1st Avenue NE was preferred by SPS and SDOT for several reasons. 3 or 4 buses driven by professional drivers are less likely to negatively impact traffic on the busy arterial than a long line of single family vehicles. There is also more available width on 1st Avenue NE for creating a full-sized pull out zone to get the parked buses completely out of the traffic lane. The available road width of NE 120th Street is constricted by the presence of the existing trees on the south side of the street which can make it more difficult for buses to navigate. Locating the parent drop-off zone along NE 120th Street is also advantageous as there is a longer uninterrupted frontage on this side of the site.	SEPA Checklist Section B.14 and Appendix G
Willman, Emily			
67	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. As SEPA lead agency, Seattle Public	N/A

#	Comment	Response	Document Reference
	Please include me on the list of people to be notified about the status of the environmental review of this project.	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 under the proposal.	
Bevington, Sara			
68	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
Bayard, Donald			
69	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
70	I sent you an email.	Responses to Mr. Bayard's email comments are included in this summary.	N/A
Hubbard, Jacquelyn			
71	I believe that the Northgate Elementary Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through at EIS. Please include me on the list of people to be notified about the status of the 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 under the proposal.	N/A
72	My mother has asked me to write on her behalf as she's 95 with macular degeneration but cares about the neighborhood in which she has lived since 1968. My sisters and I attended Northgate Elementary, all grades, starting in 1958. We feel this project is worth doing correctly and with full transparency and community involvement with a full environmental review. Thank you.	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), solicited public comments from the community and considered those comments received during the SEPA process, and determined that no probable significant adverse environmental impacts would occur under the proposal. A public meeting is not required for SEPA Checklists and are	N/A

#	Comment	Response	Document Reference
		not required as part of the City permit process for this project.	
Meyerhoff, Deanna			
73	I live on Corliss across from the (currently) empty field near Northgate Elementary. I just saw the plans for the new school and I am in absolute shock at how much bigger this will be. This is a small, quiet neighborhood that people move to because of the big, beautiful trees and the larger lots. As it stands now, but second story windows will now be looking directly into a classroom.	Seattle Public Schools considered these comments in making a final SEPA determination for the project.	N/A
74	The field is used for local soccer, baseball and Ultimate teams. During quarantine it has been in constant use for dog and human exercise at all hours of the day. Please do not remove the field and the beautiful trees that surround it. It will be such a loss to this community.	The proposed project would provide a new play field and trails, new hard surface play areas, a new covered play area, new learning gardens, new nature play areas, and a soft surface play area with new play equipment. As with other school playground/field facilities, the proposed recreation spaces would be open to the community when not in use by the school. The majority of the Norway Maples and other trees surrounding the existing field would be retained and protected. Those trees that would be removed surrounding the field would be removed due to poor health and structural conditions as recommended by the project arborist. Consistent with City of Seattle regulations, new replacement trees would be provided on the site at a 1:1 ratio to replace those trees that would be removed as part of the construction process; trees removed from the public right-of-way would be replaced at a 2:1 ratio.	SEPA Checklist Section B.12
75	And tripling the capacity of the school will have a serious negative impact on our neighborhood. It will literally be a different place than the one I'm currently living in. The construction alone will be a horrendous inconvenience. I work from home (before quarantine) and it will be craziness in the neighborhood all the time.	Seattle Public Schools considered these comments in making a final SEPA determination for the project. Temporary construction-related impacts, including noise, are noted in the SEPA Checklist (Section B.7.b) and mitigation measures for construction-related noise are identified.	SEPA Checklist Section B.7
76	Did I miss a meeting about this? Was an environmental study done? I also understand this breaks many zoning laws.	Public meetings are not required for SEPA Checklists and are not required as part of the City permit process for this project. A public comment period was included as part of the issuance of the Draft Checklist to solicit comments from the public, agencies and organizations. Public comments are also accepted as part of the City's departure process. The SEPA Checklist and associated technical reports comprise the environmental review for the project. The project design would comply with applicable City of Seattle regulations.	N/A