

Arborist Report

To: Kamiak Real Estate c/o Justin Merriman
Site: 1901 21st Ave S, 1906-1918 20th Ave S, 1920 21st Ave S, Seattle, WA
Re: Tree Inventory and Assessment for Haug Development Project
Date: May 24, 2022
Project Arborist: Haley Galbraith
ISA Board Certified Master Arborist PN-7512BM
Municipal Specialist, ISA Qualified Tree Risk Assessor
Attached: Table of Trees
Tree Inventory Map

Summary

Six significant trees exist on the subject site, which is composed of adjacent addresses 1901 21st Ave S, 1906-1918 20th Ave S, and 1920 21st Ave S. Based on City of Seattle Municipal Code (SMC), trees measuring 6 inches or greater in diameter at standard height (DSH) qualify as significant and are required to be documented for development projects. A Tree Solutions Arborist Field Team tagged each of the six trees on site with a numbered aluminum tree tag. Tree identifiers shown in the attached Table of Trees and Tree Inventory Map correspond to the number on each tree tag.

Of the trees assessed, two met the exceptional tree criteria outlined by Seattle Director's Rule 16-2008. One of these trees, a Douglas-fir (*Pseudotsuga menziesii*) tree 548, is proposed for retention. Tree 551, a hop tree (*Ptelea trifoliata*) was under consideration for transplanting to a different location on site, but after further inspection, we now recommend removal of this tree.

Three trees located in adjacent Right-of-Way (ROW) were documented. These trees were assigned alphabetical tree identifiers.

Detailed information on each of the trees assessed can be found in the attached Table of Tree.

Assignment and Scope of Work

This report documents the initial site visit by Josh Petter and Andrea Starbird, of Tree Solutions Inc, on September 21, 2020, a follow-up site inspection by Andrea Starbird on January 19, 2021, and another visit to the above-referenced site by Joseph Sutton-Holcomb of Tree Solutions on May 17, 2022 to look specifically at retention feasibility of the two exceptional trees on site. Tree Solutions was asked to perform a tree inventory and assessment, followed by preparation of a complete arborist report as a necessary step in applying for permits for site development.

Observations and Discussion

Site

The subject site is made up of nine parcels (#1498302305, #1498302005, #1498302010, #1498302020, #1498302030, #1498301995, #1498301990, #1498301985, and #1498301980) between 20th Ave S, S Holgate St, S Plum St, and the alley between 21st Ave and 22nd Ave S. These lots are located in the Mount Baker neighborhood of Seattle.

Multiple commercial warehouse buildings, vehicle lots, and two small houses exist on the subject site, as well as several detached garage structures. According to the Seattle Department of Construction and Inspections (SDCI) GIS, one parcel is zoned NC3-75 (M) (#1498302305), and the rest are zoned C1-75M. All parcels fall within a liquefaction zone environmentally critical area (ECA5).

Several invasive plant species were documented throughout the site, including invasive ivy (*Hedera* spp.), Himalayan blackberry (*Rubus bifrons*), English holly (*Ilex aquifolium*), knotweed (*Polygonum* spp.), and morning glory (*Convolvulus arvensis*).

1910 21st Ave S

There is one parcel (#1498302305) at this address. It is a 25,500 square-foot lot that fronts both 21st Ave S and S Holgate St. It covers three-quarters of the northern portion of the block that spans 21st Ave S to the alley between 21st and 22nd, between S Holgate St and S Plum St. Two commercial warehouses and associated parking areas exist on this parcel.

1901 21st Ave S

Four parcels make up the area of the site that is east of the alley that runs parallel to 21st Ave S northward to S Holgate St from S Plum St. Each of these parcels contain a portion of a commercial warehouse and associated parking areas that spans the eastern half of the block, from the alley to 21st Ave S, between S Holgate St and S Plum St. According to SDCI, all of these parcels are zoned C1-75 (M) and fall within a liquefaction zone environmentally critical area (ECA).

Parcel #1498302005 is a 6,000 square-foot lot that fronts 21st Ave S and is the most northern part of the block at the corner of S Holgate St and 21st Ave S.

Parcel #1498302010 is a 9,660 square-foot lot that fronts 21st Ave S and makes up the north-central portion of the block between S Holgate St and S Plum St, east of the alley.

Parcel #1498302020 is a 5,340 square-foot lot and makes up the south-central portion of the block between S Holgate St and S Plum St, east of the alley.

Parcel #1498302030 is a 9,000 square-foot lot and is the southernmost lot on the block between S Holgate St and S Plum St, east of the alley.

1906-1918 20th Ave S

Four parcels make up the area of the site that is west of the alley parallel to 21st Ave S and S 20th St. According to SDCI, these four parcels are zoned C1-75 (M) and fall within a liquefaction zone ECA.

Parcel #1498301995 is a 12,000 square-foot lot at the northwest corner of S Holgate St and 20th Ave S. The address associated with this parcel is 1906 20th Ave S. There is a parking lot with vehicles on the site.

Parcel #1498301990 is a 6,000 square-foot lot and makes up the north-central section of the block. The address associated with this parcel is 1912 20th Ave S. A duplex with attached garage structures and garden exist on site.

Parcel #1498301985 is a 6,000 square-foot lot that makes up the south-central section of the block. The address associated with this parcel is 1916 20th Ave S. A single-family home and detached garage exists on site.

Parcel #1498301980 is a 6,000 square-foot lot at the southernmost corner of the block at the corner of 20st Ave S and S Plum St. The address associated with this parcel is 1918 20th Ave S. This lot is currently vacant with a parking lot and vehicles on site.

Trees

Two stumps of removed non-exceptional trees were observed during the follow-up site inspection on January 19, 2021.

Six significant trees exist on site; they are located on 1906 20th Ave S, 1912 20th Ave S, 1916 20th Ave S, and 1918 20th Ave S. No significant trees exist at 1910 21st Ave S or 1901 21st Ave S.

A mix of native and ornamental tree species was observed. Two trees (548 and 551) met the exceptional tree criteria outlined by Seattle Director's Rule 16-2008.

Tree 548, a 30.5-inch DSH Douglas-fir was found to be in good health and structural condition.

Tree 551, a hop tree measured at 9 inches DSH at the narrowest point below the trunk union was found to be in good health and fair structural condition.

Tree Solutions was not able to determine whether tree 555, a common hawthorn (*Crataegus monogyna*) which measured 11.7 inches DSH was located on site, or possibly in the alley/unimproved ROW.

Three off-site trees were documented. All three were located in the ROW and are therefore regulated by the Seattle Department of Transportation (SDOT).

The attached Table of Trees contains detailed information about each tree assessed, and the Tree Inventory Map shows approximate tree locations relative to the entire site.

Discussion—Construction Impacts

Due to existing conditions throughout the site and the extent of proposed site improvements, only one tree, the exceptional Douglas-fir tree 548 is proposed for retention.

Tree Solutions carried out a third site inspection on May 17, 2022, to evaluate existing infrastructure around the two exceptional trees on site. Originally, transplanting of the hop tree was recommended, however, after the most recent assessment of this tree it was determined that the health and structural condition of the tree may result in a decreased probability of successful transplanting. Transplanting of tree 551 is no longer recommended.

SDCI requires that any exceptional tree, or tree 24-inches DSH or greater, planned for removal must be approved by SDCI and replaced by one or more trees. The proposed landscaping plans for the site include over two dozen new tree plantings to be installed by project completion. Based on the number of trees currently existing on site, the proposed planting will more than replace the existing canopy cover.

Removal of trees A, B, and C located in the ROW will require approval from SDOT.

Tree Protection

Tree 548

This tree is proposed for retention, and as drawn, the building courtyard is designed around the tree. To successfully retain this tree in a healthy and stable condition, the tree protection specifications provided in Appendix D must be implemented in addition to the measures below.

Tree Protection Fencing & Demolition

Minimize tree root impacts to the extent possible. SDCI requires no more than one third of the outer half of the dripline area be disturbed. In the case of tree 548, an existing subgrade house foundation and an existing retaining wall are within the tree dripline area. These areas do not need to be considered when evaluating proposed root zone impacts. Leave as much of the existing retaining wall in place as feasible and install tree protection fencing as far from the tree as possible.

Install tree protection fencing prior to any site demolition activities. When the existing buildings and hardscape are demolished, all equipment, storage and access must occur from outside the tree protection area. No transport or storage of materials is allowed within the tree protection area. Arborist woodchips should be spread throughout the entire tree protection area to a depth of 4-6 inches.

Civil, Utility and Grading

Plan utilities so that excavation remains outside of the tree protection area.

Avoid grade changes within the tree protection area. No grade cuts may occur within the tree protection areas without arborist coordination and approval. Limit any fill to uncompacted, well-draining soil, no more than one foot deep; fill must be kept at least one foot from the base of the tree. In situations where this is not possible arborist coordination is required.

Building Foundation and Garage

Excavation for the garage and basement of the building should remain outside the tree protection area. No materials, including excavated soils, may be staged within tree protection areas. No over-excavation or layback should occur within the tree protection area.

Landscape Planning

Design landscape improvements to limit plant sizes to 1 gallon or below within the dripline of tree 548.

If any irrigation is proposed within the dripline of retained trees, it should be surface mounted rather than trenched below the soil. If irrigation lines must be trenched, pneumatic air excavation or hand digging should be used to install lines to avoid damaging roots; all trenching within the tree protection areas will require arborist coordination.

Recommendations

- Site planning around exceptional trees must follow the guidelines outlined in SMC 25.11.050.¹
- Tree protection consisting of chain-link fencing should be installed at the edge of the tree protection area for all retained trees prior to any demolition work on the site; Tree Solutions should inspect fencing prior to the start of site work.
- Any required clearance pruning should be conducted by an ISA certified arborist and following current ANSI A300 specifications.²

Respectfully submitted,



Consulting Arborist

¹ Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees

² 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.

Appendix A **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 B Photographs



Photo 1. Tree 551, an exceptional hop tree, is no longer recommended for transplanting.



Photo 2. Tree 548, an exceptional Douglas-fir, is the only tree proposed for retention.



Photo 3. Tree A, a large Lombardy poplar (*Populus nigra* 'Italica') located in the ROW is proposed for removal.

Appendix C 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 D 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 are 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

Table of Trees

1901 21st Ave S, 1906-1918 20th Ave S, 1920 21st Ave S, Seattle WA

Arborist: H. Galbraith

Inventory: 9/21/2020

Revised: 5/24/2022

DSH (Diameter at Standard Height) is measured 4.5 feet above grade, or as specified in the Guide for Plant Appraisal, 10th Edition, published by the Council of Tree and Landscape Appraisers.

DSH for multi-stem trees are noted as a single stem equivalent, which is calculated using the method defined in the Director's Rule 16-2008.

Letters are used to identify trees on neighboring properties with overhanging canopies.

Dripline is measured from the center of the tree to the outermost extent of the canopy.

Dripline Radius (feet)															
Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Proposed Action	Exceptional per Draft Director's Rule 13-2020	Notes
548	<i>Pseudotsuga menziesii</i>	Douglas-fir	30.5		Good	Good	21.3	19.3	22.3	26.3	30.0	Exceptional	Retain	Exceptional	blackberry growing into crown, canopy a bit stressed
549	<i>Malus domestica</i>	Apple	6.6	5.6,3.4	Good	Good	8.3	8.3	8.3	8.3	20.0	-	Remove	-	
551	<i>Ptelea trifoliata</i>	Hop tree	9.0		Good	Fair	10.4	10.4	10.4	10.4	4.0	Exceptional	Remove	-	measured at narrowest point below union, blackberry, ivy, roses growing at base; originally under consideration for transplanting, but after further inspection, removal is recommended.
553	<i>Prunus domestica</i>	Common plum	13.4	7.8,10.9	Fair	Fair	17.6	10.6	8.6	12.6	22.9	-	Remove	-	partially supported by roof of garage
554	<i>Prunus laurocerasus</i>	Cherry laurel	12.0		Good	Good	20.5	13.5	13.5	13.5	26.2	-	Remove	-	corrected lean to the north, measured at the narrowest point below union, supported by van paked beside the tree and a wooden prop, invasive knotweed present
555	<i>Crataegus monogyna</i>	Common hawthorn	11.7	6,8,6	Fair	Fair	9.5	9.5	9.5	9.5	16.2	-	Remove	-	DSH estimated due to access. May be in an unimproved ROW or alley - location should be confirmed with a survey
A	<i>Populus nigra 'Italica'</i>	Lombardy poplar	62.0		Good	Good	18.6	18.6	18.6	18.6	30.0	-	Remove	-	heavy elm sprouting at base, street tree, cannot be exceptional. SDOT tree, TRE-1091019
B	<i>Fraxinus oxycarpa</i>	Raywood ash	9.5		Good	Good	6.4	10.4	13.4	11.4	24.0	-	Remove	-	SDOT Tree, TRE-1091020
C	<i>Prunus serrulata</i>	Flowering cherry	17.0		Fair	Fair	19.7	19.7	19.7	19.7	23.0	-	Remove	-	ivy throughout canopy, reassess after ivy removal. SDOT Tree, TRE-1091022

Tree Solutions Inc.
Arborist: JP & AS
206-528-4670

Tree Inventory Map
Revised 1/25/2021

Tree inventory took place on September 21, 2020 and included all trees 6-inches in diameter or greater on the site. We also assessed trees with overhanging canopies. Drip line measurements and other tree specifics are listed in the tree table produced by Tree Solutions Inc. and should be added to drawings prior to any design relating to tree protection.

Below regulated size: "NR"

