



TREE PROTECTION PLAN

for

PRECISION COUNTERTOPS

25540 SW GARDEN ACRES ROAD,
SHERWOOD, OR 97140

Submitted by

Peter van Oss PN-8145A

Date Tuesday, April 4, 2023

Teragan and Associates, Inc.
Arboricultural Consultants
3145 Westview Circle, Lake Oswego, OR 97034
503-697-1975 | info@teragan.com



City of Wilsonville
Exhibit B7 DB22-0011

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Summary

Teragan and Associates has been contracted with Precision Countertops to provide arboricultural consulting services. This report is the tree plan for the construction phase of the proposed project. The tree plan meets the recommendations and requirements of the City of Wilsonville Code.

Background

The plans propose the construction of a new commercial building including site improvements in the form of ROW improvements, utility upgrades, and landscaping. The original inventory was conducted by our firm in 2021 and only covered the trees that were directly on the property. The City of Wilsonville requested that the neighboring trees to the south were to be included in the tree protection plan. This is the updated tree protection plan for the project.

Tree Inventory

I completed the inventory during the site visit on March 17th, 2023, for the additional trees to the south of the property. The tree diameters were recorded using a diameter tape. The health and conditions of the trees are determined by the plant species profiles compared to the current condition the trees present. Attributes that can negatively impact the ratings are growing conditions, bark inclusions, broken branches, poor vigor...etc. All trees are tagged with aluminum tags that have the corresponding numbers scribed on them except for trees that were not accessible due to accessibility restrictions.

Purpose and Use of the Report

The purpose of this report is to establish tree protection measures that will need to be adhered to during the construction project to ensure a positive outcome of the retention efforts. This report may be used by the owner to establish a communication between the contractors and sub-contractors regarding the tree protection efforts of the project.

Observations

The extent of the development is on the western half of the parcel, the eastern half of the parcel will be considered protected for the purpose of this report. The trees that are directly onsite on the western side of the property are proposed for removal to allow for the development of the new commercial building and the associated site improvements. Most of the trees proposed for removal are in poor condition and/or dead and dying.

There is a row of coniferous trees along the south property line and the trees' driplines protrude onto the development site and property. Comparing the proposed site improvements to the proximities to the trees, it is anticipated that alternative construction methods are needed to accomplish the retention of the neighbor's trees. Care must be taken to ensure that the root impacts are minimized to avoid loss in tree stability and premature tree mortality. Given the existing conditions and the proposed impervious surface area, it may be recommendable to encourage stormwater runoff retention to be incorporated near to retained trees to avoid significant hydrology changes.

Proposed Removals

Trees #1 through #7 and #9 through #16 are proposed for removal to allow for the development of the property. The trees are in the direct foot print of the development or are proposed for removal due to their conditions (Trees #14 - #16). The attached information in Appendix D – Inventory shows the details of the individual trees. Both the inventory from 2021 and the most recent inventory from March 2023 are included.

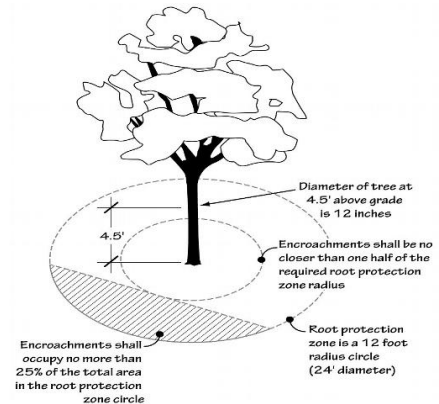
Tree Protection During Construction

Trees with low canopies should be pruned prior to the start of the project to ensure that there is enough clearance for the equipment being used. Care must be taken to prevent damages to any of the tree parts including the roots, tree trunk, scaffold, and secondary branches (canopy of the tree).

Trees that are retained should be protected at the recommended distance of 6 inches per diameter inch of the trees. This means that the soil disturbance should be 6 inches per diameter inch away from the tree in circumference of the tree. The site plan attached in Appendix C, shows the tree protection to be placed at the 6X diameter distance of the retained trees that are on the neighboring property. The fencing may be moved with approval from the project arborist when ground disturbance takes place to create the proposed flat work. Any work within the tree protection zone must be supervised by the project arborist.

It is important to note that some of the fencing is within the measurement of 6X diameter (Orange Circles). The project arborist shall be notified if ground disturbance takes place near 12X (Blue Circles), a distance measured at a rate of twelve inches per diameter inch of the tree, measured from the face of the trunk.

The plans indicate that the 30-foot setback on the south side of the property is to be used as a paved access road and parking lot. The neighbor's trees are directly adjacent to the property line and the proposed flatwork will impact trees #t1 through #t33. It is typically accepted that the tree protection zone of a tree is 12X the diameter of the tree with an allowable encroachment up to half the tree protection zone on one side of the tree. This ensures that no more than 25% of the total root structure of the tree is potentially impacted. The proposed site improvements, according to the plans, show that up to 50% of the root structures will be impacted.



It may be recommendable to eliminate the proposed pavement south of the building unless alternative construction methods and materials are used to accomplish the construction goals. If pavement is to be installed, it is recommended that the existing grade remains and that the existing soil is not excessively disturbed. The subgrade and flatwork should be built up from native grade and pervious materials should be used to avoid hydrology changes. Utilizing storm water to trees approaches for the parking lot may be a viable way to limit the soil hydrology changes by allowing the water runoff to filter through planter areas into the native soil prior to discharging into the municipal system. The trees and other vegetation will absorb a significant amount of rainwater limiting the amount that is discharged into the system. Minimizing hydrology changes will ensure that the retention of the neighboring trees will be more successful.

Additional Tree Protection Mitigation in Appendix E

Conclusion

It is my professional opinion that the tree protection measures set forth in this tree plan will suffice in the protection of the trees during construction. It is important to adhere to the standards in this report to ensure that the retention goals are successful.

Please feel free to contact me with any questions or concerns.

Sincerely,

Peter van Oss

Peter van Oss | Senior Associate
ISA Certified Arborist PN-8145A
Tree Risk Assessment Qualified
ASCA Member

Enclosures:

- Appendix A: Certification of Performance
- Appendix B: Assumptions and Limiting Conditions
- Appendix C: Site Plan Fencing Placement and Proposed Removals
- Appendix D: Inventory
- Appendix E: Tree Protection Standards

Appendix A: Certification of Performance

I, Peter van Oss, certify that:

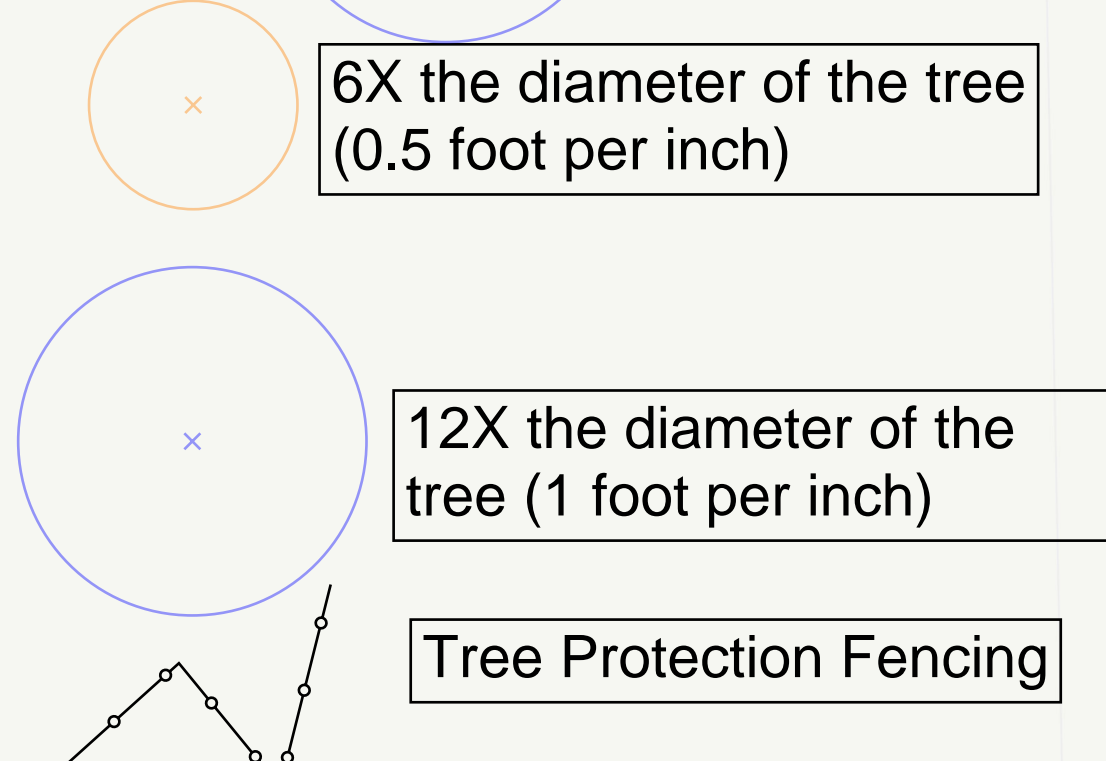
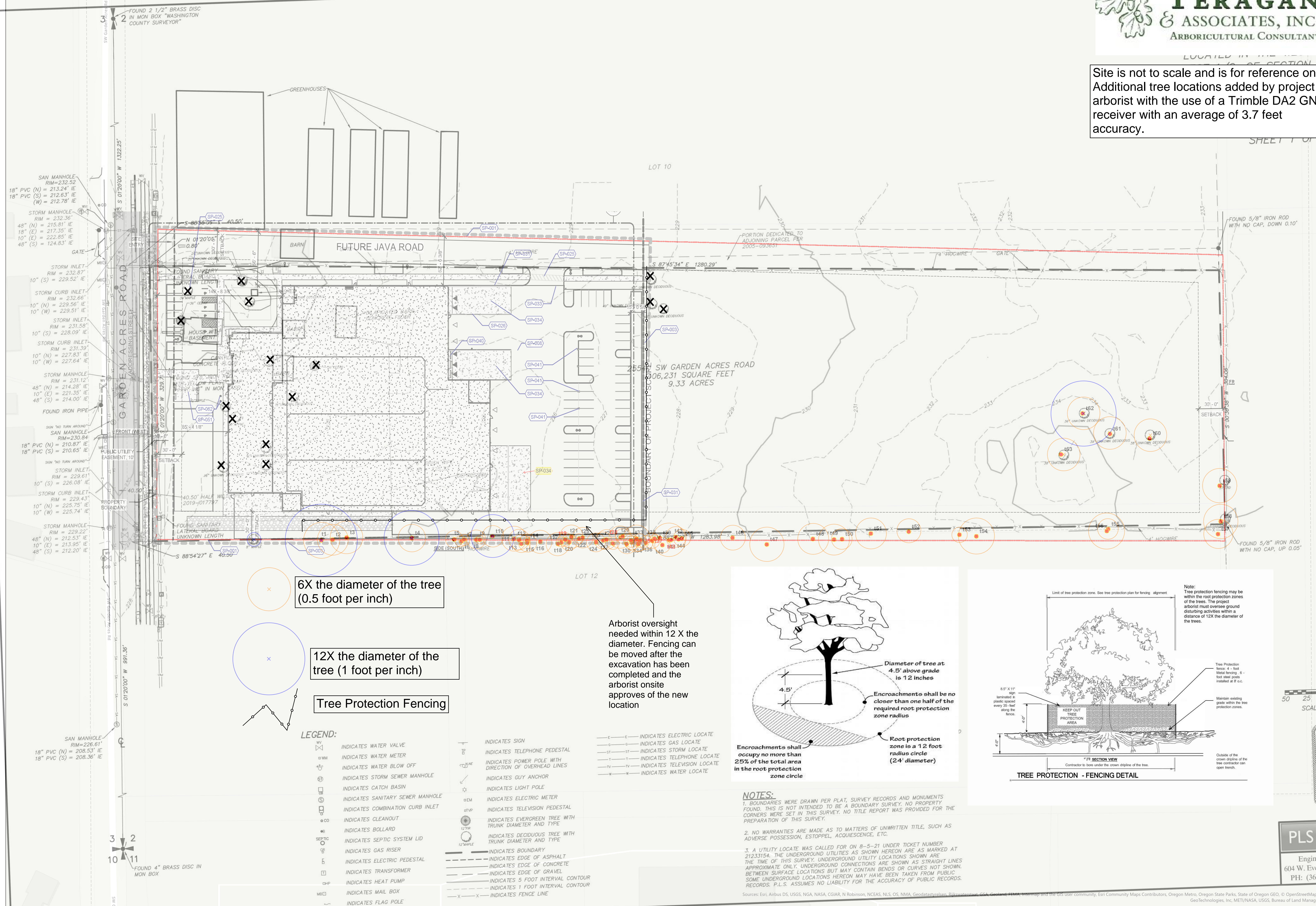
- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation or appraisal is stated in the attached report and the Terms of the Assignment.
- I have no current or prospective interest in the vegetation or the property that is subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions and conclusions stated herein are my own and are based on current professional procedures and facts.
- My analysis, opinions and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated in the report.
- My compensation is not contingent upon reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member of, and certified as an arborist by the ISA. I have been involved in the arboricultural field in a full- time capacity for a period of 17 years.

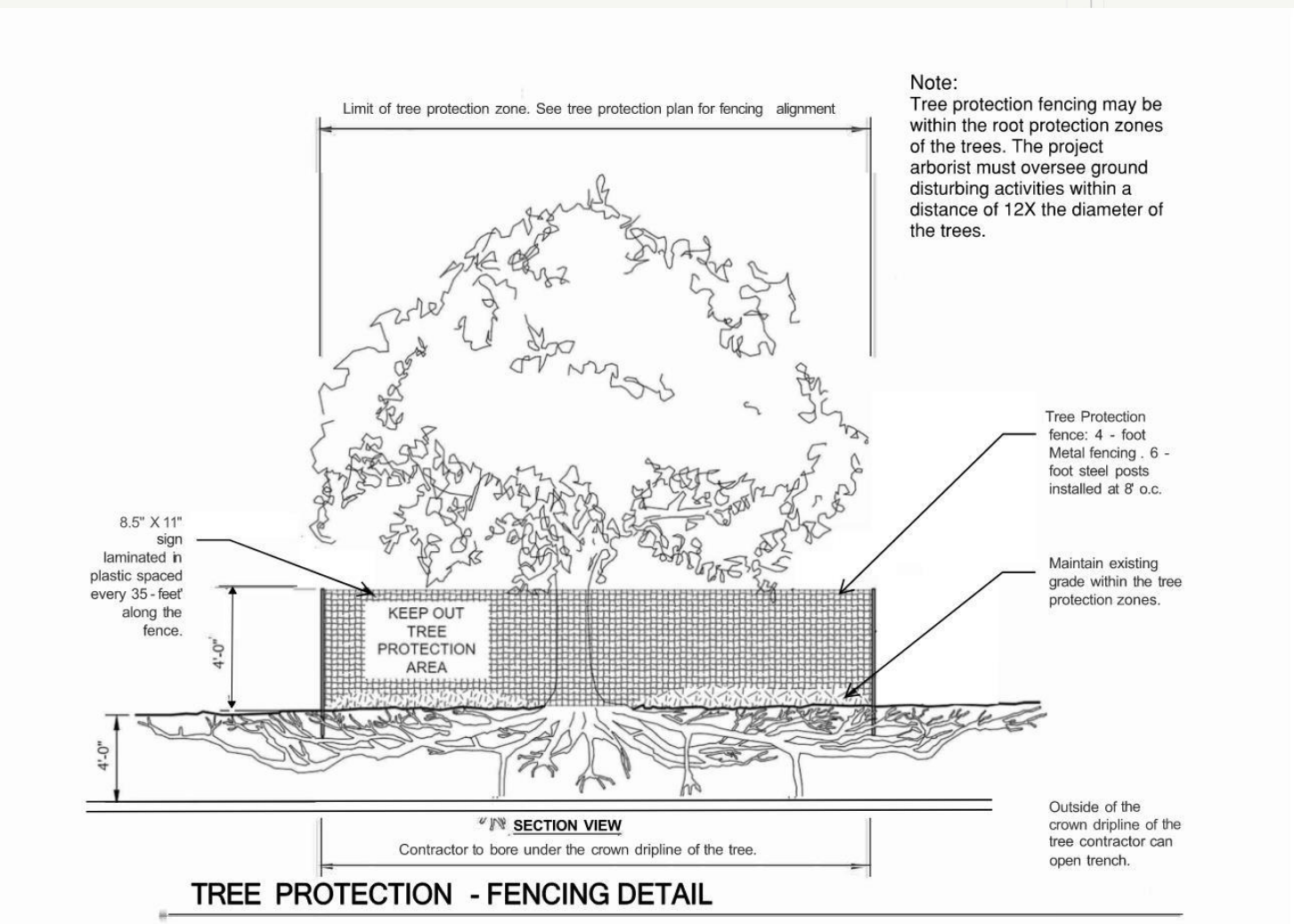
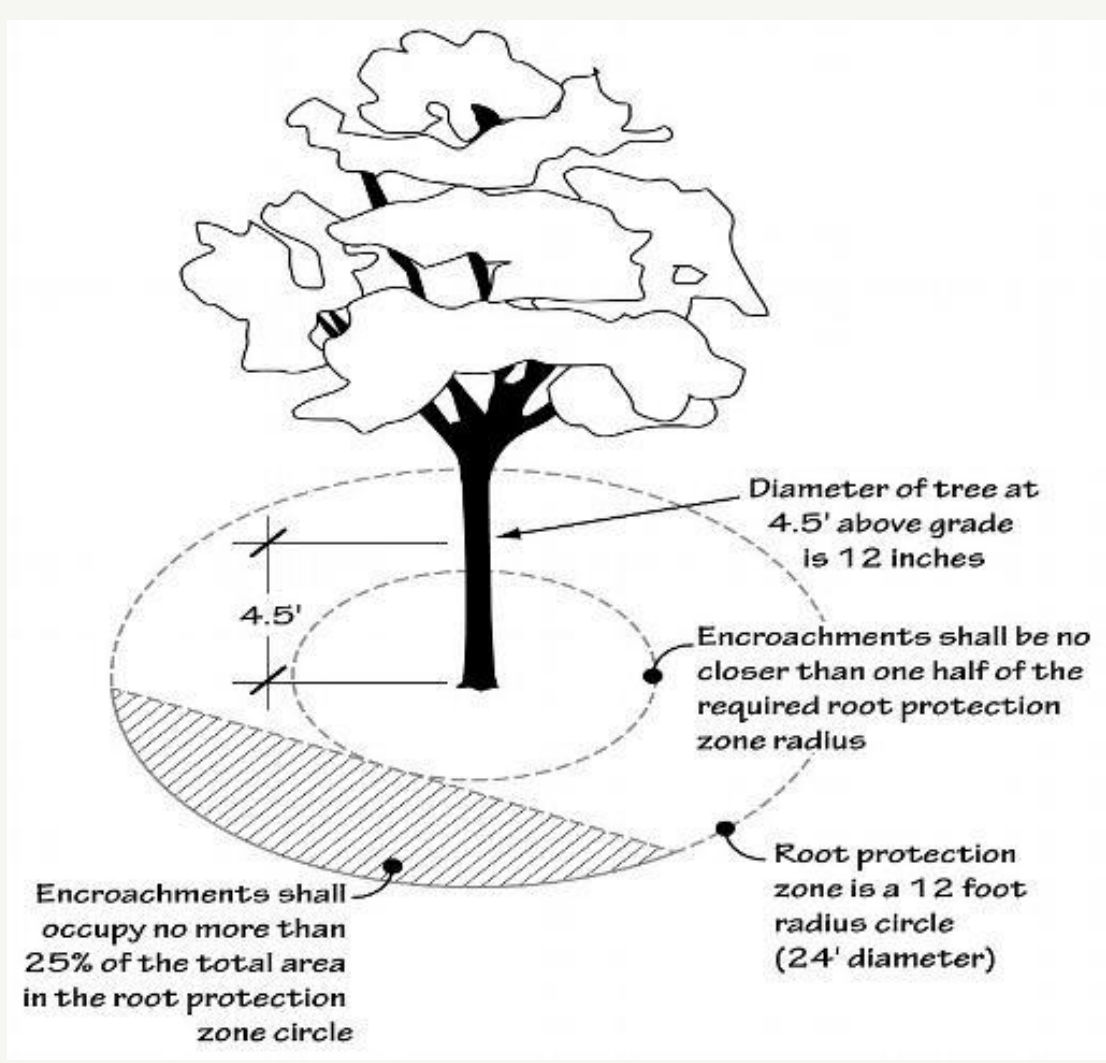
Appendix B: Assumptions and Limiting Conditions

1. A field examination of the site was made. My observations and conclusions are as of that date.
2. Care has been taken to obtain all information from a reliable source, however the arborist can neither guarantee nor be responsible for accuracy of information provided by others.
3. Unless stated otherwise, information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection. The inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee that problems or deficiencies of the subject tree may not arise in the future.
4. This report and any values/opinions expressed herein represents my opinion as an arborist. Inaction on the part of those receiving the report is not the responsibility of the arborist.
5. Loss or alteration of this report invalidates the entire report.
6. Any legal description provided to the consultant/ appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. All property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
7. The consultant/ appraiser shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment for such services.
8. Possession of this report does not imply right of publication or use for any other purpose by any other than the person to whom it is addressed, without the prior expressed written consent of the consultant/ appraiser.

Site is not to scale and is for reference only. Additional tree locations added by project arborist with the use of a Trimble DA2 GNSS receiver with an average of 3.7 feet accuracy.



Arborist oversight needed within 12 X the diameter. Fencing can be moved after the excavation has been completed and the arborist onsite approves of the new location



- LEGEND:**
- WV INDICATES WATER VALVE
 - WM INDICATES WATER METER
 - WBO INDICATES WATER BLOW OFF
 - WSM INDICATES STORM SEWER MANHOLE
 - WCB INDICATES CATCH BASIN
 - SSM INDICATES SANITARY SEWER MANHOLE
 - CCB INDICATES COMBINATION CURB INLET
 - CO INDICATES CLEANOUT
 - B INDICATES BOLLARD
 - SEP INDICATES SEPTIC SYSTEM LID
 - GR INDICATES GAS RISER
 - EP INDICATES ELECTRIC PEDESTAL
 - TR INDICATES TRANSFORMER
 - HP INDICATES HEAT PUMP
 - MB INDICATES MAIL BOX
 - FP INDICATES FLAG POLE
 - INDICATES SIGN
 - TP INDICATES TELEPHONE PEDESTAL
 - OP INDICATES OVERHEAD POWER POLE WITH DIRECTION OF OVERHEAD LINES
 - GA INDICATES GUY ANCHOR
 - EM INDICATES ELECTRIC METER
 - TEP INDICATES TELEVISION PEDESTAL
 - ETW INDICATES EVERGREEN TREE WITH TRUNK DIAMETER AND TYPE
 - EDTW INDICATES DECIDUOUS TREE WITH TRUNK DIAMETER AND TYPE
 - INDICATES BOUNDARY
 - INDICATES EDGE OF ASPHALT
 - INDICATES EDGE OF CONCRETE
 - INDICATES EDGE OF GRAVEL
 - INDICATES 5 FOOT INTERVAL CONTOUR
 - INDICATES 1 FOOT INTERVAL CONTOUR
 - INDICATES FENCE LINE
 - INDICATES ELECTRIC LOCATE
 - INDICATES GAS LOCATE
 - INDICATES STORM LOCATE
 - INDICATES TELEPHONE LOCATE
 - INDICATES TELEVISION LOCATE
 - INDICATES WATER LOCATE

NOTES:

- BOUNDARIES WERE DRAWN PER PLAT, SURVEY RECORDS AND MONUMENTS FOUND. THIS IS NOT INTENDED TO BE A BOUNDARY SURVEY. NO PROPERTY CORNERS WERE SET IN THIS SURVEY. NO TITLE REPORT WAS PROVIDED FOR THE PREPARATION OF THIS SURVEY.
- NO WARRANTIES ARE MADE AS TO MATTERS OF UNWRITTEN TITLE, SUCH AS ADVERSE POSSESSION, ESTOPPEL, ACQUESCENCE, ETC.
- A UTILITY LOCATE WAS CALLED FOR ON 8-5-21 UNDER TICKET NUMBER 21233154. THE UNDERGROUND UTILITIES AS SHOWN HEREON ARE AS MARKED AT THE TIME OF THIS SURVEY. UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. UNDERGROUND CONNECTIONS ARE SHOWN AS STRAIGHT LINES BETWEEN SURFACE LOCATIONS BUT MAY CONTAIN BENDS OR CURVES NOT SHOWN. SOME UNDERGROUND LOCATIONS HEREON MAY HAVE BEEN TAKEN FROM PUBLIC RECORDS. P.L.S. ASSUMES NO LIABILITY FOR THE ACCURACY OF PUBLIC RECORDS.

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, Robinson, NCEAS, NLS, OS, NMA, Geodatasyntese, Bakkavest, GEA, Geoportal, HEMA, Intermid and the GIS user community, Esri Community Maps Contributors, Oregon Metro, Oregon State Parks, State of Oregon GEO, © OpenStreetMap, Microsoft, Esri, H GeoTechnologies, Inc. METI/NASA, USGS, Bureau of Land Management, EPA, NPS, L

SCALE 1 INCH = 50 FEET



PLS ENC
Engineering - Su
604 W. Evergreen Blvd
PH: (360) 944-6519

Survey Number	Common and Scientific Name	DBH	Condition Health	Condition Structure	Field Notes/ Comments
t 1	Pinus palustris	42	Good	Good	
t 2	Pinus palustris	36	Good	Good	
t 3	Pinus palustris	38	Good	Good	low canopy
t 4	Pinus palustris	32	Good	Good	
t 5	Pinus palustris	20	Good	Good	
t 6	Pinus palustris	13	Good	Good	
t 7	Pinus palustris	13	Good	Good	
t 8	Pinus palustris	22	Good	Good	
t 9	Douglas-fir (Pseudotsuga menziesii)	10	Good	Good	
t 10	Douglas-fir (Pseudotsuga menziesii)	25	Good	Good	
t 11	Douglas-fir (Pseudotsuga menziesii)	29	Fair	Fair	
t 12	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Poor	
t 13	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Poor	
t 14	madrone (Arbutus menziesii)	8	Fair	Poor	
t 15	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Poor	
t 16	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Poor	
t 17	Douglas-fir (Pseudotsuga menziesii)	12	Fair	Poor	heavy lean
t 18	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Poor	
t 19	Douglas-fir (Pseudotsuga menziesii)	16	Fair	Fair	
t 20	grand-fir (Abies grandis)	19	Fair	Fair	
t 21	grand-fir (Abies grandis)	27	Fair	Fair	
t 22	Douglas-fir (Pseudotsuga menziesii)	11	Fair	Fair	
t 23	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Fair	
t 24	grand-fir (Abies grandis)	22	Fair	Fair	poison oak
t 25	grand-fir (Abies grandis)	20	Fair	Fair	
t 26	grand-fir (Abies grandis)	23	Fair	Fair	
t 27	madrone (Arbutus menziesii)	14	Fair	Poor	
t 28	grand-fir (Abies grandis)	26	Fair	Fair	

t	29	grand-fir (Abies grandis)	17	Fair	Fair	
t	30	grand-fir (Abies grandis)	23	Fair	Fair	
t	31	grand-fir (Abies grandis)	16	Fair	Fair	
t	32	Douglas-fir (Pseudotsuga menziesii)	16	Fair	Fair	
t	33	Douglas-fir (Pseudotsuga menziesii)	31	Fair	Fair	
t	34	grand-fir (Abies grandis)	16	Fair	Fair	
t	35	grand-fir (Abies grandis)	16	Dead/Dying	Failed/Failing	
t	36	grand-fir (Abies grandis)	18	Fair	Fair	
t	37	grand-fir (Abies grandis)	10	Fair	Failed/Failing	broken top
t	38	Douglas-fir (Pseudotsuga menziesii)	8	Fair	Failed/Failing	broken top
t	39	giant-sequoia (Sequoiadendron giganteum)	34	Good	Good	
t	40	grand-fir (Abies grandis)	18	Fair	Poor	heavy lean
t	41	grand-fir (Abies grandis)	16	Good	Good	
t	42	grand-fir (Abies grandis)	16	Good	Good	
t	43	grand-fir (Abies grandis)	24	Good	Good	
t	44	grand-fir (Abies grandis)	17	Fair	Fair	
t	45	red pine (Pinus resinosa)	20	Poor	Poor	
t	46	grand-fir (Abies grandis)	29	Fair	Fair	
t	47	Douglas-fir (Pseudotsuga menziesii)	40	Fair	Fair	
t	48	Douglas-fir (Pseudotsuga menziesii)	36	Fair	Fair	
t	49	Douglas-fir (Pseudotsuga menziesii)	36	Fair	Fair	
t	50	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Fair	
t	51	Douglas-fir (Pseudotsuga menziesii)	36	Fair	Fair	
t	52	Douglas-fir (Pseudotsuga menziesii)	28	Fair	Fair	
t	53	Douglas-fir (Pseudotsuga menziesii)	18	Fair	Fair	
t	54	Douglas-fir (Pseudotsuga menziesii)	42	Fair	Fair	
t	55	Douglas-fir (Pseudotsuga menziesii)	24	Fair	Fair	
t	56	Douglas-fir (Pseudotsuga menziesii)	46	Fair	Fair	
t	57	Douglas-fir (Pseudotsuga menziesii)	34	Fair	Fair	
t	58	Douglas-fir (Pseudotsuga menziesii)	40	Fair	Fair	
t	59	Douglas-fir (Pseudotsuga menziesii)	40	Fair	Fair	



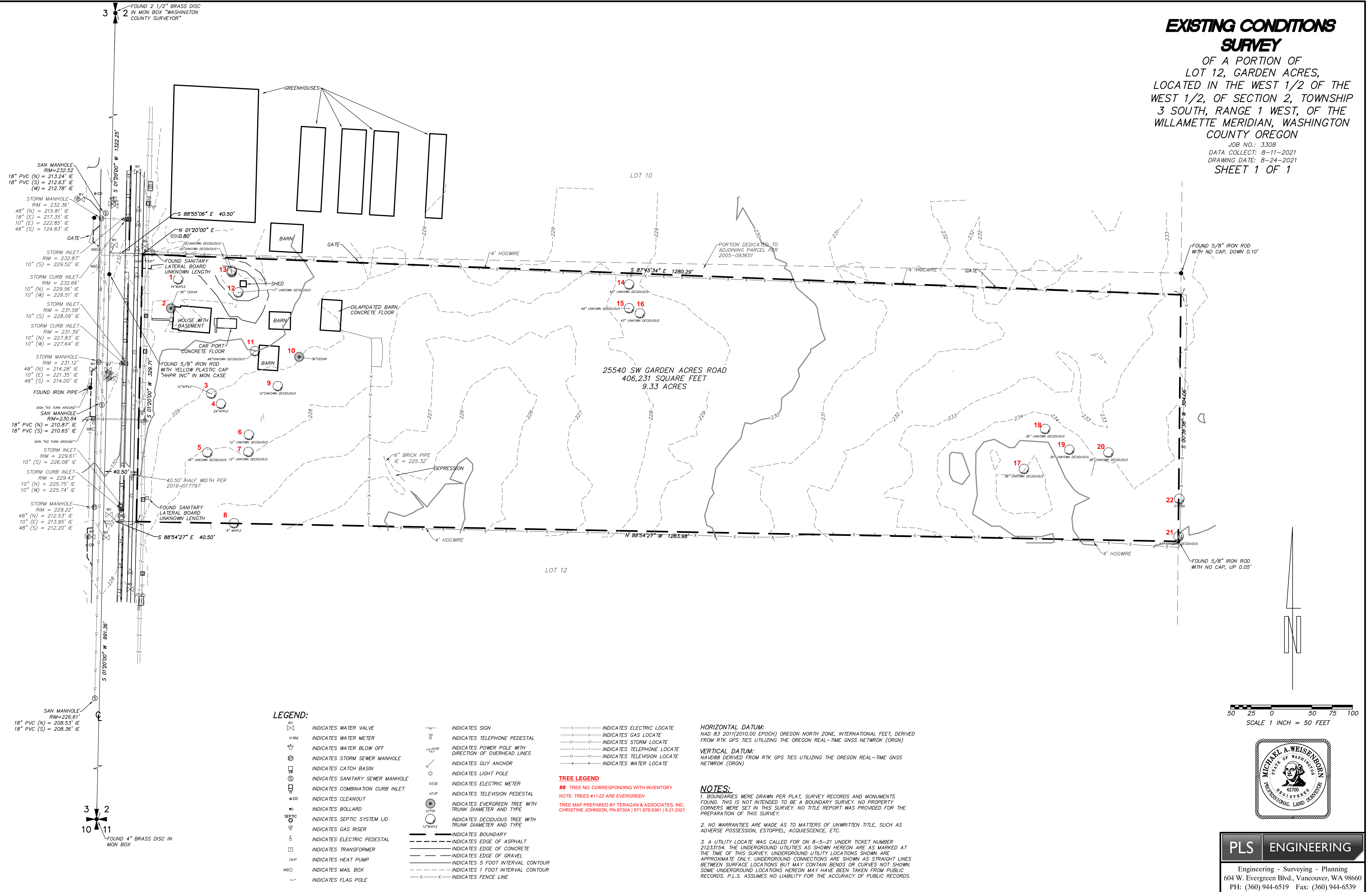
t	60	Douglas-fir (<i>Pseudotsuga menziesii</i>)	38	Fair	Fair	
t	61	Douglas-fir (<i>Pseudotsuga menziesii</i>)	38	Fair	Fair	
t	62	Douglas-fir (<i>Pseudotsuga menziesii</i>)	38	Fair	Fair	
t	63	Douglas-fir (<i>Pseudotsuga menziesii</i>)	38	Fair	Fair	

TREE MAP

EXISTING CONDITIONS SURVEY

OF A PORTION OF
LOT 12, GARDEN ACRES,
LOCATED IN THE WEST 1/2 OF THE
3 SOUTH, OF SECTION 2, TOWNSHIP
3 SOUTH, RANGE 1 WEST, OF THE
WILLAMETTE MERIDIAN, WASHINGTON
COUNTY OREGON

JOB NO.: 3308
DATA COLLECT: 8-11-2021
DRAWING DATE: 8-24-2021
SHEET 1 OF 1



LEGEND:

- | | | | |
|--|----------------------------------|--|---|
| | INDICATES WATER VALVE | | INDICATES SIGN |
| | INDICATES WATER METER | | INDICATES TELEPHONE PEDESTAL |
| | INDICATES WATER BLOW OFF | | INDICATES POWER POLE WITH DIRECTION OF OVERHEAD LINES |
| | INDICATES STORM SEWER MANHOLE | | INDICATES GUY ANCHOR |
| | INDICATES CATCH BASIN | | INDICATES LIGHT POLE |
| | INDICATES SANITARY SEWER MANHOLE | | INDICATES ELECTRIC METER |
| | INDICATES COMBINATION CURB INLET | | INDICATES TELEVISION PEDESTAL |
| | INDICATES CLEANOUT | | INDICATES EVERGREEN TREE WITH TRUNK DIAMETER AND TYPE |
| | INDICATES BOLLARD | | INDICATES DECIDUOUS TREE WITH TRUNK DIAMETER AND TYPE |
| | INDICATES SEPTIC SYSTEM LID | | INDICATES BOUNDARY |
| | INDICATES GAS RISER | | INDICATES EDGE OF ASPHALT |
| | INDICATES ELECTRIC PEDESTAL | | INDICATES EDGE OF CONCRETE |
| | INDICATES TRANSFORMER | | INDICATES EDGE OF GRAVEL |
| | INDICATES HEAT PUMP | | INDICATES 5 FOOT INTERVAL CONTOUR |
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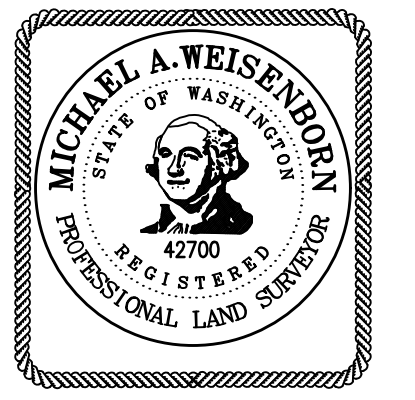
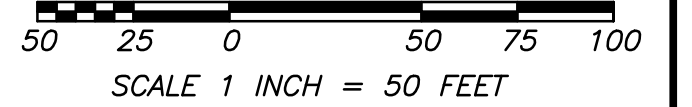
- | | |
|--|-----------------------------|
| | INDICATES ELECTRIC LOCATE |
| | INDICATES GAS LOCATE |
| | INDICATES STORM LOCATE |
| | INDICATES TELEVISION LOCATE |
| | INDICATES WATER LOCATE |

TREE LEGEND
TREE NO. CORRESPONDING WITH INVENTORY
NOTE: TREES #11-22 ARE EVERGREEN
TREE MAP PREPARED BY TERAGAN & ASSOCIATES, INC.
CHRISTINE JOHNSON, PN-8730A | 971.978.9381 | 9.21.2021

HORIZONTAL DATUM:
NAD 83 2011(2010.00 EPOCH) OREGON NORTH ZONE, INTERNATIONAL FEET, DERIVED FROM RTK GPS TIES UTILIZING THE OREGON REAL-TIME GNSS NETWORK (ORGN)

VERTICAL DATUM:
NAVD88 DERIVED FROM RTK GPS TIES UTILIZING THE OREGON REAL-TIME GNSS NETWORK (ORGN)

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PLS ENGINEERING
Engineering - Surveying - Planning
604 W. Evergreen Blvd., Vancouver, WA 98660
PH: (360) 944-6519 Fax: (360) 944-6539



Tree Inventory - 25540 SW Garden Acres Rd, Sherwood, OR 97140

Conducted on 9/21/2021

Tree No.	Common Name	Botanical Name	DBH* (in)	Crown Radius (ft)	Health **	Structural Condition **	Comments
1	bignia maple	<i>Acer macrophyllum</i>	32	25	Fair	Poor	
2	incense cedar	<i>Calocedrus decurrens</i>	32	0	Dead	Dead	
3	apple	<i>Malus domestica</i>	12	12	Fair	Poor	Thin, deadwood.
4	apple	<i>Malus domestica</i>	26	20	Poor	Poor	Diameter measured at 2.5', codominant leaders at 4', deadwood, thin.
5	English walnut	<i>Juglans regia</i>	15	20	Fair	Poor	Diameter measured at 2.75', multiple leaders at 4', grafted.
6	plum	<i>Prunus sp.</i>	13	12	Fair	Poor	Codominant leaders:8,8; split trunk, decay, broken branches.
7	plum	<i>Prunus sp.</i>	15	15	Good	Poor	Codominant leaders: 11,9,6; stem decay, broken branches, wounds.
8	Norway maple	<i>Acer platanoides</i>	7	5	Fair	Fair	Blackened bark, heavy sapsucker holes, deadwood.
9	oneseed hawthorn	<i>Crataegus monogyna</i>	15	10	Good	Poor	Diameter at ground level, multiple leaders 2-3" in diameter at 1' above ground level.
10	western redcedar	<i>Thuja plicata</i>	36	20	Dying	Very poor	Codominant leaders at 15', dead top, broken top, thin.
11	Douglas fir	<i>Pseudotsuga menziesii</i>	49	28	Good	Fair	Large 3'x1' mechanical damage on west side of trunk.
12	spruce	<i>Picea pungens</i>	17	12	Good	Good	
13	cherry	<i>Prunus sp.</i>	23	8	Poor	Poor	Codominant leaders: 18,15; twist trunk, dead top.
14	Douglas fir	<i>Pseudotsuga menziesii</i>	46	0	Dead	Dead	
15	Douglas fir	<i>Pseudotsuga menziesii</i>	49	0	Dead	Dead	
16	Douglas fir	<i>Pseudotsuga menziesii</i>	44	0	Dead	Dead	
17	Douglas fir	<i>Pseudotsuga menziesii</i>	38	18	Good	Fair	Sweeping trunk, lost and regrew top.
18	Douglas fir	<i>Pseudotsuga menziesii</i>	36	18	Good	Good	
19	Douglas fir	<i>Pseudotsuga menziesii</i>	38	20	Good	Good	
20	Douglas fir	<i>Pseudotsuga menziesii</i>	39	20	Good	Good	
21	Douglas fir	<i>Pseudotsuga menziesii</i>	36	22	Good	Fair	Unbalanced to the west.
22	Douglas fir	<i>Pseudotsuga menziesii</i>	37	20	Good	Fair	Unbalanced to the west.

* **DBH (Diameter at Breast Height).** The trunk diameter measured at industry standard, 4.5 feet above ground.

** **Health and Structural Condition** ratings range from Good, Fair, Poor, Very Poor, to Dead.

Appendix E: Tree Protection Specifications

It is critical that the following steps be taken to ensure that they are retained and protected.

Before Construction Begins

2. Notify all contractors of the tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection. It can only take one mistake with a misplaced trench or other action to destroy the future of a tree.

- a. Hold a Tree Protection meeting with all contractors to fully explain goals of tree protection.
- b. Have all subcontractors sign memoranda of understanding regarding the goals of tree protection. Memoranda to include penalty for violating tree protection plan. Penalty to equal appraised value of tree(s) within the violated tree protection zone per the current Trunk Formula Method as outline by the Council of Tree & Landscape Appraisers current edition of the *Guide for Plant Appraisal*.
- c. Trees that require pruning to provide clearance shall be pruned prior to the start of the project to avoid damaged to the tree parts. The pruning shall adhere to ANSI a300 standards, and the project arborist should be onsite to oversee the activities.

3. Fencing.

- a. Establish fencing around each tree or grove of trees to be retained as shown on the tree protection site plan.
- b. The fencing is to be put in place before the ground is cleared to protect the trees and the soil around the trees from any disturbance at all. Exception is if trees are to be removed that are located within the tree protection zones, they should be removed prior to installing the tree protection fencing without the use of mechanized wheeled or tracked equipment.
- c. Fencing is to be placed at the edge of the root protection zone as shown on the Tree Protection Plan (Appendix C). Root protection zones are established by the project arborist based on the needs of the site and the tree to be protected.
- d. "Protection fencing consisting of a minimum 4-foot-high metal fencing, secured with 6-foot metal posts shall be established at the edge of the root protection zone and permissible encroachment area on the development site. Existing structures and/or existing secured fencing at least 3.5 feet tall can serve as the required protective fencing." If construction fencing is used it is recommended that the panels are secured to prevent movement of the fencing during construction.
- e. Fencing is to remain in the position that is established by the project arborist and not to be moved without written permission from the project arborist until the end of the project.

4. Signage

- a. All tree protection fencing should have signage clearly indicating that the area is a vegetation protection zone. (Appendix F).
- b. Signage should be placed as to be visible from all sides of a tree protection area and spaced every 35 feet.

During Construction

5.1 Protection guidelines within the Root Protection Zone

- a. No traffic shall be allowed within the root protection zone. No vehicle, heavy equipment, or even repeated foot traffic.
- b. No storage of materials including but not limited to soil, construction material, or waste from the site.
- c. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
- d. Construction trailers are not to be parked / placed within the root protection zone without written clearance from the project arborist.
- e. No vehicles shall be allowed to park within the root protection areas.
- f. No activity shall be allowed that will cause soil compaction within the root protection zone.

6. Tree protection. Retained trees shall be protected from any cutting, skinning, or breaking of branches, trunks, or roots. The project arborist shall be onsite to observe ground disturbance within 12X the diameter of the tree.

7. Root pruning. Any roots that are to be cut from existing trees that are to be retained, the project consulting arborist shall be notified to evaluate, document, and oversee the proper cutting of roots with sharp cutting tools. Cut roots are to be immediately covered with soil or mulch to prevent them from drying out.

8. Grade changes. No grade change should be allowed within the root protection zone.

9. Root protection zone changes. Any necessary deviation of the root protection zone shall be cleared by the project consulting arborist in writing.

10. Watering. Provide water to trees during the summer months as needed. Tree(s) that will have had root system(s) cut back will need supplemental water to overcome the loss of ability to absorb necessary moisture during the summer months.

11. Utilities. Any necessary passage of utilities through the root protection zone shall be by means of tunneling under roots by hand digging or boring.

12. Re-inspection of fencing. Tree protection fencing is subject to inspection by the city. The project arborist highly recommends monthly inspections of tree protection fencing to ensure compliance with the permit and protection of the trees.

After Construction

14. Fences are to remain standing until the completion of the project.
15. Carefully landscape around the tree. Do not allow trenching within the root protection zone which still exists even though the tree protection fencing has been removed for landscape installation. Carefully plant new plants within the root protection zone. Avoid cutting the roots of the existing trees.
16. Do not plan for irrigation within the root protection zone of existing trees unless it is drip irrigation for a specific planting or cleared by the project arborist.
17. Provide for or ensure that adequate drainage will occur around the retained trees.
18. Pruning of the trees should be completed as one of the last steps of the landscaping process before the final placement of trees, shrubs, ground covers, mulch, or turf.
19. Trees that are retained may need to be fertilized as called for by the project arborist if acceptable thresholds are exceeded when determined by use of laboratory testing.