



Todd Prager & Associates
LLC

MEMORANDUM

DATE: May 10, 2023
TO: Kelly O’Neill Jr. (City of Sandy)
FROM: Todd Prager, RCA #597, ISA Board Certified Master Arborist
RE: Tree Variance Review for Cascade Creek Apartments





Background

This memorandum is a summary of my review of the proposed tree variance for the Cascade Creek Apartments project at 38272 OR-211 in Sandy, Oregon.

The City of Sandy requested a third-party review of the proposed tree variance to address the following items:

- The proposed preservation and removal of trees, with particular attention to the area around the existing structures and along Highway 211; and
- A review of the proposed landscaping plan and recommendations regarding the proposed tree replacement plan for tree removal.

My review is based on the arborist report dated December 22, 2022 by Washington Forestry Consultants, Inc. along with the tree removal variance narrative dated January 2, 2023 by BCRA, the civil plan set dated January 9, 2023, and the landscape plan set dated February 17, 2023 by Nature by Design, Inc. I excerpted sheet C-102 from the civil plan set and Table 3 from the arborist report and added the following markups in Attachment 1 of this memorandum to aid in my review:

-  - Save tree in poor condition
-  - Potential retention tree (11-inch+ DBH and good condition)
-  - Typical root protection zone radius of one foot per inch of DBH
-  - Typical minimum construction setback radius of 0.5 feet per inch of DBH

Tree Preservation and Removal Review

The arborist report dated December 22, 2022 by Washington Forestry Consultants, Inc. includes the size (trunk diameter, DBH), species, conditions, and locations of the trees within and directly adjacent to the site. This data was used as the basis for my review of the proposed tree preservation and removal.

Eligible Retention Trees

Sandy Municipal Code (SMC) Sec. 17.54.140(C) – *BVO environmental standards* supersedes Chapter 17.102 - *Urban Forestry*. The BVO standards require the preservation of six trees over 11-inch DBH per acre. City of Sandy staff practice is to apply the preservation standard to the gross site acreage (rather than the net acreage after right-of-way dedication). The gross site acreage is 8.83 acres, and not the net acreage of 6.95 acres. Therefore, a total of 53 preservation trees are required to be retained.

The City of Sandy's administrative practice is to require preservation trees to be in good health condition. In reviewing Table 3 of the arborist report, there are 11 potential preservation trees at the site (trees 10, 11, 12, 13, 34, 35, 57, 60, 66, 67, and 68, which I highlighted in yellow in Attachment 1). Four of these trees (trees 35, 60, 66, and 68) are proposed for preservation while the remaining seven trees will be removed. Of the seven trees proposed for removal, four are not practicable to retain because they are within the footprint of right-of-way improvements along Highway 211 (trees 12, 13, 34, and 67) and one is not practicable to retain because it is near the center of a proposed parking lot (tree 11). Two of the trees may be practicable to retain because they are at the edges of a proposed parking lot (trees 10 and 57). These trees should be further evaluated by the applicant for retention with a modified site design which could include reducing adjacent parking stall depth, eliminating adjacent parking stalls, and/or shifting or adding parking lot islands so they are adjacent to the trees.

Findings and Recommendations: The gross site acreage is 8.83 acres and the BVO standards require the preservation of six trees per acre. Therefore, a total of 53 preservation trees are required to be retained. There are 11 possible preservation trees at the site. Four are proposed for retention, five are not practicable to retain based on their locations relative to right of way and parking lot improvements, and two may be practicable to retain with minor design changes. The applicant should further evaluate design options to retain trees 10 and 57.

Trees to be Retained Around Existing Structures and Along Highway 211

In addition to the preservation trees listed as saved by the applicant, there are several other trees that are currently proposed to be retained around the existing structures and along Highway 211. These trees are not eligible preservation trees because they are either not in good condition or they are less than 11-inch DBH. The applicant may decide to retain these additional trees, but they also have the option of removing them.

Ten of the trees to be retained are currently in poor condition. These trees are highlighted in red in Attachment 1. The applicant team should coordinate with the

project arborist to evaluate whether trees in poor condition should be retained or if they should take the opportunity to remove them with proposed construction. Consideration should be given to the risks to people and property associated with retaining these and other trees at the site.

Findings and Recommendations: Ten trees to be retained are in poor condition and eligible for removal. The applicant team should coordinate with the project arborist to evaluate whether trees in poor condition should be retained or if they should take the opportunity to remove them with proposed construction.

Protection of Tree 35

Tree 35 is proposed to be retained but does not have tree protection fencing shown for its root protection zone. In reviewing sheet C-501 from the civil plan set, there is a new sanitary sewer service line proposed within its root protection zone. Based on the potential impacts to the tree, tree protection fencing should be provided for tree 35. The applicant team should also coordinate with the project arborist to determine if an alternate route for the sanitary sewer service line is possible to better protect the tree.

Findings and Recommendations: Tree 35 does not have tree protection fencing and there is a sanitary sewer service line proposed within its root protection zone. Tree protection fencing should be provided for tree 35. The applicant team should determine if an alternate route for the sanitary sewer service line is possible to better protect the tree.

Tree Replacement Plan Review

Tree replacement is required at a 2:1 ratio by Sec. 17.102.70.A - *Variances* when the retention standards of Sec. 17.54.140(C) – *BVO environmental standards* cannot be met. For this site, there are a total of 53 preservation trees required but only 11 possible preservation trees are at the site. The current proposal is to retain four preservation trees and potentially retain an additional two preservation trees. Therefore, there are 49 to 47 additional preservation trees required.

City of Sandy staff's administrative practice is to require a 2:1 tree replacement ratio for deficient sites based on the preservation tree deficit. Therefore, 94 to 98 replacement trees are required based on the final number of preservation trees (i.e., 49 or 47 tree deficit \times 2).

Staff allows retained trees that are less than 11-inch DBH and in good condition to be eligible for mitigation credit. Tree 70 is the only retained tree on site that fits these criteria and is therefore eligible for replacement tree credit. However, this tree has a sidewalk to be removed within its root zone. For this tree to receive mitigation credit, the project arborist should be required to be onsite and document the proper protection of the tree during demolition work in its root zone. If tree 70 is retained and properly protected during demolition, 93 to 97 replacement trees would be required to be planted.

The proposed landscape plan includes 56 native replacement trees that are proposed for meeting the criteria of Sec. 17.102.70.A. This results in a deficit of 37 to 41 replacement trees depending on the final tree preservation plan. In addition, several of the replacement trees are closely spaced and will result in excessive competition for space and light that will impact their long-term viability. Spacing of trees should be increased to at least 15 feet on center to be eligible for replacement tree credit. Tree spacing at 15 feet on center is the average minimum spacing required for reforestation according to Oregon's Forest Practices Act for high site classes which include the subject site.¹

Findings and Recommendations: Four to six preservation trees will be retained for a site which requires 53 preservation trees. Therefore 47 to 49 additional preservation trees are required depending on the final number of preservation trees that are retained. A 2:1 tree replacement ratio applies to deficient sites, so 94 to 98 replacement trees are required. The applicant has proposed 56 native replacement trees and will preserve one tree that is less than 11-inch DBH and in good condition that may serve as a replacement tree if protected under arborist supervision during demolition work. Therefore, 37 to 41 additional replacement trees are required. The applicant should provide 37 to 41 additional native replacement trees and ensure a minimum spacing of at least 15 feet on center. Non-native trees in the proposed landscape plan could be replaced with suitable native species to meet the tree replacement requirement.

Conclusion

Based on my review of the tree variance for Cascade Creek Apartments, I recommend the following:

- Further evaluate design options to retain trees 10 and 57;
- Coordinate with the project arborist to evaluate whether trees in poor condition should be retained;
- Provide protection fencing for tree 35 and determine if an alternate route for the sanitary sewer service line to avoid the tree's root zone is possible;
- Require the project arborist to be onsite and document the proper protection of tree 70 during demolition work in its root zone for it to receive credit as a mitigation tree; and
- Provide 37 to 41 additional native replacement trees and ensure a minimum spacing of at least 15 feet on center for all replacement trees.

¹ Logan, R.. 2018. Oregon's Forest Protection Laws – An Illustrated Manual, 3rd Edition. Available from the Oregon Forest Resources Institute, 317 SW Sixth Ave., Suite 400, Portland OR 97204, and <https://oregonforests.org/publications>.

Please contact me if you have questions, concerns, or need any additional information.

Sincerely,

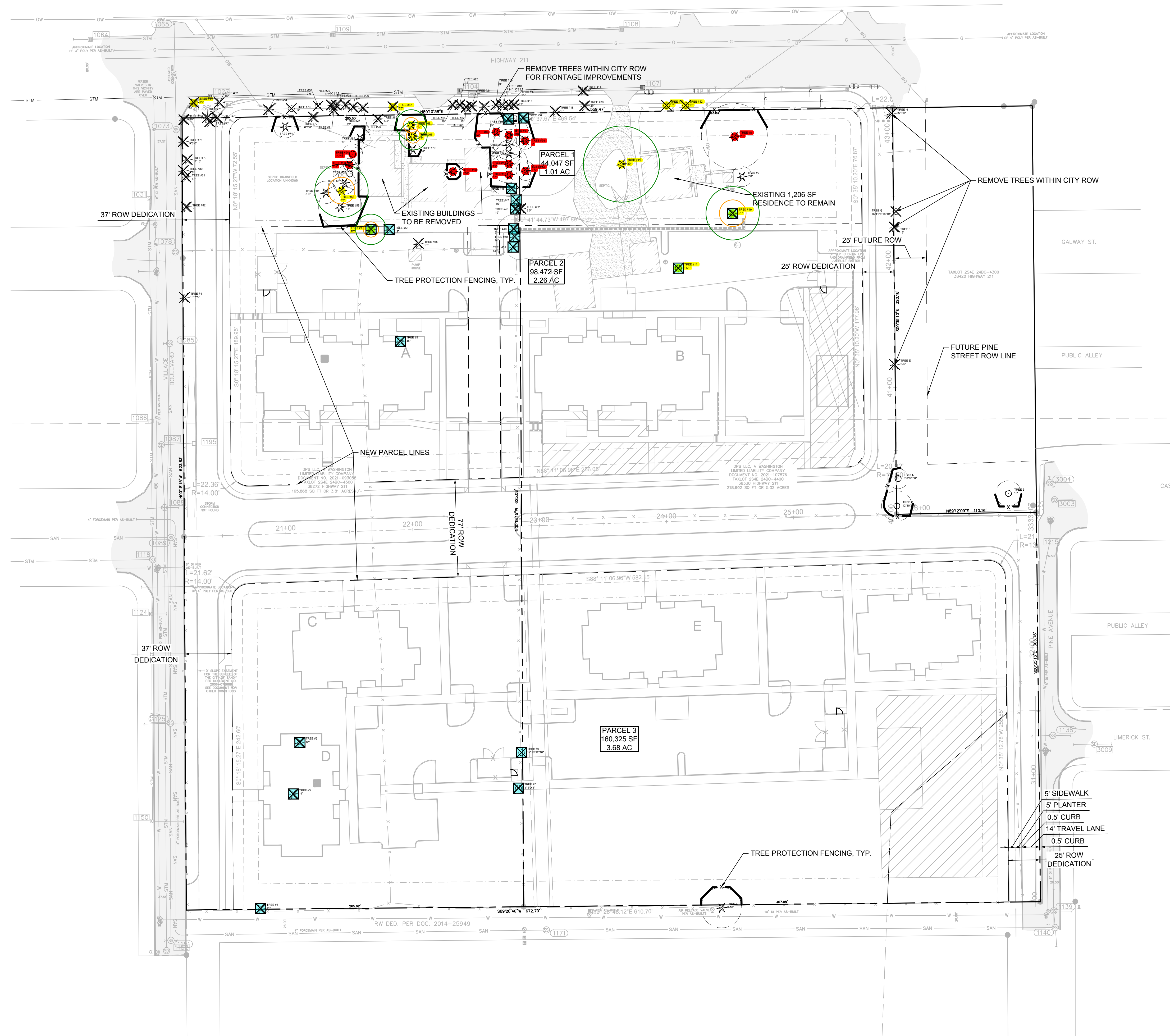


Todd Prager

*ASCA Registered Consulting Arborist
ISA Board Certified Master Arborist, WE-6723B
ISA Qualified Tree Risk Assessor
AICP, American Planning Association*

Attachment 1 – Redlined sheet C-102 from civil plans and Table 3 from arborist report

Attachment 1



LEGEND

- REMOVE EXISTING TREE
- TREE PROTECTION FENCE
- RETAINED TREE CRITICAL ROOT ZONE
- PROPERTY LINE
- TREE REMOVAL REQUIRING MITIGATION
- EXISTING TREE WITH CALCULATED DBH. SEE GENERAL NOTE 1

GENERAL NOTE:
1. TREE LOCATIONS ON PLAN HAVE NOT BEEN SURVEYED. LOCATIONS REFLECT TREE PROTECTION PLAN REPORT PREPARED BY WASHINGTON FORESTRY CONSULTANTS, INC., DATED 12/22/2022.

CODE REQUIREMENTS:
SMC 17.54.140
TREE RETENTION = 6 TREES/AC * 6.95 AC = 42 TREES RETAINED WITH DBH >11"
A VARIANCE WILL BE REQUESTED PER SMC SEC. 17.102.70 TO FULFILL TREE RETENTION REQUIREMENTS AS TREE RETENTION REQUIREMENTS CANNOT BE MET ON-SITE.
SMC 17.102.10
TREES ARE DEFINED AS "ANY LIVING, STANDING, WOODY PLANT HAVING A TRUNK 11 INCHES DBH OR GREATER".
SMC 17.102.20.B.1
"TREE REMOVAL AS REQUIRED BY THE CITY OR PUBLIC UTILITY FOR THE INSTALLATION OR MAINTENANCE OR REPAIR OF ROADS, UTILITIES OR STRUCTURES" ARE "EXEMPT FROM TREE RETENTION REQUIREMENTS".

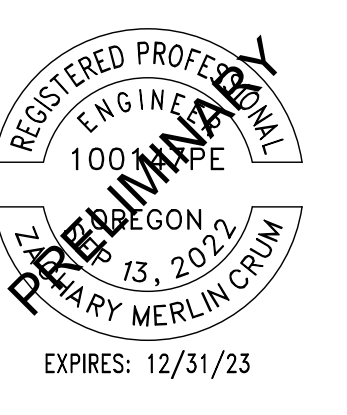
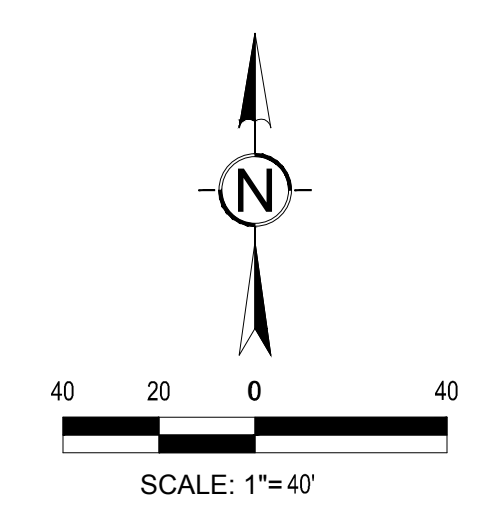
EXISTING TREE COUNT:
TREES IN RIGHT-OF-WAY: 36
TREES ON-SITE: 38
TREES OFF-SITE: 8
TOTAL TREES: 82

PROPOSED TREE RETENTION/REMOVAL:
TOTAL TREES ON-SITE: 82 TREES
TOTAL TREES REMOVED: 58 TREES
TOTAL TREES RETAINED: 24 TREES

EXEMPTIONS (SEE TREE VARIANCE NARRATIVE FOR MORE INFORMATION):
<11" DBH REMOVED (EXEMPT PER SMC 17.102.10); 17 TREES
RIGHT-OF-WAY REMOVED (EXEMPT PER SMC 17.10.20(B)(1)); 23 ADDITIONAL TREES, INCLUDES OFF-SITE TREES E, F, G, AND H.
TOTAL EXEMPT TREES: 17 + 23 = 40 TREES
TREE REMOVAL REQUIRING MITIGATION: 58 - 40 = 18 TREES

TREE MITIGATION
SMC 17.102.70
MINIMUM MITIGATION RATIO: 2:1 RATIO
MITIGATION TREES REQUIRED: 18 X 2 = 36 MITIGATION TREES
REFER TO LANDSCAPE PLANS FOR MITIGATION TREES TYPES AND PLACEMENT.

- Save tree in poor condition
- Potential retention tree (11-inch+ DBH and good condition)
- Typical root protection zone radius of one foot per inch of DBH
- Typical minimum construction setback radius of 0.5 feet per inch of DBH



PROJECT:
SHEET SET CREATED BY RB 09.16.2022
CASCADE CREEK MULTI FAMILY
38330 HWY 211
SANDY, OR 97055

REVISIONS

NO.	DATE	DESCRIPTION

DATE: 01.09.2023
BCRA NO: 21129
DRAWN BY: RJB, SM DESIGNED BY: SM
REVIEWED BY: ZMC
SHEET TITLE: TREE PROTECTION PLAN



C-102
LAND-USE

DATE PLOTTED: 3/7/2023 12:16:38 PM FILENAME: 21129C-10-102.DWG BY: ---

#	Species	DBH (in)	Calculated DBH for Multi-Stem Trees (in)*	Condition	Savable Based on Tree Condition Only? Yes or No	Project Plan Save or Remove	Minimum Root Protection Zone Radius if Saved (ft)	Location	Reason for Removal	Significant Tree ≥8" DBH? Yes or No
1	Douglas-fir	10,7,5	14.3	Very Poor; 3 stems;	Yes	Remove		On R/W	On R/W	Yes
2	Cherry	12		Fair; Never pruned;	Yes	Remove		Buildable Area	Footprint	Yes
3	Cherry	14		Fair; Never pruned;	Yes	Remove		Buildable Area	Footprint	Yes
4	Douglas-fir	11		Fair;	Yes	Remove	10 ft.	On R/W	Impacted by construction	Yes
5	Douglas-fir	45		Very Poor; Very severe decline;	No	Remove		Buildable Area	Footprint	Yes
6	Bigleaf maple	12,16,12,10	25.4	Very Poor; Decay in stems;	No	Remove		Buildable Area	Footprint	Yes
7	Hawthorne	4 to 8	19.9	11 stems; Very Poor;	No	Remove		Buildable Area	Footprint	Yes
8	Austrian pine	26		Poor;	No	Save		East House Lot		Yes
9	Photina	6,8	10	Fair;	Yes	Save		East House Lot		Yes
10	Blue atlas cedar	21		Good;	Yes	Remove		East House Lot	Wall impacts	Yes
11	Flowering Cherry	11.1		Good;	Yes	Remove		Buildable Area	Footprint	Yes
12	Flowering Cherry	15		Good;	Yes	Remove		On R/W	On R/W	Yes
13	Flowering Cherry	15		Good;	Yes	Remove		On R/W	On R/W	Yes
14	Douglas-fir	3		Good;	Yes	Remove		On R/W	On R/W	No
15	Ponderosa pine	10		Very Poor;	No	Remove		On R/W	On R/W	Yes
16	Ponderosa pine	13		Very Poor;	No	Remove		On R/W	On R/W	Yes
17	Ponderosa pine	15		Poor;	No	Remove		On R/W	On R/W	Yes
18	Ponderosa pine	14		Fair;	Yes	Remove		On R/W	On R/W	Yes
19	Ponderosa pine	9		Fair;	Yes	Remove		On R/W	On R/W	Yes
20	Ponderosa pine	11		Fair;	Yes	Remove		On R/W	On R/W	Yes
21	Ponderosa pine	21		Poor;	No	Remove		On R/W	On R/W	Yes
22	Ponderosa pine	16		Fair;	Yes	Remove		On R/W	On R/W	Yes
23	Ponderosa pine	11		Fair;	Yes	Remove		On R/W	On R/W	Yes
24	Ponderosa pine	10		Poor; Multiple tops;	No	Remove		On R/W	On R/W	Yes
25	Ponderosa pine	8		Very Poor;	No	Remove		On R/W	On R/W	Yes
26	Ponderosa pine	17		Fair;	Yes	Remove		On R/W	On R/W	Yes
27	Ponderosa pine	24		Fair;	Yes	Remove		On R/W	On R/W	Yes
28	Ponderosa pine	8,8,8	13.9	Very Poor;	No	Remove		On R/W	On R/W	Yes
29	Austrian pine	9,8	12	Very Poor;	No	Remove		On R/W	On R/W	Yes

Cascade at Bournstadt Village

Master Tree List for Entire Project Area

Attachment 1

#	Species	DBH (in)	Calculated DBH for Multi-Stem Trees (in)*	Condition	Savable Based on Tree Condition Only? Yes or No	Project Plan Save or Remove	Minimum Root Protection Zone Radius if Saved (ft)	Location	Reason for Removal	Significant Tree ≥8" DBH? Yes or No
30	Cherry	12,9	15	Very Poor; Decay in stem;	No	Remove		On R/W	On R/W	Yes
31	Austrian pine	9		Poor;	No	Remove		On R/W	On R/W	Yes
32	Douglas-fir	10		Good;	Yes	Remove		On R/W	On R/W	Yes
33	Douglas-fir	10		Good;	Yes	Remove		On R/W	On R/W	Yes
34	Douglas-fir	13		Good;	Yes	Remove		On R/W	On R/W	Yes
35	Douglas-fir	30		Good;	Yes	Save		East House Lot		Yes
36	Western white pine	25		Fair; Codom leader;	Yes	Remove		On R/W	On R/W	Yes
37	Douglas-fir	26		Fair; Pistil butt;	Yes	Remove		West House Lot	Grading	Yes
38	Pacific yew	6,6	8.5	Very Poor; Falling over;	No	Save		West House Lot		Yes
39	Ponderosa pine	13		Poor;	No	Remove		On R/W	On R/W	Yes
40	Ponderosa pine	16		Poor;	No	Save		West House Lot		Yes
41	Ponderosa pine	16		Poor; Codom stems;	No	Save		West House Lot		Yes
42	Ponderosa pine	12		Fair; Leaner;	Yes	Save		West House Lot		Yes
43	Ponderosa pine	10		Fair;	Yes	Save		West House Lot		Yes
44	Ponderosa pine	15		Poor; Codom stems;	No	Save		West House Lot		Yes
45	Ponderosa pine	17		Poor; Codom stems;	No	Save		West House Lot		Yes
46	Ponderosa pine	16		Poor; Codom stems;	No	Remove		West House Lot	Grading	Yes
47	Ponderosa pine	16		Poor; Codom stems;	No	Remove		West House Lot	Grading	Yes
48	Ponderosa pine	19		Very Poor; Codom stems;	No	Remove		West House Lot	Grading	Yes
49	Ponderosa pine	15		Poor; Codom stems;	No	Remove		Buildable Area	Footprint	Yes
50	Ponderosa pine	14		Poor;	No	Remove		Buildable Area	Footprint	Yes
51	Ponderosa pine	13		Very Poor; Top broken out;	No	Remove		Buildable Area	Footprint	Yes
52	Flowering plum	8.5		Very Poor;	No	Remove		East House Lot	Grading	Yes
53	Flowering plum	7.5		Very Poor;	No	Save		East House Lot		No
54	Flowering plum	7		Very Poor;	No	Save		East House Lot		No
55	Western redcedar	10		Good;	Yes	Remove		Buildable Area	Footprint	Yes
56	Deodar cedar	12		Fair;	Yes	Remove		Buildable Area	Footprint	Yes
57	Douglas-fir	12		Good;	Yes	Remove		Buildable Area	Footprint	Yes
58	Pt. Orford Cedar	17		Fair;	Yes	Save		West House Lot		Yes
59	Douglas-fir	8-9		Very Poor; Suppressed;	No	Save		West House Lot		Yes
60	Douglas-fir	21		Good;	Yes	Save		West House Lot		Yes

#	Species	DBH (in)	Calculated DBH for Multi-Stem Trees (in)*	Condition	Savable Based on Tree Condition Only? Yes or No	Project Plan Save or Remove	Minimum Root Protection Zone Radius if Saved (ft)	Location	Reason for Removal	Significant Tree ≥8" DBH? Yes or No
61	Blue atlas cedar	9		Fair;	Yes	Save		West House Lot		Yes
62	Blue atlas cedar	9		Fair;	Yes	Save		West House Lot		Yes
63	Blue atlas cedar	4,5	6.4	Very Poor;	No	Save		West House Lot		No
64	Flowering Cherry	8,7,8	13.3	Very Poor;	No	Save		West House Lot		Yes
65	Deodar cedar	8		Fair;	Yes	Save		West House Lot		Yes
66	Douglas-fir	11		Good;	Yes	Save		West House Lot		Yes
67	Douglas-fir	25		Good;	Yes	Remove		On R/W	On R/W	Yes
68	Douglas-fir	12		Good;	Yes	Save		West House Lot		Yes
69	Ponderosa pine	8.4	8.9	Fair;	Yes	Remove		West House Lot	Grading	Yes
70	Shore pine	6		Good;	Yes	Save		West House Lot		No
71	Douglas-fir	6		Good;	Yes	Remove		On R/W	On R/W	No
72	Flowering plum	6,6,4	9.4	Very Poor;	No	Remove		West House Lot	Grading	Yes
73	Douglas-fir	9		Fair;	Yes	Remove		On R/W	On R/W	Yes
74	Douglas-fir	9		Fair;	Yes	Save		West House Lot		Yes
75	Flowering Cherry	10,6	11.7	Very Poor;	No	Remove		On R/W	On R/W	Yes
76	Apple	12		Very Poor;	No	Remove		On R/W	On R/W	Yes
77	Apple	6		Very Poor;	No	Remove		On R/W	On R/W	No
78	Apple	9,6,6	12.4	Very Poor;	No	Remove		On R/W	On R/W	Yes
79	Ponderosa pine	17,16	23.3	Very Poor; Codom stems;	No	Remove		On R/W	On R/W	Yes
80	Scotch pine	9,6	10.8	Poor;	No	Remove		On R/W	On R/W	Yes
81	Scotch pine	17		Fair;	Yes	Remove		On R/W	On R/W	Yes
82	Ponderosa pine	7		Very Poor;	No	Remove		On R/W	On R/W	No

*Calculated DBH for multi-stem trees = Square Root of the sums of the individual stem diameters squared.

**Shaded trees are non-significant.