APPENDIX B
ARBORIST REPORT

David J. Powers & Associates

Tree Report
Jefferson Union High School

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Tree Report

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Introduction and Overview

David J. Powers & Associates is preparing environmental documents for a planned re-development of a section of the Jefferson Union High School campus in Daly City CA. Current site use for the project area consists largely of paved parking and associated landscape. David J. Powers requested that HortScience | Bartlett Consulting, Divisions of the F.A. Bartlett Tree Expert Co., assess the health and structural condition of trees, review proposed project plans, and provide preliminary recommendations for tree preservation.

This report presents the following information:

1. Evaluate tree health and structural condition.
2. Evaluate impacts to trees from the proposed project.
3. Recommend action based on impacts to trees.
4. Provide guidelines for tree preservation.

The City of Daly City Municipal Code Chapter 12.40 (Urban Forestry) defines elements of the City's tree management program related to publicly owned trees such as those within the street right-of-way. Section 12.42 includes the following definitions:

- **Historic or heritage tree** means a tree of local historical interest or unusual age, variety, structure or size. .

- **Street tree** includes any woody perennial plant which when mature has the following characteristics: a single main axis or stem commonly achieving fifteen feet in height, and capable of being shaped and pruned to develop a branch free trunk at least nine feet in height or capable of being pruned in such a manner that the branching will grow parallel with the sidewalk or street which is growing upon any parkway, easement, right-of-ways or other publicly-owned area.

- **Tree** includes any woody perennial plant having a single main axis or stem commonly achieving fifteen feet in height.

Assessment Methods

Trees were assessed in December 2018. Assessment procedure consisted of a visual inspection from the ground and included the following steps:

1. Identifying the tree as to species.
2. Attaching a numerically coded metal tag on the trunk of each tree.
3. Recording the tree's location on a map.
4. Measuring the trunk diameter at a point 54-inches above grade.
5. Evaluating the health and structural condition using a scale of 0 – 5 where 0 = dead and 5 = tree in excellent condition.
6. Describing defects in structure, insects or diseases and other aspects of development.
7. Assessing tree suitability for preservation as high, moderate or low.

Description of Trees

One hundred and forty-three (143) trees were evaluated, representing nine species (Table 1). With the exception of the two willows, all trees had been planted as part of landscape development. The willows are native to the Daly City area. Trees were located along Serramonte Blvd., surrounding the parking areas, and near buildings.

Table 1. Tree condition and frequency of occurrence. Jefferson Union High School. David J. Powers & Associates. Daly City CA.

Common name	Scientific name	Condition					No. of Trees
		Dead (0)	Poor (1,2)	Fair (3)	Good (4)	Excell. (5)	
Purple Bailey acacia	*Acacia baileyana* 'Purpurea'	--	--	--	1	1	2
Sydney golden wattle	*Acacia longifolia*	--	--	1	--	--	1
Monterey cypress	*Hesperocyparis macrocarpa*	--	21	16	--	1	38
Leptospermum	*Leptospermum laevigatum*	--	--	--	1	--	1
Pacific wax myrtle	*Myrica californica*	--	--	--	1	--	1
Monterey pine	*Pinus radiata*	2	32	24	16	8	82
Douglas-fir	*Pseudotsuga menziesii*	--	--	1	--	--	1
Willow	*Salix* sp.	--	--	2	--	--	2
Coast redwood	*Sequoia sempervirens*	--	--	1	9	5	15
Total, all trees assessed		**2**	**53**	**45**	**28**	**15**	**143**

Monterey pine was the most frequently occurring species with 82 trees (57% of the total). Pines formed a buffer planting between Serramonte Blvd. and the campus (Photo 1). This planting included steep slopes. Pines were also present along the west side of the site. Trees ranged from young to mature in development. Trunk diameters varied from four- to 51-inches. Thirteen of 82 trees had more than one stem that arose close to ground level. Approximately 50% of trees were 25-inches or smaller.

Tree condition was variable. Monterey pines #22 and 70 were dead. Thirty-two trees were in poor condition while 24 were fair. Sixteen pines were in good condition while trees #21, 36, 69, 71, 73, 79, and 82 were excellent. As a general observation, tree condition was related to trunk diameter: smaller trees were in better condition than larger. This is not surprising given the intense disease and insect pressure faced by this species. Factors important in determining tree condition included trunk orientation (lean, bow, sweep), the presence of two more stems, asymmetric or suppressed form, presence of pine pitch canker (*Fusarium circinatum*) and red turpentine beetle (*Dendroctonus valens*), and overall tree vigor.

Photo 1. Monterey pine was the most frequently occurring species at the site. **Left**: Trees #39 – 43 were located along the west side of the site. **Right**: Trees #128 to 139 formed a buffer between Serramonte Blvd. and the east parking area.

Thirty-eight (38) Monterey cypresses were present (Photo 2). Cypresses were present in two locations: 1) a long double row between the two entrances and 2) a double row in front of one of the buildings.

- The first row (trees #83 – 105) had a north-south orientation. Trees had been topped below 10-feet and allowed to resprout. Most trees had multiple stems that arose close to the ground. Condition was either poor or fair. Trunk diameters ranged from 12- to 35-inches.

- The second row (#106 to 120) was oriented to the east and west. Trees had been topped, allowed to resprout, then crown reduced. Tree condition was poor. Trunk diameters ranged from 16- to 28-inches.

Photo 2. Monterey cypress trees were located in two areas. **Left**: The north-south oriented row in the center of the site. **Right**: The east-west oriented row north of one of the existing buildings.

Fifteen coast redwoods were located on the east side of the building in the southwest corner of the site, west of Campus Drive. Trees were semi-mature in development. Trunk diameters ranged from 5- to 15-inches. Nine redwoods were in good condition and five were excellent. Redwood #53 appeared to have been hit by a falling tree and was in fair condition.

No other species was represented by more than two trees. Included in this group were:

- Douglas-fir #65 was a young tree, 8-inches in diameter, with a short squat form. Tree condition was fair.

- Leptospermum #121 had approximately 30 stems seven-inches and smaller. Stems originated at ground level. The plant gave the appearance of a large shrub whose lower branches had been removed. Trees condition was good.

- Pacific was myrtle #50 was a small multistem shrub in good condition.

- Purple Bailey acacia #64 and 66 were small trees in the southwest area of the site. Both trees were semi-mature in development. Tree #64 was in good condition while #66 was excellent.

- Sydney golden wattle #78 was a rangy, multi-stem shrub in fair condition.

- Willows #54 and 55 were located in the southwest area of the site. Both had the typical form and structure of the species. Both were in fair condition.

Descriptions of individual trees are included in the **Tree Assessment Form**. Tree trunk locations are found on the **Tree Assessment Map**.

Suitability for Preservation

Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape. Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. Evaluation of suitability for preservation considers several factors:

- **Tree health**
  Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. Monterey cypress and Monterey pine are very sensitive to change while coast redwood is tolerant.

- **Tree age and longevity**
  Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Species invasiveness**
  Species which spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (www.cal-ipc.org) lists species identified as having being invasive. Daly City is part of the Central West Floristic Province. Bailey acacia is listed as invasive.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (Table 2).

Table 2. Tree suitability for preservation. Jefferson Union High School. David J. Powers & Associates. Daly City CA.

High	Trees with good health and structural stability that have the potential for longevity at the site. Twenty-three (23) trees were rated as having high suitability for preservation: coast redwoods #45, 46, 51, 52, 57, 58, 59, 60, 62, 63, 67 and 68; Monterey pines #21, 36, 69, 71, 72, 73, 74, 79 and 82; Monterey cypress #56, and Purple Bailey acacia #66.
Moderate	Trees in fair health and/or possessing structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the "high" category. Twenty-three (23) trees were rated as having moderate suitability for preservation: Monterey pines #3, 4, 7, 26, 30, 31, 32, 33, 35, 39, 42, 43, 44, 47, 49, and 125; coast redwoods #48, 53, and 61; Douglas-fir #65, leptospermum #121, Pacific wax myrtle #50, and Purple Bailey acacia #64.
Low	Trees in poor health or possessing significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Ninety-five (95) trees were rated as having poor suitability for preservation including 55 Monterey pines, 37 Monterey cypresses, willows #54, 55; and Sydney golden wattle #78.

Note: Table does not include Monterey pines #22 and 70 which were dead.

We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Evaluation of Impacts and Recommendations for Action

Appropriate tree retention develops a practical match between the location and intensity of construction activities and the quality and health of trees. The **Tree Assessment** was the reference point for tree condition and quality. Potential impacts from the proposed project were assessed using the conceptual site plan (sheets C1.1 and 1.2), conceptual grading plan (sheets 2.0 and 2.1), and conceptual utility plan (sheet 4.1) prepared by BkF, project engineers. All plans were dated June 2019. Plans were conceptual. No tree or tree canopies were included.

The entire site would be re-developed. A new entry would be constructed on Serramonte Blvd., aligning with the Highway 1 ramps. The existing entries would be demolished. Existing buildings on the south side of the site would be retained. The existing parking area on the east would generally remain. Extensive utility connections would occur among existing and proposed structures.

Based on my assessment and review of plans, I recommend removal of 90 trees and preservation of 53 (Table 3, page 8). Trees to be removed are located within or immediately adjacent to areas proposed for development. Trees to be preserved are located outside those areas.

Included in trees recommended for removal are Monterey pines #5 and 82. Both trees appear to be located outside the project area. Tree #5 was failing at the base towards Serramonte Blvd. and should be removed for reasons of safety. Monterey pine #82 was in excellent condition but would be impacted by installation of underground utilities. Pines have a low tolerance for root severance.

All recommendations for action must be considered preliminary and are predicated on adherence to the guidelines listed in the following section.

Tree Preservation Guidelines

The site is expected to undergo a series of improvements to existing facilities. Additional changes may be planned for the future. The following are recommendations for design and construction phases that will assist in successful tree preservation.

Design recommendations

1. Verify the location and tag numbers of all trees. Include trunk locations and tag numbers on all plans.

2. Allow the Consulting Arborist the opportunity to review project plans, including but not limited to, site, grading, drainage and landscape plans

3. Design irrigation systems so that no trenching will occur within the **TREE PROTECTION ZONE**.

Pre-construction and demolition treatments and recommendations

1. Prepare a site work plan which identifies access and haul routes, construction trailer and storage areas, etc.

2. Establish a **TREE PROTECTION ZONE** around each tree to be preserved. For design purposes, the radius of the **TREE PROTECTION ZONE** shall be 2-feet behind the proposed edge of grading. No grading, excavation, construction or storage of materials shall occur within that zone.

3. Install protection around all trees to be preserved. Either stack and secure hay bales 6-feet high around tree trunks or employ 6-feet chain link with posts sunk into the ground. No entry is permitted into a tree protection zone without permission of the City's project manager.

4. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.

5. Trees to be retained may require pruning to provide clearance and/or correct defects in structure. All pruning is to be performed by an ISA Certified Arborist or Certified Tree Worker and shall adhere to the latest editions of the ANSI Z133 and A300 standards as well as the ISA Best Management Practices for Tree Pruning. Pruning contractor shall have the C25/D61 license specification.

Tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.

2. Any grading, construction, demolition or other work that is expected to encounter tree roots should be monitored by the Consulting Arborist.

3. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.

4. Fences should be erected to protect trees to be preserved. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the City's Project Manager.

5. Any additional tree pruning needed for clearance during construction must be performed by a qualified arborist and not by construction personnel.

6. All trees shall be irrigated on a schedule to be determined by the Consulting Arborist. Each irrigation shall wet the soil within the **TREE PROTECTION ZONE** to a depth of 30-inches.

7. Any roots damaged during grading or construction shall be exposed to sound

Summary

One hundred forty-three trees were assessed including 82 Monterey pines, 38 Monterey cypresses and 15 coast redwoods. Pine and cypress trees were mature in development. Approximately one-third of the trees were in poor condition; one-third were fair; and one-third were in good or excellent condition. Tree species were typical of those found in Bay Area landscapes.

The proposed conceptual plan would demolish the existing parking lots and associated landscape then construct high density residential units and a parking garage. Based on my assessment, I recommend preservation of 53 trees and removal of 90.

HortScience | Bartlett Consulting

James R. Clark, Ph.D.
Certified Arborist WE-0846
Registered Consulting Arborist #357

Table 3. Proposed action. Jefferson Union High School. David J. Powers & Associates. Daly City CA.

Tree No.	Common name	Trunk Diameter (in.)	Condition 0=dead 5=excell.	Proposed Action	Notes
1	Monterey pine	24,24,20,16,	2	Remove	Within development
2	Monterey pine	9	3	Remove	Within development
3	Monterey pine	8	4	Remove	Within development
4	Monterey pine	31	3	Remove	Within development
5	Monterey pine	23,20,9,7	1	Remove	Outside project area but structurally unstable
6	Monterey pine	24	3	Preserve	Edge of development
7	Monterey pine	23	4	Preserve	Edge of development
8	Monterey pine	23	2	Remove	Within development
9	Monterey pine	20	2	Preserve	Edge of development
10	Monterey pine	25	2	Preserve	Edge of development
11	Monterey pine	27	2	Preserve	Edge of development
12	Monterey pine	12	2	Preserve	Edge of development
13	Monterey pine	21,13	3	Remove	Within development
14	Monterey pine	26,24	3	Remove	Within development
15	Monterey pine	22	3	Remove	Within development
16	Monterey pine	26	1	Remove	Within development
17	Monterey pine	16	2	Preserve	Edge of development
18	Monterey pine	20	1	Preserve	Edge of development
19	Monterey pine	26	2	Preserve	Edge of development
20	Monterey pine	18,17	2	Preserve	Edge of development
21	Monterey pine	19,6	5	Preserve	Edge of development
22	Monterey pine	25	0	Preserve	Edge of development
23	Monterey pine	18	1	Preserve	Edge of development
24	Monterey pine	26	2	Preserve	Edge of development
25	Monterey pine	21	1	Remove	Within development
26	Monterey pine	24	4	Preserve	Edge of development
27	Monterey pine	30	2	Remove	Within development
28	Monterey pine	29	3	Remove	Within development
29	Monterey pine	13	2	Remove	Within development
30	Monterey pine	15	4	Remove	Within development
31	Monterey pine	7	4	Remove	Within development
32	Monterey pine	7	4	Remove	Within development
33	Monterey pine	8	4	Remove	Within development
34	Monterey pine	5	3	Remove	Within development
35	Monterey pine	7	4	Remove	Within development
36	Monterey pine	5	5	Remove	Within development
37	Monterey pine	7	2	Remove	Within development

Table 3, continued. Proposed action. Jefferson Union High School. David J. Powers & Associates. Daly City CA.

Tree No.	Common name	Trunk Diameter (in.)	Condition 0=dead 5=excell.	Proposed Action	Notes
38	Monterey pine	20	2	Remove	Within development
39	Monterey pine	27	4	Preserve	Edge of development
40	Monterey pine	22	3	Remove	Within development
41	Monterey pine	29	3	Remove	Within development
42	Monterey pine	29	4	Preserve	Edge of development
43	Monterey pine	29	4	Preserve	Edge of development
44	Monterey pine	27	4	Preserve	Edge of development
45	Coast redwood	11	5	Preserve	Edge of development
46	Coast redwood	13	5	Preserve	Edge of development
47	Monterey pine	25	4	Preserve	Edge of development
48	Coast redwood	12	4	Remove	Within development
49	Monterey pine	11	4	Remove	Within development
50	Pacific wax myrtle	5,4,4,3,2	4	Remove	Within development
51	Coast redwood	15	5	Remove	Within development
52	Coast redwood	12	4	Remove	Within development
53	Coast redwood	7	3	Remove	Within development
54	Willow	5	3	Remove	Within development
55	Willow	6,5,3	3	Remove	Within development
56	Monterey cypress	21	5	Remove	Within development
57	Coast redwood	11	5	Remove	Within development; utility connections
58	Coast redwood	9	4	Remove	Within development; utility connections
59	Coast redwood	11	4	Remove	Within development; utility connections
60	Coast redwood	10	4	Preserve	Edge of development
61	Coast redwood	12	4	Preserve	Edge of development
62	Coast redwood	11	4	Preserve	Edge of development
63	Coast redwood	9	4	Preserve	Edge of development
64	Purple Bailey acacia	7	4	Preserve	Edge of development
65	Douglas-fir	8	3	Preserve	Edge of development
66	Purple Bailey acacia	8	5	Remove	Within development
67	Coast redwood	5	4	Remove	Within development
68	Coast redwood	8	5	Remove	Within development
69	Monterey pine	4	5	Remove	Within development; utility connections

Table 3, continued. Proposed action. Jefferson Union High School. David J. Powers & Associates. Daly City CA.

Tree No.	Common name	Trunk Diameter (in.)	Condition 0=dead 5=excell.	Proposed Action	Notes
70	Monterey pine	8	0	Remove	Within development; utility connections
71	Monterey pine	7	5	Remove	Within development; utility connections
72	Monterey pine	5	4	Remove	Within development; utility connections
73	Monterey pine	7	5	Remove	Within development; utility connections
74	Monterey pine	8	5	Remove	Within development
75	Monterey pine	28,17	3	Remove	Within development
76	Monterey pine	25	3	Remove	Within development
77	Monterey pine	33	3	Remove	Within development
78	Sydney golden wattle	5,4,4,3,3,3	3	Remove	Within development
79	Monterey pine	15	5	Remove	Within development
80	Monterey pine	5	3	Remove	Within development
81	Monterey pine	32	3	Remove	Within development
82	Monterey pine	21	5	Remove	Outside project area but impacted by utility installation
83	Monterey cypress	17,15,11, 10,10,5	3	Remove	Within development
84	Monterey cypress	17,16,15,13, 12,12,11	3	Remove	Within development
85	Monterey cypress	25	3	Remove	Within development
86	Monterey cypress	12,12,11,9, 9,8,8	3	Remove	Within development
87	Monterey cypress	30	3	Remove	Within development
88	Monterey cypress	13	2	Remove	Within development
89	Monterey cypress	35	3	Remove	Within development
90	Monterey cypress	21,12,7	2	Remove	Within development
91	Monterey cypress	33	3	Remove	Within development
92	Monterey cypress	27	3	Remove	Within development
93	Monterey cypress	29	3	Remove	Within development
94	Monterey cypress	14,13,12,8	2	Remove	Within development
95	Monterey cypress	31	3	Remove	Within development
96	Monterey cypress	11	2	Remove	Within development
97	Monterey cypress	26	3	Remove	Within development
98	Monterey cypress	26	2	Remove	Within development

Table 3, continued. Proposed action. Jefferson Union High School. David J. Powers & Associates. Daly City CA.

Tree No.	Common name	Trunk Diameter (in.)	Condition 0=dead 5=excell.	Proposed Action	Notes
99	Monterey cypress	23	3	Remove	Within development
100	Monterey cypress	29,15	3	Remove	Within development
101	Monterey cypress	13	2	Remove	Within development
102	Monterey cypress	27	3	Remove	Within development
103	Monterey cypress	22,17,12	3	Remove	Within development
104	Monterey cypress	13	2	Remove	Within development
105	Monterey cypress	25	3	Remove	Within development
106	Monterey cypress	25	2	Remove	Within development
107	Monterey cypress	27	2	Remove	Within development
108	Monterey cypress	17	2	Preserve	Outside development
110	Monterey cypress	20	2	Preserve	Outside development
111	Monterey cypress	20	2	Preserve	Outside development
112	Monterey cypress	18	2	Preserve	Outside development
113	Monterey cypress	18	2	Preserve	Outside development
114	Monterey cypress	19	2	Preserve	Outside development
115	Monterey cypress	17	2	Preserve	Outside development
116	Monterey cypress	23	2	Preserve	Outside development
117	Monterey cypress	24	2	Preserve	Outside development
118	Monterey cypress	16	2	Preserve	Outside development
119	Monterey cypress	21	2	Preserve	Outside development
120	Monterey cypress	28	2	Preserve	Outside development
121	Leptospermum	7 & smaller	4	Preserve	Outside development
122	Monterey pine	27	3	Preserve	Outside development
123	Monterey pine	25	3	Preserve	Outside development
124	Monterey pine	16	2	Preserve	Outside development
125	Monterey pine	19	4	Preserve	Outside development
126	Monterey pine	24	2	Preserve	Outside development
127	Monterey pine	17	2	Preserve	Outside development
128	Monterey pine	31	2	Remove	Within development; storm drain
129	Monterey pine	9,7	1	Preserve	Outside development
130	Monterey pine	25	2	Preserve	Outside development
131	Monterey pine	37	3	Preserve	Outside development
132	Monterey pine	27	2	Preserve	Outside development
133	Monterey pine	24,12	2	Preserve	Edge of development
134	Monterey pine	23,17	2	Preserve	Edge of development
135	Monterey pine	15	1	Remove	Within development
136	Monterey pine	19,18	3	Remove	Within development

Table 3, continued. Proposed action. Jefferson Union High School. David J. Powers & Associates. Daly City CA.

Tree No.	Common name	Trunk Diameter (in.)	Condition 0=dead 5=excell.	Proposed Action	Notes
137	Monterey pine	23	1	Remove	Within development
138	Monterey pine	44	3	Remove	Within development
139	Monterey pine	51	3	Remove	Within development
140	Monterey pine	35	3	Remove	Within development
141	Monterey pine	24	2	Remove	Within development
142	Monterey pine	22,12	1	Remove	Within development
143	Monterey pine	23,17,12,9	3	Remove	Within development
144	Monterey pine	27	3	Remove	Within development

ATTACHMENTS

Tree Assessment Form

Tree Assessment Map