Appendix C

Tree Evaluation Report

Kimley»Horn

Consulting Arborist's Report

March 21, 2024
Revised 7/15/24

Tree Evaluation Report

1977 Saturn, Monterey Park

Prepared by: **Arborgate Consulting, Inc.**
Greg Applegate, ASCA
1131 Lucinda Way
Tustin, CA 92780

Prepared for: **Mr. Bryan Marsh, CEO**
SDCF Monterey Park, LLC
660 Steamboat Road
Greenwich, CT 06830 EO

Table of Contents

Introduction

Background

The project site is located in a commercial area of the City of Monterey Park at 1977 Saturn. SDCF Monterey Park is planning to reconfigure the site and the existing building. The site has been empty since about 2016, but the irrigation system is currently functioning. SDCF has asked Arborgate Consulting to evaluate and document the existing trees within the property lines. All the existing trees on this property are included in this study.

Assignment

Arborgate Consulting was asked to provide review and arboricultural evaluation of about 340 trees' health and condition, professional opinions on their preservation, and report as appropriate for the City of Monterey Park. Each tree 4-inch caliper or larger was to be measured and evaluated for health and structural quality for inclusion in this report. Photographs to illustrate typical conditions and setting will be included in the appendix. Recommendations by this consultant the landscape architect will be included for retention or removal, and for necessary construction clearance. This version of the report includes recommendations from Chris Ford the landscape architect.

Observations

General Conditions

This site is currently vacant and has been since about 2016. The site was built out almost 45 years ago in 1979. The property is being maintained and irrigated, but with no activity within the building. The building is two story and the size is 205,628 square feet. The building and 847 stalls of parking are set on a 15.83-acre site.

The parking lot tree pallet is dominated by carrotwoods, *Cupaniopsis anacardioides;* and cultivars of London plane tree, *Platanus x Hispanica*, that nearly surround the building. The main species on the surrounding project edges are eucalypt species, *Eucalyptus sideroxylon* and *Corymbia citriodora*, formerly *Eucalyptus citriodora*. Brazil peppers, *Schinus terebinthifolius,* sprout up as weeds among the trees on the edges of the surrounding slopes and landscape areas. Most of these are smaller than would be expected after 45 years, but most are constrained by hard pruning and the small root space in parking islands. As would be expected, the curbs adjoining and surrounding these trees have been damaged despite frequent pruning to control the size of these trees. Due to years of hard low-bid pruning, most of the trees have weak structure and some are falling apart. The parking lot planting spaces are a mixture of small square planters and end-cap island planters The small square planters do not have root barriers installed, but the carrotwoods' health is still failing due to lack of root space. The image on page 4 shows the general location of tree species.

The west edge of the site is delineated by a row of red ironbark, *Eucalyptus sideroxylon*, that are crowded and untrained. Several have died.

The street trees along Saturn east of the entry are larger cultivars of southern Magnolia, *Magnolia grandiflora cv*. Most are healthy, but being outside the fence, they are not included in the scope of this report. West of the entry there are sycamores along the street, possibly street trees, they are included in the report.

The preponderance of species planted here are carrotwoods and sycamores. There are 97 carrotwoods, 96 lemon gums, 55 red ironbarks, 37 London planes, 33 California sycamore, 13 magnolias and 10 Chinese elms. In many circles this would be considered mono-cultures. Of the 337 trees, 29.6% are carrotwoods, 29.4% are lemon gums, and 16.8% are red ironbark. Urban foresters often state that no more than 5% of the community plant pallet should be of one species. Being subject to many common ailments, the combined Platanus species come to 21.4%. This would mean that if a pest or disease infested or infected one of the main tree species, it could mean a significant loss of this site's tree canopy.

All, or nearly all, the elms, red ironbarks and lemon gums can be preserved because they are out of the way of improvements, but it looks like most and nearly all carrotwoods should be removed.

Due to the small size of the square parking islands, and the shallow rooted nature of this species, the carrotwoods planted there have significant dieback, are chlorotic and running out of root space. Soil chemistry has declined.

There are no rare or endangered species on site. Only one of the tree species is native or naturally occurring in California. None of these trees are naturally occurring on this site.

General Location of Tree Species

Pruning

As one way to reduce costs and slow down the growth of the trees, hard pruning, including topping and heading have been used. Trees in the small parking lot planters are equivalent to the urban trees in small sidewalk cutouts. One study published in American Forests magazine said that nationwide the average lifespan of urban trees is just seven years. The same article said that Los Angeles claims to have seventeen years of lifespan for their urban trees.

Trees with less foliage area grow slower than those allowed to grow naturally and unimpeded. However, the roots, trunks and limbs *must* increase in diameter or die. Parking lot trees are essentially potted plants, the ones with root barriers even more so.

There is a way to keep trees smaller by pruning, but it takes more knowledge, time and thought. The low-bid type of pruning found on this site is as common as the desire to save money, but now more trees have another reason to be removed. Not only do they have inadequate root space, but now their structure is beginning to fall apart and unless they are pruned more frequently, there will be more limb or branch failures. The carrotwoods in east front lot were headed back severely and probably in the wrong season. As a result, many got sun burned trunks, decay and dead branches around their canopies.

Heading cuts have created brushes of sprouts and growth just behind the pruning cuts, and the dominant sprouts become awkward doglegs. No training was done to properly space the main limbs and if they were growing better, the crowded limbs would begin to pinch each other out. Bark has been trapped between these limbs, further weaking their attachment. Now many of these limbs are also growing too long and with the brush of growth created by heading, are end heavy…i.e. not good trees to park under. This is why California State Government Code 53067 so strongly decries topping and heading.

> *"Topping is the practice of cutting back large diameter branches of a mature tree to stubs and is a particularly destructive pruning practice. It is stressful to mature trees, and may result in reduced vigor, decline, or even death of trees. In addition, new branches that form below the cuts are only weakly attached to the tree and are in danger of splitting out. Topped trees require constant maintenance to prevent this from happening and it is often impossible to restore the structure of the tree crown after topping."*

All or nearly all text books on arboriculture and pruning standards, e.g., ANSI A300 also warn against topping and heading.

A number of the red ironbarks behind the building were poorly trained. Codominant limbs with included bark is a common reason for limb failure. This species has unusually thick bark for a eucalypt. When the bark is included or trapped between limbs, it is more of a weakness than the same defect in other species.

Many of the London plane trees around the west lawn area had poorly made pruning cuts. They were too flush to the trunks. This is another issue that all pruning standards and guides warn against. A large number of trees in this area are declining, and a number have serious decay issues.

Soil Management

The two main related issues regarding soil management are compaction and turf management. Roots simply cannot penetrate soil compacted more than 300 PSI, (pounds per square inch) and resist penetration at compaction levels over 150 PSI. When the parking areas are graded and compacted, then the parking islands are built, the landscape contractors dig planting holes into the islands and square planters, but do not loosen the whole planter. As a result the roots are confined into much less space than trees need.

All the trees growing around the lawns here are shallow or very shallow rooted. Lawn areas are rototilled, at most loosening the top six inches. The lawns are then mowed and irrigated frequently. If you want to compact soil, you moisten it and roll back and forth over it. The west lawn area was soggy wet. Weekly the lawn mowers roll back and forth on wet or moist soil, and gradually that 6-inch deep area is compacted. The roots never were able to grow deeper than six-inches, and then that is reduced. So, trees in turf are shallow rooted. Then as the roots grow in diameter and stick up above the surface the lawn mowers injure them more and more. Many, if not most of the trees now in or previously in lawn areas have been injured by lawn maintenance equipment. Those injuries frequently lead to decay, and the decay can spread into the base of the tree. Turf is fertilized more than trees need and with much more nitrogen than trees should have. This weakens their wood and increases the length of their branches – not a good combination.

These factors conspire to reduce longevity of the trees. But now this site will be reconfigured and most of the site trees should be removed. Despite the shorter life spans from poor maintenance practices, most of the trees will go to a land fill or be ground and become mulch for the new smaller landscape area anyway.

They have all served their useful life span and are in decline. There are few if any of these trees that are worth transplanting.

Abbreviations in Matrix

The size, species, evaluation of health, structural condition, location, and the description of defects, health and condition of the trees are listed below. Arboricultural terms are defined in the glossary.

Abbreviations used in the following matrix include:

1s = one sided
1sRF = one-sided root flare
2long = too long
brk = broken limb
Chlor = chlorotic
Cod = codominant branching
Cr = crowded
Crk = cracked
CrS = crowded scaffold limbs
CrR = crowded roots
cv = cultivar
Db = dieback
Dk = decay
DKB = decayed base
DKT = decayed trunk
DL = dog-leg scaffolds
DLT = dog-leg trunk
Epi = epicormic shoots
FC = flush cuts
Hd = headed
Inc = included bark
LB = low branched
Lt = lion-tailing
noRF = no visible root flare
OL = over-lifted
OP = over-pruned
mSp = slightly sparse
Sp = sparse
Sh = shallow roots
SS = sunscald bark
Sup = suppressed crown class
SW-lift = sidewalk lifted
T = trunk
T-bow = bowed trunk
TD – tear down
Tinj = trunk injury
TO = limb tear out
Topd = topped
TTgird = trunk girdled by tree ties
Xing = crossing, rubbing limbs

Tree Evaluation Matrix

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
1	Eucalyptus sideroxylon	19	45	30	C	C-	covered	Sp 1s
2	Eucalyptus sideroxylon	21	50	36	B	C	covered	Cod CrS
3	Eucalyptus sideroxylon	22	50	36	C	C-	covered	Cod Xing
4	Eucalyptus sideroxylon	22	55	30	B	C-	covered	Cod mLean
5	Eucalyptus sideroxylon	23 @ 2'	50	30	C	C-	covered	Cod LB 1s
6	Eucalyptus sideroxylon	14+11	40	36	C	C-	covered	Cod inc Sp Tinj
7	Eucalyptus sideroxylon	16	32	32	D	D	covered	Cod DL S-crk Sp
8	Eucalyptus sideroxylon	14	45	30	C-	C-	covered	Cod Hd DL Sp FC
9	Eucalyptus sideroxylon	16	55	36	C	C	covered	Cod-top inc
10	Eucalyptus sideroxylon	6,6,7,8,9	50	30	C	C-	covered	Stump Sprts TB
11	Eucalyptus sideroxylon	24	50	40	F	F	covered	Dead
12	Eucalyptus sideroxylon	17	50	36	C	C	okay	Cod inc
13	Eucalyptus sideroxylon	12+10	45	36	C-	C-	covered	Cod inc Sp epi
14	Eucalyptus sideroxylon	14	40	30	C-	C-	NoRF	Cod inc mLean Sp TB
15	Eucalyptus sideroxylon	13	45	26	C	C-	covered	Cod Hd DL TB Sp
16	Eucalyptus sideroxylon	14	40	24	F	F	covered	Cod Hd DL
17	Eucalyptus sideroxylon	23	45	26	D	D	covered	Cod inc Hd Bepi
18	Eucalyptus sideroxylon	14	35	24	F	F	covered	Hd mLean
19	Eucalyptus sideroxylon	16	50	36	C	C	covered	Cod DL 2long epi
20	Eucalyptus sideroxylon	14	50	30	C	B	covered	Cod-top mLean TB Hd
21	Eucalyptus sideroxylon	15	50	30	C	B	covered	CrS Sp Hd DL
22	Eucalyptus sideroxylon	16	50	30	C	C	covered	Cod-top Hd DL epi

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
23	Eucalyptus sideroxylon	18	60	36	C-	C	covered	Cod Hd DL epi TB Bepi
24	Eucalyptus sideroxylon	20 @ 3'	55	32	C	C	covered	1s Cod LB TB Bepi
25	Eucalyptus sideroxylon	16	45	38	C-	C	covered	T-bow cod Hd DL TB Sp
26	Eucalyptus sideroxylon	16	50	30	B	C	covered	DLT cod-top Hd DL
27	Eucalyptus sideroxylon	13	50	25	C-	C	covered	Cod inc Sp TB
28	Eucalyptus sideroxylon	20	45	30	C	C-	covered	Cod inc Hd DL TB
29	Eucalyptus sideroxylon	8	20	15	C	C-	covered	Sup cod Hd DL TB
30	Eucalyptus sideroxylon	24	60	45	C	C-	okay	Cod inc mLean Hd DL TB
31	Eucalyptus sideroxylon	21	60	45	C-	C-	okay	Cod inc brk Sp TB Hd DL
32	Ulmus parvifolia	16	35	35	C	C-	covered	Leans out, cod topd 4 line-clearing epi
33	Ulmus parvifolia	6,6,6,5	30	20	C	C-	covered	1s cod topd 4 line-clearing
34	Ulmus parvifolia	14	35	30	C	C-	covered	1s topd Hd cod
35	Ulmus parvifolia	14	35	30	C	C-	covered	1s topd cod
36	Ulmus parvifolia	8,8,5	35	35	D	C-	covered	1s topd cod FC
37	Ulmus parvifolia	7,7,4,4	35	20	C	C-	covered	1s topd cod epi
38	Corymbia citriodora	14	65	40	C-	C-	covered	1s topd cod inc
39	Corymbia citriodora	15	70	30	C	C	covered	OP Sp Lt leans out DL
40	Ulmus parvifolia	17 @ 1'	35	30	C-	C-	covered	Cod inc Sp LB topd Hd
41	Ulmus parvifolia	13	30	22	C-	C-	covered	Cod inc Sp FC Lt
42	Ulmus parvifolia	16 @ 2'	30	30	C	C	covered	Cod inc Sp epi topd Hd
43	Ulmus parvifolia	14 @ 1'	25	24	C-	C-	Crowded	Cod inc B on swale
44	Eucalyptus leucoxylon	17	40	20	B	D	Crowded	Cod mLean Hd on swale
45	Corymbia citriodora	20	90	50	C	C	okay	SP Lt OP mDb
46	Corymbia citriodora	19	90	45	C	C	okay	SP Lt OP
47	Corymbia citriodora	12	60	30	C	C	okay	SP Lt OP TB cod DL

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
48	Corymbia citriodora	10	50	18	C	D	okay	Binj DLT Sp OL
49	Corymbia citriodora	4+5	40	20	D	C	covered	Xing TB
50	Corymbia citriodora	6	45	20	C	C-	covered	Leans Sp
51	Corymbia citriodora	13	65	30	C	C	covered	Cod OL Hd DL Sp
52	Corymbia citriodora	9	70	25	C-	C	covered	Cod OL Sp
53	Corymbia citriodora	5	60	15	C	C	covered	Cod Bepi
54	Corymbia citriodora	18	70	40	C	D	covered	Cod OL Lt TB DL
55	Eucalyptus sideroxylon	17	45	24	B	C-	covered	Hd topd
56	Corymbia citriodora	13	70	28	C	C	okay	OL T-bow Lt
57	Corymbia citriodora	5	35	12	C	C-	okay	Binj OL cod
58	Corymbia citriodora	15	70	40	C-	D	okay	OP Lt Sp mDb
59	Cupaniopsis anacardioides	4	18	16	B	B	okay	CrS Bepi
60	Corymbia citriodora	2+2+2	20	9	C	C	covered	Stump Sprts TB Sp
61	Corymbia citriodora	9	70	20	C-	C-	okay	DLT OP Lt Sp Binj
62	Corymbia citriodora	8	65	25	C-	C	okay	OP Lt Sp TB
63	Corymbia citriodora	8	65	25	C-	C	okay	OP Lt Sp TB
64	Corymbia citriodora	4,2,2,1	35	15	B	C-	covered	Stump sprouts TB
65	Corymbia citriodora	11	65	35	C-	C-	covered	Cod OL OP Sp
66	Schinus terebinthifolius	1,1,1,1,1,1	8	12	A	D	covered	Stump sprouts
67	Grevillea robusta	15	45	22	B	B	Sh	mTop Db
68	Corymbia citriodora	15	80	36	C	C	okay	Gaffed OL OP Lt
69	Corymbia citriodora	4+5	35	18	C	C	covered	Cod OL OP
70	Corymbia citriodora	10	70	35	C-	C	okay	OL Lt OP Sp
71	Corymbia citriodora	3,4,5,3	45	24	C	C-	covered	stump sprouts
72	Corymbia citriodora	14+14+12	80	45	C	C-	covered	Cod OL Lt OP

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
73	Corymbia citriodora	14	70	30	D	C-	covered	Cod OL Lt OP
74	Eucalyptus sideroxylon	18	70	32	B	C-	covered	Cod Hd DL 2long
75	Corymbia citriodora	8	40	18	C-	C-	okay	OL OP Sp Hd DL Lt
76	Corymbia citriodora	12	40	20	C-	C-	okay	OL OP Sp Hd DL Lt
77	Eucalyptus sideroxylon	17	65	30	B	C	covered	Cod Hd DL
78	Eucalyptus sideroxylon	13+14	60	35	B	C	covered	Cod Hd DL
79	Corymbia citriodora	12	70	30	C	C	okay	OL cod
80	Corymbia citriodora	6	55	18	C	C	covered	Sup by #79 Cr
81	Eucalyptus sideroxylon	14	70	35	B	C	okay	Cr#82 cod OL Hd DL
82	Eucalyptus sideroxylon	15	70	35	B	C	covered	Cr#81 cod 2long
83	Corymbia citriodora	14	70	35	C	C-	covered	OP Lt Sp
84	Corymbia citriodora	13	70	30	C	C-	covered	OP Lt Sp
85	Eucalyptus sideroxylon	21	70	20	C-	D	okay	Topd Hd DL Sp
86	Eucalyptus sideroxylon	20	70	35	C	C-	Sh	Cid CrS DL Xing epi
87	Eucalyptus sideroxylon	20	65	35	B	D	covered	T-seam cod inc Hd DL epi
88	Eucalyptus sideroxylon	11	60	20	C-	D	Sh	Sup Hd Sp Cr#89
89	Eucalyptus sideroxylon	24"b	65	35	C	D	covered	Cod inc 1s Hd DL Cr#88
90	Corymbia citriodora	16	70	35	C	C-	okay	Cod OP Lt Sp mDb
91	Corymbia citriodora	12	65	30	D	C-	okay	Sp Tinj Sp mDB FC
92	Corymbia citriodora	8	40	25	C-	D	covered	T-bow Sp
93	Corymbia citriodora	10	60	30	C	C	covered	2long Sp
94	Corymbia citriodora	10	55	24	C	C	covered	2long Sp
95	Eucalyptus sideroxylon	10	22	28	C	D	covered	T-bow Xing
96	Eucalyptus sideroxylon	8	45	12	D	D	covered	OL Sp Bepi
97	Corymbia citriodora	13	85	25	C	C-	covered	Leans

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
98	Corymbia citriodora	10+12+13	80	40	D	D	covered	Db Xing leans
99	Eucalyptus sideroxylon	8+8+8	60	35	C	C-	covered	Sp DL Hd
100	Eucalyptus sideroxylon	15	80	40	B	C-	covered	Cod inc Hd DL
101	Magnolia grandiflora	13	18	16	C	C-	Sh	Top Hd Lt
102	Magnolia grandiflora	14	40	30	B	C	Sh	Cod mLt
103	Cupaniopsis anacardioides	10	24	20	C	C	Sh	Cod inc Xing pale
104	Cupaniopsis anacardioides	11.5	22	20	C	C	Sh	Cod inc Xing Sp pale
105	Cupaniopsis anacardioides	10	20	22	C	C-	Sh	Cod Binj Xing pale Sp T-seam
106	Cupaniopsis anacardioides	6.5	14	18	C	D	Crowded	Cod CrS LB mDb Tinj
107	Cupaniopsis anacardioides	8	16	18	C	C	Crowded	Cod Xing epi Db
108	Cupaniopsis anacardioides	7.2	16	14	D	D	Crowded	Leans cod inc Db Sp
109	Cupaniopsis anacardioides	10	18	20	C-	C-	Sh Crowded	Bleeding cod CrS Db Sp
110	Cupaniopsis anacardioides	8.5	16	16	C-	D	Crowded	Tinj cod Crk Db Sp
111	Cupaniopsis anacardioides	8.2	18	20	B	C	Crowded	Cod inc CrS Xing
112	Cupaniopsis anacardioides	6.2	18	20	B	C	Crowded	Cod CrS
113	Cupaniopsis anacardioides	7.5	20	20	B	C-	Crowded	Cod inc CrS Xing
114	Cupaniopsis anacardioides	9.5	20	20	C	C-	Crowded	Cod inc CrS Xing
115	Cupaniopsis anacardioides	9.2	20	20	B	C	Crowded	Cod inc CrS
116	Cupaniopsis anacardioides	9.2	20	18	C	C-	Crowded	Cod inc CrS TO Xing T-seams
117	Cupaniopsis anacardioides	10	20	20	D	D	Crowded	Cod inc CrS Db FC
118	Cupaniopsis anacardioides	11	20	20	C-	D	Crowded	Cod inc CrS Crk epi
119	Cupaniopsis anacardioides	9.3	20	20	B	D	Crowded	Cod inc CrS Crk epi
120	Cupaniopsis anacardioides	7.4	18	18	D	D	Crowded	Cod inc CrS Db Hd SS
121	Cupaniopsis anacardioides	9.4	20	20	C	C-	Crowded	Cod inc CrS mDb FC epi
122	Cupaniopsis anacardioides	9	20	20	C	C-	Crowded	Cod inc CrS Xing epi

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
123	Cupaniopsis anacardioides	9	18	16	D	D	Sh Crowded	Cod inc CrS Xing epi Hd Db epi pale
124	Cupaniopsis anacardioides	9.2	16	15	D	D	Crowded	Cod inc Xing Hd Db epi
125	Cupaniopsis anacardioides	8.8	18	18	D	D	Crowded	T-galls cod inc Xing Hd Db epi pale
126	Cupaniopsis anacardioides	10	20	20	B	C-	Crowded	Cod CrS epi
127	Cupaniopsis anacardioides	11.5	20	28	B	C-	Crowded	Cod inc CrS epi
128	Cupaniopsis anacardioides	7.5	16	16	D	D	Crowded	Cod yellow SS CrS inc Db epi
129	Cupaniopsis anacardioides	8.6	15	18	C-	C-	Crowded	Cod inc CrS mDb epi pale
130	Cupaniopsis anacardioides	9	18	18	C-	C-	Crowded	Cod Db T-galls
131	Cupaniopsis anacardioides	8.6	18	18	C-	D	Crowded	Cod inc CrS Xing epi Db T-galls
132	Cupaniopsis anacardioides	9.5	20	20	C	D	Crowded	Cod inc CrS Xing epi pale
133	Cupaniopsis anacardioides	8.5 @ 3'	18	18	C	C-	Crowded	Cod inc Xing epi pale
134	Cupaniopsis anacardioides	7.6	20	20	B	D	Crowded	Cod inc CrS Crk Xing
135	Cupaniopsis anacardioides	11	20	20	C	D	Crowded	Cod inc CrS Xing Hd DL epi
136	Cupaniopsis anacardioides	8.5	20	20	C	C-	Sh Crowded	Cod inc CrS Hd DL epi
137	Cupaniopsis anacardioides	9	20	20	C	C-	Sh Crowded	Cod inc CrS Hd DL Xing epi
138	Cupaniopsis anacardioides	7.5	17	17	C	D	galls	Cod inc SS pale Hd DL epi
139	Cupaniopsis anacardioides	8	18	18	C-	D	galls	Cod inc CrS Xing Hd DL epi
140	Cupaniopsis anacardioides	8.8	20	20	C	D	Crowded	Cod inc CrS Xing Hd DL epi
141	Cupaniopsis anacardioides	9.5	20	20	C	D	Crowded	Cod inc CrS Xing Hd DL epi
142	Cupaniopsis anacardioides	7	18	18	C-	D	Crowded	Cod inc CrS Xing Db Hd DL epi
143	Cupaniopsis anacardioides	10	24	24	C	D	Crowded	Cod inc CrS Xing Db Hd DL epi pale
144	Cupaniopsis anacardioides	8.4	22	22	C-	D	Crowded	Cod inc CrS mLean Xing SS Db
145	Cupaniopsis anacardioides	10	20	20	B	C	Sh Crowded	Cod Hd DL Xing
146	Cupaniopsis anacardioides	18	28	30	B	C	Sh Crowded	Cod inc Hd DL
147	Cupaniopsis anacardioides	9.2	18	20	C	C-	Crowded	Cod inc CrS Hd DL

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
148	Cupaniopsis anacardioides	7.3	18	18	C	C-	Crowded	Cod CrS Hd DL epi Xing
149	Cupaniopsis anacardioides	9.7	20	20	C	C-	Crowded	Cod inc CrS Hd DL epi Xing
150	Cupaniopsis anacardioides	12	20	20	B	C-	Crowded	Cod inc CrS Db DL Hd epi Xing
151	Cupaniopsis anacardioides	8.5	16	16	C-	D	Crowded	Cod Db DL Hd epi Xing
152	Cupaniopsis anacardioides	11	16	16	C-	D	Sh Crowded	Cod CrS inc Hd DL epi Xing
153	Cupaniopsis anacardioides	7.2	16	14	C-	D	Crowded	Cod CrS inc Hd DL epi Xing
154	Cupaniopsis anacardioides	6	14	12	C-	D	Crowded	Cod inc CrS Hd DL Db
155	Cupaniopsis anacardioides	5.6	14	12	D	D	Crowded	Cod Db SS T-crk yellow
156	Cupaniopsis anacardioides	13	20	20	C-	C-	Crowded	Cod inc CrS Hd epi DL Db
157	Cupaniopsis anacardioides	10.2	20	20	C-	D	Crowded	Cod inc CrS Hd epi DL Db
158	Platanus racemosa	19	55	35	C-	D	MB DK	Leans cod mildew FC epi 1s
159	Platanus racemosa	18	75	30	C	C	MB DK	T-bow Hd DL
160	Platanus racemosa	12.6	70	30	C	C	MB DK	CrS 1s Hd DL
161	Platanus racemosa	13	70	30	C	C	MB DK	Cod Hd DL
162	Platanus racemosa	13.5	70	30	C	C-	MB DK	Hd DL
163	Platanus racemosa	13.5	70	30	C	C	MB DK	Hd DL
164	Platanus racemosa	9.2	50	12	D	D	MB DK	Cod Cr#165 1s-cut leans
165	Platanus racemosa	15	55	40	C	C	MB DK	Cod FC Dk leans 45°
166	Platanus racemosa	8.9	40	30	D	D	Sprung DK	Cod epi leans 60°
167	Platanus racemosa	18	80	36	B	C	MB DK	Cod leans 45°
168	Platanus racemosa	11.5	50	30	C	C-	MB DK	Topd FC
169	Platanus racemosa	18	70	30	C	D	MB DK	hd DL leans 60°
170	Platanus racemosa	17	50	30	D	F	MB DK	TDK dead top
171	Platanus racemosa	16	50	25	D	D	MB DK	TDK topd dead top
172	Platanus racemosa	15	50	25	C-	D	MB DK	TDK Hd DL

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
173	Platanus racemosa	14	45	22	C	D	MB DK	BDK Hd Db
174	Platanus racemosa	17	40	24	C	D	MB DK	BDK Hd
175	Platanus racemosa	19	60	35	B	C-	MB DK	Cod CrS Hd epi
176	Platanus racemosa	18	80	38	B	C	MB DK	Xing Hd DL
177	Platanus racemosa	18	80	30	B	C	MB DK	Hd DL epi
178	Platanus racemosa	20	80	36	B	C	MB DK	Hd DL epi
179	Platanus racemosa	19	70	50	B	C	MB DK	Cod Hd DL epi
180	Platanus racemosa	25	70	60	B	C	MB DK	CrS T-bow Leans 60° cod Hd DL
181	Platanus x Hispanica	16	60	50	B	C	covered	CrS Hd DL
182	Platanus x Hispanica	10	45	40	C	C	covered	1s cod
183	Platanus x Hispanica	10	35	27	C	C-	MB DK	dead leafs retained, cod 1s Hd DL
184	Platanus x Hispanica	10	37	25	C	C-	MB DK	dead leafs retained, Hd DL cod
185	Platanus x Hispanica	9	26	12	D	D	MB DK	dead leafs retained, TDk FC topd Hd Db
186	Platanus x Hispanica	10	16	11	D-	D-	MB DK	dead leafs retained, TDk FC topd Hd Db
187	Platanus x Hispanica	9	16	15	D	D	MB DK	dead leafs retained, TDk FC topd Hd Db
188	Platanus x Hispanica	10	30	28	D	D	MB DK	dead leafs retained, 1s TDk FC topd Hd Db
189	Platanus x Hispanica	11	28	25	D	D	MB DK	dead leafs retained, topd Hd Db
190	Platanus x Hispanica	10	30	28	C-	C	MB DK	dead leafs retained, cod topd Hd Db
191	Platanus x Hispanica	6.5	21	20	C-	C-	MB DK	dead leafs retained, CrS Hd Db wet
192	Platanus x Hispanica	6	20	15	C-	D	MB DK	dead leafs retained, Cod SDk leans Db wet
193	Platanus x Hispanica	10	32	32	B	C	Sh MB	Cod Hd DL epi wet
194	Platanus x Hispanica	7.5	28	25	C-	C-	MB DK	dead leafs retained, cod Hd DL epi
195	Platanus x Hispanica	9.5	28	28	C	C-	MB DK	dead leafs retained, cod Hd DL epi
196	Platanus x Hispanica	9.5	32	24	C	C-	covered	dead leafs retained, FC Hd DL epi
197	Platanus x Hispanica	12	32	30	C	C	covered	dead leafs retained, FC Hd DL cod 2long

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
198	Schinus molle	11	30	30	C	C	Circ Cr	Cod Sp
199	Cupaniopsis anacardioides	6.6	14	12	D	D	Crowded	Cod inc Xing Tinj Db chlor
200	Cupaniopsis anacardioides	7.3	14	14	D	D	Crowded	Cod inc Lt FC Db TO chlor
201	Cupaniopsis anacardioides	8	16	16	C-	C-	Crowded	Cod inc CrS Db chlor
202	Cupaniopsis anacardioides	8	14	16	D	C-	Crowded	Cod inc CrS TO FC Db chlor
203	Cupaniopsis anacardioides	10	18	16	D	C-	Crowded	Cod inc CrS Xing FC Db chlor
204	Cupaniopsis anacardioides	6	16	15	C-	C-	Crowded	Cod inc CrS Xing Db chlor
205	Cupaniopsis anacardioides	5	14	14	C-	C-	Crowded	Cod inc Tinj Db chlor
206	Cupaniopsis anacardioides	8	16	18	C	C-	Crowded	Cod inc CrS mDb mChlor
207	Cupaniopsis anacardioides	9.5	18	18	C	C-	Crowded	Cod inc CrS mDb mChlor
208	Cupaniopsis anacardioides	11	18	20	B	C	Crowded	Cod inc CrS TO Hd DL Db
209	Ligustrum japonicum	8	18	18	C	C-	Crowded	Cod inc CrS Hd DL Db Chlor
210	Cupaniopsis anacardioides	9.5	18	16	D	D	Crowded	Cod inc CrS Db Chlor
211	Cupaniopsis anacardioides	6	12	10	D	D-	Crowded	Cod inc CrS SS Xing Db Chlor
212	Cupaniopsis anacardioides	7	18	10	D	D-	Crowded	Cod inc SS Xing Db Chlor
213	Cupaniopsis anacardioides	7	15	14	C-	C-	Crowded	Cod inc CrS mSS Xing Db Chlor
214	Cupaniopsis anacardioides	7	14	16	C-	C-	Crowded	Cod inc CrS Cr#215 Db Chlor
215	Cupaniopsis anacardioides	9	18	18	B	C	Crowded	Cod inc mDb
216	Cupaniopsis anacardioides	10	18	18	C	C	Crowded	Cod inc CrS mDb
217	Cupaniopsis anacardioides	12	20	20	B	C	Crowded	Cod inc Hd DL
218	Cupaniopsis anacardioides	13	18	22	C	C	Crowded	Cod inc Hd mDb
219	Platanus x Hispanica	15	50	30	C	C-	SW lift	Cod Hd Lt DL epi
220	Platanus x Hispanica	7	27	24	C	C-	covered	Cod Hd DL
221	Platanus x Hispanica	8	28	26	C	C-	covered	Cod Hd DL FC Dk
222	Platanus x Hispanica	8	27	20	C	C-	covered	Cod Hd DL

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
223	Platanus x Hispanica	6	18	16	C	C-	covered	Cod Hd DL leans
224	Platanus x Hispanica	14	80	35	B	C	mSW lift	Hd DL epi
225	Platanus x Hispanica	11	50	24	B	C-	Crowded	1s T-bow epi Hd DL
226	Platanus x Hispanica	10	45	24	B	C-	covered	mT-bow Hd DL epi
227	Platanus x Hispanica	7	45	22	C	C-	covered	Hd DL
228	Platanus x Hispanica	9	30	28	B	C-	covered	Cod epi Hd DL
229	Platanus x Hispanica	8	40	20	B	C-	okay	Cod epi Hd DL
230	Platanus x Hispanica	11	45	30	B	C-	okay	Cod FC Hd DL
231	Platanus x Hispanica	11	45	30	B	C-	MB	Cod Hd DL
232	Platanus x Hispanica	12	50	30	C	C-	MB	Cod epi Hd DL Lt
233	Platanus x Hispanica	12	50	35	C	C-	okay	mLean Hd DL
234	Platanus x Hispanica	13	50	40	B	C-	MB	1s cod epi Hd DL Lt
235	Platanus x Hispanica	6	22	15	C	C-	MB	Cod epi Hd DL
236	Platanus x Hispanica	8	28	18	C	D	okay	Cod FC DL Lt S-seam
237	Platanus x Hispanica	9.5	28	20	C	D	Db	Cod epi FC Dk Tinj Dk Db
238	Platanus x Hispanica	11	40	22	B	C	Crowded	Cod epi Hd DL Db
239	Magnolia grandiflora	13	30	30	C	C-	Sh MB	Cod CrS Hd DL
240	Cupaniopsis anacardioides	14	30	30	B	C-	covered	Cod inc CrS Xing Hd DL epi
241	Cupaniopsis anacardioides	16 @ 3'	26	30	C-	C-	okay	Cod inc CrS LB Hd DL Xing Db chlor
242	Cupaniopsis anacardioides	9	18	26	C-	C-	okay	Cod inc CrS Hd DL Xing Db chlor
243	Cupaniopsis anacardioides	8	18	18	C-	C-	okay	Cod inc epi Hd DL Db chlor
244	Cupaniopsis anacardioides	10	20	20	C	C	okay	Cod inc epi Hd DL
245	Cupaniopsis anacardioides	4.5	14	11	C-	C-	Crowded	Cod inc CrS Xing Hd DL chlor
246	Cupaniopsis anacardioides	5	14	13	C-	D	1sRF	Cod SS CrS T-galls Hd DL Db
247	Cupaniopsis anacardioides	7	14	12	D	D	galls	Cod SS inc Hd DL Db chlor

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
248	Cupaniopsis anacardioides	8	12	14	D	D	Crowded	Cod SS inc Hd DL Db
249	Cupaniopsis anacardioides	7	16	12	D	D	epi	Cod SS inc Hd DL Db chlor
250	Cupaniopsis anacardioides	5	13	10	D	D	Crowded	Cod SS inc Hd DL Db chlor
251	Cupaniopsis anacardioides	9	16	14	D	D	galls	Cod SS inc Hd DL Db chlor
252	Cupaniopsis anacardioides	16	30	30	C	C	Sh	Cod inc CrS Sp Hd DL
253	Cupaniopsis anacardioides	15	20	24	C-	C-	Sh	Cod inc Hd DL Db chlor
254	Cupaniopsis anacardioides	15	28	38	C-	C-	Sh	Cod inc CrS Hd mDb Xing
255	Cupaniopsis anacardioides	11	24	26	C-	C-	okay	Cod inc CrS Hd mDb Xing
256	Cupaniopsis anacardioides	6	12	9	D	D	Crowded	Cod inc CrS SS Hd Db Xing
257	Cupaniopsis anacardioides	6	15	10	D	D	Crowded	Cod epi SS Hd DL Db chlor
258	Cupaniopsis anacardioides	7	15	11	D	D	Crowded	Cod epi Hd Db chlor
259	Cupaniopsis anacardioides	9.5	18	14	D	D	Crowded	Cod inc SS Hd Db chlor Sp
260	Cupaniopsis anacardioides	6.5	16	16	C-	C-	Crowded	Cod inc CrS Hd DL Db chlor
261	Corymbia citriodora	20	90	30	C-	C	covered	1s Cod Sp
262	Corymbia citriodora	10	50	24	C-	C-	covered	OL 2long Lt
263	Corymbia citriodora	13	80	30	C	C-	covered	OL 2long Lt Sp mLean
264	Corymbia citriodora	13	80	30	C-	C-	covered	Leans 2long Sp
265	Corymbia citriodora	8	60	14	C-	C-	covered	OL Sp Lt
266	Corymbia citriodora	12	65	40	C-	D	covered	1s DLT Sp Lt
267	Cupaniopsis anacardioides	13	24	28	B	C-	okay	Cod inc CrS SS epi Hd DL
268	Corymbia citriodora	14	90	30	C	C-	okay	Cod inc 2long
269	Corymbia citriodora	11	80	25	C-	C	okay	2long DL Lt Sp
270	Corymbia citriodora	7	70	25	C-	C-	covered	Sp Lt OL
271	Corymbia citriodora	11	80	35	C-	C-	okay	Sp Lt OL
272	Corymbia citriodora	9	50	20	C-	C-	okay	1s Sp OL Sup

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
273	Corymbia citriodora	30	90	50	C	C-	Sh	Gaffed Lt 2long
274	Corymbia citriodora	18	80	50	C-	C-	okay	2long Sp Lt
275	Corymbia citriodora	14	70	35	C-	C-	covered	1s cod 2long
276	Corymbia citriodora	11	45	35	D	D	covered	1s cod Sup
277	Corymbia citriodora	10	80	35	C-	C-	covered	2long cod Sp
278	Corymbia citriodora	10	70	30	C	C	covered	2long Sp Lt
279	Corymbia citriodora	8,8,8,9	75	35	C	C-	Sh	2long Lt
280	Corymbia citriodora	7	45	25	C-	C-	okay	Cod Sp Lt
281	Corymbia citriodora	6	40	14	C-	D	okay	T-bow Sp OL
282	Corymbia citriodora	10	65	27	C	C-	okay	Sp cod Lt
283	Corymbia citriodora	11	70	30	C-	C-	Sh	Cod Sp Lt 2long
284	Corymbia citriodora	8	60	20	C-	C-	okay	Cod Sp Lt 2long
285	Corymbia citriodora	8	70	27	C-	C-	covered	Cod Sp Lt 2long
286	Corymbia citriodora	5	40	6	D	D	covered	Near dead Sp
287	Corymbia citriodora	11	80	30	C-	C-	covered	2long Sp Lt
288	Corymbia citriodora	27	90	50	B	C	covered	Hd DL Lt
289	Corymbia citriodora	6	60	16	C-	C-	okay	Cod Sp lt
290	Corymbia citriodora	10	70	20	C-	C-	okay	OL Lt Hd DL Sp
291	Corymbia citriodora	10	70	40	C	C-	okay	2long Sp Hd D|L
292	Corymbia citriodora	11	70	36	B	C	okay	Lt Hd DL
293	Corymbia citriodora	17	90	40	B	C	okay	Lt Hd
294	Corymbia citriodora	9	70	20	C	C	covered	Leans Lt
295	Corymbia citriodora	6	40	12	C-	C-	covered	Sp cod-top Lt OL
296	Corymbia citriodora	5	45	16	D	C-	covered	Sp cod-top Lt OL
297	Corymbia citriodora	5+5+5	45	20	B	C	okay	Stump sprouts epi

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
298	Corymbia citriodora	16	90	30	C	C	covered	OL Cr#299 Lt
299	Corymbia citriodora	16	90	30	B	C	covered	OL Cr#298 Lt
300	Corymbia citriodora	16	90	25	C-	D	covered	Cod inc topd
301	Corymbia citriodora	12	80	28	D	C-	covered	2long Sp Hd DL
302	Corymbia citriodora	15	80	30	C	C-	covered	OL Hd /Lt
303	Corymbia citriodora	8	40	17	C-	C-	okay	1s Sp OL Lt leans
304	Corymbia citriodora	16	90	36	B	C-	covered	Leans Hd DL Lt
305	Corymbia citriodora	14	90	30	B	C-	covered	OL Cr#304
306	Corymbia citriodora	5+6+7	60	32	B	C-	covered	Stump sprouts Bepi
307	Eucalyptus sideroxylon	15	70	40	B	C	okay	Cod epi Hd DL
308	Eucalyptus sideroxylon	17	75	36	B	D	okay	1s cod inc
309	Eucalyptus sideroxylon	19	80	40	B	C-	okay	Cod inc Cr#310
310	Corymbia citriodora	14	80	45	C	C-	okay	1s T-bow Cr#309 Tinj, hit by 309
311	Corymbia citriodora	12	50	20	C-	C-	okay	1s Sp 2long Lt
312	Corymbia citriodora	12+13+15	90	50	A	C	okay	Cod inc epi
313	Eucalyptus sideroxylon	16	70	40	C	C	okay	Cod Sp
314	Eucalyptus sideroxylon	9	30	25	C-	C	covered	DLT
315	Eucalyptus leucoxylon	5+6+7	25	22	B	C-	covered	DLT topd bushy
316	Corymbia citriodora	6.5	30	25	C-	C-	covered	1s T-bow
317	Corymbia citriodora	12	60	18	C-	C-	covered	OL Sp
318	Corymbia citriodora	7	40	18	C-	C-	NoRF deep	Cod Sp
319	Eucalyptus sideroxylon	15	60	30	C	D	okay	Cod inc TO Hd DL crk
320	Corymbia citriodora	30	100	45	B	C	okay	2long Lt
321	Eucalyptus sideroxylon	10+12	25	34	B	D	covered	Topd 4 wires
322	Eucalyptus sideroxylon	15	60	36	C	C-	covered	T-bow DLS Hd DL Sp

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Roots	Comments
323	Eucalyptus sideroxylon	17	70	50	C	C-	okay	Cod inc OL Hd DL
324	Corymbia citriodora	5.5	45	20	D	C-	okay	Sp Lt OL
325	Corymbia citriodora	8.5	40	30	C-	C-	okay	Sp OL Lt
326	Corymbia citriodora	13	70	40	C-	C-	okay	Cod Sp Lt
327	Corymbia citriodora	9	30	20	C-	C-	okay	1s cod Sp Lt
328	Magnolia grandiflora	9	16	16	C-	C	Sh MB	City tree? LB Sp
329	Magnolia grandiflora	10	20	18	C	C-	Sh MB	City tree? CrS
330	Magnolia grandiflora	9	18	16	B	C	Covered	City tree? Lt
331	Magnolia grandiflora	8	16	16	B	C	Covered	City tree? Cod Lt
332	Magnolia grandiflora	8	16	16	D	D	Covered	City tree? Cod Lt Sp Db
333	Magnolia grandiflora	9	15	14	B	C	Covered	City tree? Cod
334	Magnolia grandiflora	8	16	15	C	C-	Covered	City tree? Cod Lt
335	Magnolia grandiflora	7	14	13	C	C-	Covered	City tree? Cod CrS
336	Magnolia grandiflora	8	14	13	D	C-	Covered	City tree? Cod CrS Sp Db
337	Magnolia grandiflora	8	20	18	D	C-	Covered	City tree? Cod CrS Sp Db

Tree Evaluation Details

Carrotwood trees, *Cupaniopsis anacardioides.*

Ninety seven of the trees are carrotwood trees, originally promoted by Sunset Western Garden Book as a good tree to plant by your swimming pool and a good parking lot tree. New communities, like Irvine, jumped on the bandwagon and planted many in small planting spaces without looking at older trees in botanic gardens or older communities. Unfortunately, they are neither clean nor safe near paving. Once they are sexually mature, they drop large amounts of seed, and their shallow roots are almost as hard on paving as Ficus.

The soils and/or the lack of root space may be the cause of their chlorosis. Also, the heavy pruning to keep them from outgrowing their planters could also cause chlorosis, due to related dieback in the roots. Timing may also be a factor. Like most sub-tropical species, carrotwoods should be pruned in late spring or early summer. Unfortunately, all this pruning did not correct the more serious structural defects in these trees. Crowded scaffold limbs, especially with included bark, are apt to split out or pinch each other out. Their pruning also included some topping and heading, which causes epicormic branching and weak branching as well.

In the parking lot, the soil surrounding the islands and under the paving is compacted to 90% or more and not conducive to root growth. As a result, either the roots stay in the confined planter soil and/or they grow in a thin layer between the curbs, asphalt, and soil below.

Red ironbark, *Eucalyptus sideroxylon*

Of all the eucalypts common to southern California, I know of none that have such poor structure. I don't know their Designer's intent, but the thick bark is probably better protection in fires. However, the thick bark often gets trapped in the narrow crotches common to this species. The public fear of eucalypts includes many species that don't have such problems. This common fear of eucalypts may be one reason all the red ironbarks were topped. It may also have to do with how high the tree service's lift truck can reach. Regardless, the severe topping here has killed several red ironbarks and ruined the others.

Lemon gum, *Corymbia citriodora*

Many of the lemon gums were also lion-tailed, over-lifted and/or over-pruned. This species can make a fine large landscape specimen, but now they will need much better and much more frequent pruning to control the sprout growth and restore a stronger architecture. Many have weak health and sparse foliage. Part is due to over-pruning and part is probably due to the lemon gum psyllid.

The strength and beauty of their structure will take years of corrective pruning to restore. The first thing to restore is their health. Then a tree service that understands corrective pruning can begin to restore their structure. Until they are healthy again, pruning should be delayed. A tree service that understands corrective will cost much more that the tree service that ruined them.

The eucalypts and elms on this north, east and west slopes will probably be able to remain and be mostly unaffected by construction. Ensuring proper irrigation and treatment of psyllids will be needed going forward.

London plane tree, *Platanus x Hispanica*

London plane trees can be a good lawn tree. Many of the ones on site have been limbed up too soon and too hard. The sudden exposure of the trunk to more sun has sun scalded several of their trunks. The pruning cuts were flush, which damages the branch collar. A number by the edge of the lawn area have decayed trunks due to flush cuts. Also many around the lawn are retaining dead leaves. This is a sign of declining health. The lawn area is very wet, which increases the odds of root rot diseases, aka water molds. About the only healthy ones with adequate to fair structure are in the landscaping in front of the building. Those are the few with a dominant central leader. Lawn mower damage has also blighted many of these trees.

California sycamore, *Platanus racemosa*

Sycamores also can be a good lawn tree. For some unknown reason they do not seem to have kept a dominant central trunk. This species is one of the main ones to be attacked by the invasive shot-hole borers. It also tends to have more anthracnose than the London plane tree. On this site it looks like they have been mixed in with London plane trees. Also, sometimes they hybridize. If they did not have seed heads, I had a hard time identifying one from the other this time of year. London plane trees only have one or two balls to each cluster and their leaves are more tomentose. California sycamore has three or four seed ball per cluster. Usually, the sycamore grows much faster than the London plane tree. So the larger Platanus are probably sycamores.

Chinese elm, *Ulmus parviflora*

The Chinese elms are located at the top of the west slope, under power lines. Line clearance pruning has not been good to these trees. No sign of elm anthracnose was seen. To avoid more line clearance pruning, and the ugly effect on the trees, directional pruning should be used to help keep them growing away from the lines.

This species, like the Brazil pepper, can become a weed. So maintenance people should be able to recognize it and remove them before the grow to larger sizes. Both can sucker or root sprout, so they should be treated with herbicide immediately after cutting.

Photographic Documentation

Red ironbarks #7 to 12

Red ironbarks #16 & 18 are dead

Chinese elms #32 to 37 are in back. Lemon gums #23, 39 and 45 are in front

Carrotwoods #113 to 130 in front. Red ironbarks behind on the hill. Note sunscald on the carrotwood in front

Looking east through the carrotwoods. Not the small growing space

Lemon gums 45 to 54. Note the sparse foliage

Carrotwood #151 – note sunscald

Carrotwood #155 – note sunscald

Lemon gums #69, 70 & 71 at right. Red ironbark #72 up the hill.

Lemon gums #73, 75, 76, 79, 80, 83 & 84, with red ironbarks behind

Lemon gums 90, 91, 92, and 94. Red ironbarks #89, 95, 96 & 97 behind.

Lemon gums #261 to 273 (right to left)

Lemon gum #312. This is what they should look like.

Lemon gums #316 to 318 in front, #320 in back

California sycamore #180 with decay at base, needs decay testing.

London plane trees #188, 189 & 190 – note retained dead leaves.

Platanus #170 to 179

Platanus #169 to 176 (right to left)

Platanus #158 to 168 (right to left)

Platanus #158 to 162

Platanus #229 to 238 (right to left)

Analysis

Of the 337 trees in the scope of this report, the two most common species are the carrotwood and lemon gum. The most common in the parking lot is the carrotwood. The most common tree around the site edges is the lemon gum.

All, or nearly all, the elms, red ironbarks and lemon gums can be preserved because they are out of the way of improvements, but it looks like most and nearly all carrotwoods should be removed.

The following Matrix of Recommendations will list the trees that should be removed for health and structural condition reasons. Magnolias along Saturn need to be removed and replaced for the new road dedication and new sidewalk. Elms under the wires across the top edge of the site need to be removed for the electrical easement. Some trees out of the path of construction with a "C-" rating may be retained with appropriate professional correction measures. The owners or managers will need to decide if such lower quality trees are worth the necessary three or four years of corrective pruning to restore them to a more sound condition.

Since the carrotwoods are the predominant species, and it is hard to find well trained specimens from nurseries, spot replacements with specimen box size trees may not produce lasting results. Starting with smaller trees, like 5 or 15 gallon contain size, is more conducive to training. However, typical landscape maintenance personnel are not trained in training trees. Therefor replacement with another species may be the best plan.

Another plan would be to hire a board certified master arborist or registered consulting arborist to provide specifications for training and oversee the training.

Recommendations

Removals and Retention

This consultant is not aware of which trees along Saturn are City street trees. City streets are controlled by the City, and permission to remove those along Saturn for the new road and sidewalk alignment must be obtained, as soon as practical. Not being sure of the season the work will be done, in this instance, for all City trees to remain, I recommend a foot of clearance from the trunk for every for every inch of caliper.

There are few carrotwood trees worth going to extra trouble to protect and preserve during construction. Besides damage done by poor pruning, they were a poor choice in the first place. Some people may suggest transplanting them to other places. However, transplanting of trees in the path of construction to other places on site is not recommended. Their structural condition and shallow roots reduce their value, their health reduces their survival rate, and transplanting cannot be justified on a cost versus value basis, and there is no known need for them elsewhere on this site.

The Brazil peppers around the north edges are small bushy weeds and so outside the scope of this report. They should be removed as soon as possible. They are likely to root-sprout when cut down and when their roots are cut or damaged. The roots of pepper trees removed should be removed as much as reasonable. A common practice is to paint the stump

of peppers cut down with Round up or Garlan herbicide right after cutting, within three minutes of cutting. The Chinese elms under the power lines, are also prone to sprouting after being cut down.

Eucalyptus seldom transplant successfully. There is no reason to try to transplant any of them. All the red ironbark and lemon gums are outside the work area. There are more than enough eucalypts and there is no reason to keep any that are suppressed or in really poor health.

In this current version of the report, with 27 additional removals included, a total of 186 trees need to be removed.

Protection of Existing Trees to Remain

If existing trees designated to remain are damaged during construction, the Contractor shall replace such plants of the same species and size as those damaged (as reasonable) at no cost to the owner. Determination of extent of the damage and the value of damaged plants shall rest solely with this consultant or the owner's representative. Value loss will be calculated using the method established by the Council of Tree & Landscape Appraisers, 10th edition of The Guide for Plant Appraisal. Determination of whether to accept compensation through plant replacement or monetary settlement shall rest solely with the owner.

Before removals begin, all the trees shall be clearly marked for removal or retention, and written instructions given to the contractor. Ideally, the contractor, arborist and owner's representative should meet to discuss the removal and marking.

Protection Barrier: Protection barriers shall be installed around trees to be preserved. The barriers shall be constructed of secure chain-link fencing. The barrier shall be placed as far from the base of the tree(s) as possible, at least 1-foot per inch of trunk diameter and beyond the drip-line. The fencing shall be maintained in good repair throughout the duration of the project, and shall not be removed, relocated, or encroached upon without permission of the arborist involved. The City street trees shall be protected according to City requirements and standards.

Storage of Materials: There shall be NO storage of materials or supplies of any kind within the area of the protection barriers. Concrete and cement materials, block, stone, sand and soil shall not be placed within the drip-line of the tree.

Fuel Storage: Fuel storage shall NOT be permitted within 150 feet of any tree to be preserved. Refueling, servicing and maintenance of equipment and machinery shall NOT be permitted within 150 feet of trees to remain.

Debris and Waste Materials: Debris and waste from construction or other activities shall NOT be permitted within protected areas. Wash down of concrete or cement handling equipment, in particular, shall NOT be permitted within 150 feet of protected trees.

Planting near Trees Designated for Protection: Any digging within designated protection zones shall done using supersonic air (AirSpade or AirKnife) directly as the digging medium, by means of a nozzle, whose nominal rated input pressure (available from manufacturer's literature) must not exceed 130 psig (pounds per square inch at gage) unless otherwise approved. Nozzles designed for input above 130 psig can damage fine roots and are not recommended. Air compressors rated between 100 to 125 psig recommended.

Grade Changes: Any grade changes proposed should be approved by a Registered Consulting Arborist before construction begins, and precautions taken to mitigate potential injuries. Grade changes can be particularly damaging to trees. Even as little as two inches of fill can cause the death of a tree. Lowering the grade can destroy major portions of a root system.

Damages: Any tree damages or injuries should be reported to the project arborist as soon as possible. Severed roots shall be pruned cleanly to healthy tissue, using proper pruning tools. Broken branches or limbs shall be pruned according to International Society of Arboriculture Pruning Guidelines and ANSI A-300, part 1 Pruning Standards.

Preventive Measures: Before construction begins, irrigation and fertilization of the affected trees is recommended to improve tree vigor and health. Soil analysis testing should be completed to assure fertilization with the appropriate fertilizer products. Pruning of the tree canopies and branches should be done at the direction of the project arborist to remove any dead or broken branches, and to provide the necessary clearances for the construction equipment.

Monitoring and Maintenance

Most edge trees not in the construction area, not designated to be removed, and not impacted by construction access, can remain, be monitored, and maintained for the long term, based on the project manager's plans, budget and judgement. All City street trees must remain, unless removal permits are provided. However, better pruning and better soil management by the owners will increase the longevity and appearance of the remaining trees. Some trees along the construction access routes may need to be trimmed up for construction vehicle clearance. This needs to be determined by the general contractor before work begins, but should be according to ANSI A300 standards.

Trees at the edges of construction first need to be trimmed up as necessary and fenced at their driplines to protect them. There are many aspects of construction that can harm the roots and or canopies of the trees. Periodic monitoring of the trees is advised during construction by an expert that would recognize the potential threats and be able to correctly identify their status. The frequency of monitoring visits should be *at least* monthly.

If portions of the irrigation system need to be shut down during construction, plans need to be made in advance to provide supplemental irrigation for landscape areas that would be deprived.

Begin training up the canopy for better clearance over the drive aisles and entries. Consider their width when they reach a more mature size. None of these trees are full grown.

The lower limbs that will be removed for clearance should not be cut back to the trunk in one pruning cycle. Cut them back slightly inside and below the upper canopy, leaving at least 80 percent of the foliage the first year. Depending on limb size, they may need to be removed over several years or more. When the lower limb is finally fully removed, cut back only to the branch collar. Do not remove more than 20% of the total foliage in any one pruning cycle.

All pruning must conform to American National Standards Institute A300, part 1. The trees listed in the matrix as "save if corrected" means corrective pruning to these standards. If only low-bid pruning will be applied, the trees marked in this way should be removed.

Due to the shallow roots of nearly all parking lot trees, to keep trees that remain stable and healthy, they will need at least twelve times trunk diameter clearance for root cutting, assuming roots are cleanly cut, not torn, e.g., a 10-inch DBH tree needs 10 feet of clearance. All cutting of roots over 1" diameter must be made with clean cuts. A backhoe will not make a clean cut.

Matrix of Recommendations

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
1	Eucalyptus sideroxylon	19	45	30	C	C-	Maintain in place	19
2	Eucalyptus sideroxylon	21	50	36	B	C	Maintain in place	21
3	Eucalyptus sideroxylon	22	50	36	C	C-	Maintain in place	22
4	Eucalyptus sideroxylon	22	55	30	B	C-	Maintain in place	22
5	Eucalyptus sideroxylon	23 @ 2'	50	30	C	C-	Maintain in place	22
6	Eucalyptus sideroxylon	14+11	40	36	C	C-	Maintain in place	18
7	Eucalyptus sideroxylon	16	32	32	D	D	Maintain in place	16
8	Eucalyptus sideroxylon	14	45	30	C-	C-	Maintain in place	14
9	Eucalyptus sideroxylon	16	55	36	C	C	Maintain in place	16
10	Eucalyptus sideroxylon	6,6,7,8,9	50	30	C	C-	Maintain in place	17
11	Eucalyptus sideroxylon	24	50	40	F	F	Remove	N/A
12	Eucalyptus sideroxylon	17	50	36	C	C	Maintain in place	17
13	Eucalyptus sideroxylon	12+10	45	36	C-	C-	Maintain in place	16
14	Eucalyptus sideroxylon	14	40	30	C-	C-	Maintain in place	14
15	Eucalyptus sideroxylon	13	45	26	C	C-	Maintain in place	13
16	Eucalyptus sideroxylon	14	40	24	F	F	Remove	N/A
17	Eucalyptus sideroxylon	23	45	26	D	D	Maintain in place	23
18	Eucalyptus sideroxylon	14	35	24	F	F	Remove	N/A
19	Eucalyptus sideroxylon	16	50	36	C	C	Maintain in place	16
20	Eucalyptus sideroxylon	14	50	30	C	B	Maintain in place	14
21	Eucalyptus sideroxylon	15	50	30	C	B	Maintain in place	15
22	Eucalyptus sideroxylon	16	50	30	C	C	Maintain in place	16
23	Eucalyptus sideroxylon	18	60	36	C-	C	Maintain in place	18

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
24	Eucalyptus sideroxylon	20 @ 3'	55	32	C	C	Maintain in place	19
25	Eucalyptus sideroxylon	16	45	38	C-	C	Maintain in place	16
26	Eucalyptus sideroxylon	16	50	30	B	C	Maintain in place	16
27	Eucalyptus sideroxylon	13	50	25	C-	C	Maintain in place	13
28	Eucalyptus sideroxylon	20	45	30	C	C-	Maintain in place	20
29	Eucalyptus sideroxylon	8	20	15	C	C-	Maintain in place	8
30	Eucalyptus sideroxylon	24	60	45	C	C-	Maintain in place	24
31	Eucalyptus sideroxylon	21	60	45	C-	C-	Maintain in place	21
32	Ulmus parvifolia	16	35	35	C	C-	Remove	N/A
33	Ulmus parvifolia	6,6,6,5	30	20	C	C-	Remove	N/A
34	Ulmus parvifolia	14	35	30	C	C-	Remove	N/A
35	Ulmus parvifolia	14	35	30	C	C-	Remove	N/A
36	Ulmus parvifolia	8,8,5	35	35	D	C-	Remove	N/A
37	Ulmus parvifolia	7,7,4,4	35	20	C	C-	Remove	N/A
38	Corymbia citriodora	14	65	40	C-	C-	Maintain in place	14
39	Corymbia citriodora	15	70	30	C	C	Maintain in place	15
40	Ulmus parvifolia	17 @ 1'	35	30	C-	C-	Remove	N/A
41	Ulmus parvifolia	13	30	22	C-	C-	Remove	N/A
42	Ulmus parvifolia	16 @ 2'	30	30	C	C	Remove	N/A
43	Ulmus parvifolia	14 @ 1'	25	24	C-	C-	Remove	N/A
44	Eucalyptus leucoxylon	17	40	20	B	D	Remove	N/A
45	Corymbia citriodora	20	90	50	C	C	Maintain in place	20
46	Corymbia citriodora	19	90	45	C	C	Maintain in place	19
47	Corymbia citriodora	12	60	30	C	C	Maintain in place	12
48	Corymbia citriodora	10	50	18	C	D	Maintain in place	10

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
49	Corymbia citriodora	4+5	40	20	D	C	Maintain in place	7
50	Corymbia citriodora	6	45	20	C	C-	Maintain in place	6
51	Corymbia citriodora	13	65	30	C	C	Maintain in place	13
52	Corymbia citriodora	9	70	25	C-	C	Maintain in place	9
53	Corymbia citriodora	5	60	15	C	C	Maintain in place	5
54	Corymbia citriodora	18	70	40	C	D	Maintain in place	18
55	Eucalyptus sideroxylon	17	45	24	B	C-	Maintain in place	17
56	Corymbia citriodora	13	70	28	C	C	Maintain in place	13
57	Corymbia citriodora	5	35	12	C	C-	Maintain in place	5
58	Corymbia citriodora	15	70	40	C-	D	Maintain in place	15
59	Cupaniopsis anacardioides	4	18	16	B	B	Maintain in place	3
60	Corymbia citriodora	2+2+2	20	9	C	C	Maintain in place	4
61	Corymbia citriodora	9	70	20	C-	C-	Maintain in place	9
62	Corymbia citriodora	8	65	25	C-	C	Maintain in place	8
63	Corymbia citriodora	8	65	25	C-	C	Maintain in place	8
64	Corymbia citriodora	4,2,2,1	35	15	B	C-	Maintain in place	5
65	Corymbia citriodora	11	65	35	C-	C-	Maintain in place	11
66	Schinus terebinthifolius	1,1,1,1,1,1	8	12	A	D	Remove + herbicide	N/A
67	Grevillea robusta	15	45	22	B	B	Maintain in place	15
68	Corymbia citriodora	15	80	36	C	C	Maintain in place	15
69	Corymbia citriodora	4+5	35	18	C	C	Maintain in place	7
70	Corymbia citriodora	10	70	35	C-	C	Maintain in place	10
71	Corymbia citriodora	3,4,5,3	45	24	C	C-	Maintain in place	9
72	Corymbia citriodora	14+14+12	80	45	C	C-	Maintain in place	23
73	Corymbia citriodora	14	70	30	D	C-	Maintain in place	14

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
74	Eucalyptus sideroxylon	18	70	32	B	C-	Maintain in place	18
75	Corymbia citriodora	8	40	18	C-	C-	Maintain in place	8
76	Corymbia citriodora	12	40	20	C-	C-	Maintain in place	12
77	Eucalyptus sideroxylon	17	65	30	B	C	Maintain in place	17
78	Eucalyptus sideroxylon	13+14	60	35	B	C	Maintain in place	19
79	Corymbia citriodora	12	70	30	C	C	Maintain in place	12
80	Corymbia citriodora	6	55	18	C	C	Maintain in place	6
81	Eucalyptus sideroxylon	14	70	35	B	C	Maintain in place	14
82	Eucalyptus sideroxylon	15	70	35	B	C	Maintain in place	15
83	Corymbia citriodora	14	70	35	C	C-	Maintain in place	14
84	Corymbia citriodora	13	70	30	C	C-	Maintain in place	13
85	Eucalyptus sideroxylon	21	70	20	C-	D	Maintain in place	21
86	Eucalyptus sideroxylon	20	70	35	C	C-	Maintain in place	20
87	Eucalyptus sideroxylon	20	65	35	B	D	Maintain in place	20
88	Eucalyptus sideroxylon	11	60	20	C-	D	Maintain in place	11
89	Eucalyptus sideroxylon	24"b	65	35	C	D	Maintain in place	22
90	Corymbia citriodora	16	70	35	C	C-	Maintain in place	16
91	Corymbia citriodora	12	65	30	D	C-	Maintain in place	12
92	Corymbia citriodora	8	40	25	C-	D	Maintain in place	8
93	Corymbia citriodora	10	60	30	C	C	Maintain in place	10
94	Corymbia citriodora	10	55	24	C	C	Maintain in place	10
95	Eucalyptus sideroxylon	10	22	28	C	D	Maintain in place	10
96	Eucalyptus sideroxylon	8	45	12	D	D	Maintain in place	8
97	Corymbia citriodora	13	85	25	C	C-	Maintain in place	13
98	Corymbia citriodora	10+12+13	80	40	D	D	Maintain in place	22

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
99	Eucalyptus sideroxylon	8+8+8	60	35	C	C-	Maintain in place	14
100	Eucalyptus sideroxylon	15	80	40	B	C-	Maintain in place	15
101	Magnolia grandiflora	13	18	16	C	C-	Replace	N/A
102	Magnolia grandiflora	14	40	30	B	C	Replace	N/A
103	Cupaniopsis anacardioides	10	24	20	C	C	Replace	N/A
104	Cupaniopsis anacardioides	11.5	22	20	C	C	Replace	N/A
105	Cupaniopsis anacardioides	10	20	22	C	C-	Replace	N/A
106	Cupaniopsis anacardioides	6.5	14	18	C	D	Replace	N/A
107	Cupaniopsis anacardioides	8	16	18	C	C	Replace	N/A
108	Cupaniopsis anacardioides	7.2	16	14	D	D	Replace	N/A
109	Cupaniopsis anacardioides	10	18	20	C-	C-	Replace	N/A
110	Cupaniopsis anacardioides	8.5	16	16	C-	D	Replace	N/A
111	Cupaniopsis anacardioides	8.2	18	20	B	C	Replace	N/A
112	Cupaniopsis anacardioides	6.2	18	20	B	C	Replace	N/A
113	Cupaniopsis anacardioides	7.5	20	20	B	C-	Replace	N/A
114	Cupaniopsis anacardioides	9.5	20	20	C	C-	Replace	N/A
115	Cupaniopsis anacardioides	9.2	20	20	B	C	Replace	N/A
116	Cupaniopsis anacardioides	9.2	20	18	C	C-	Replace	N/A
117	Cupaniopsis anacardioides	10	20	20	D	D	Replace	N/A
118	Cupaniopsis anacardioides	11	20	20	C-	D	Replace	N/A
119	Cupaniopsis anacardioides	9.3	20	20	B	D	Replace	N/A
120	Cupaniopsis anacardioides	7.4	18	18	D	D	Replace	N/A
121	Cupaniopsis anacardioides	9.4	20	20	C	C-	Replace	N/A
122	Cupaniopsis anacardioides	9	20	20	C	C-	Replace	N/A
123	Cupaniopsis anacardioides	9	18	16	D	D	Replace	N/A

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
124	Cupaniopsis anacardioides	9.2	16	15	D	D	Replace	N/A
125	Cupaniopsis anacardioides	8.8	18	18	D	D	Replace	N/A
126	Cupaniopsis anacardioides	10	20	20	B	C-	Replace	N/A
127	Cupaniopsis anacardioides	11.5	20	28	B	C-	Replace	N/A
128	Cupaniopsis anacardioides	7.5	16	16	D	D	Replace	N/A
129	Cupaniopsis anacardioides	8.6	15	18	C-	C-	Replace	N/A
130	Cupaniopsis anacardioides	9	18	18	C-	C-	Replace	N/A
131	Cupaniopsis anacardioides	8.6	18	18	C-	D	Replace	N/A
132	Cupaniopsis anacardioides	9.5	20	20	C	D	Replace	N/A
133	Cupaniopsis anacardioides	8.5 @ 3'	18	18	C	C-	Replace	N/A
134	Cupaniopsis anacardioides	7.6	20	20	B	D	Replace	N/A
135	Cupaniopsis anacardioides	11	20	20	C	D	Replace	N/A
136	Cupaniopsis anacardioides	8.5	20	20	C	C-	Replace	N/A
137	Cupaniopsis anacardioides	9	20	20	C	C-	Replace	N/A
138	Cupaniopsis anacardioides	7.5	17	17	C	D	Replace	N/A
139	Cupaniopsis anacardioides	8	18	18	C-	D	Replace	N/A
140	Cupaniopsis anacardioides	8.8	20	20	C	D	Replace	N/A
141	Cupaniopsis anacardioides	9.5	20	20	C	D	Replace	N/A
142	Cupaniopsis anacardioides	7	18	18	C-	D	Replace	N/A
143	Cupaniopsis anacardioides	10	24	24	C	D	Replace	N/A
144	Cupaniopsis anacardioides	8.4	22	22	C-	D	Replace	N/A
145	Cupaniopsis anacardioides	10	20	20	B	C	Replace	N/A
146	Cupaniopsis anacardioides	18	28	30	B	C	Replace	N/A
147	Cupaniopsis anacardioides	9.2	18	20	C	C-	Replace	N/A
148	Cupaniopsis anacardioides	7.3	18	18	C	C-	Replace	N/A

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
149	Cupaniopsis anacardioides	9.7	20	20	C	C-	Replace	N/A
150	Cupaniopsis anacardioides	12	20	20	B	C-	Replace	N/A
151	Cupaniopsis anacardioides	8.5	16	16	C-	D	Replace	N/A
152	Cupaniopsis anacardioides	11	16	16	C-	D	Replace	N/A
153	Cupaniopsis anacardioides	7.2	16	14	C-	D	Replace	N/A
154	Cupaniopsis anacardioides	6	14	12	C-	D	Replace	N/A
155	Cupaniopsis anacardioides	5.6	14	12	D	D	Replace	N/A
156	Cupaniopsis anacardioides	13	20	20	C-	C-	Replace	N/A
157	Cupaniopsis anacardioides	10.2	20	20	C-	D	Replace	N/A
158	Platanus racemosa	19	55	35	C-	D	Replace	N/A
159	Platanus racemosa	18	75	30	C	C	Replace	N/A
160	Platanus racemosa	12.6	70	30	C	C	Replace	N/A
161	Platanus racemosa	13	70	30	C	C	Replace	N/A
162	Platanus racemosa	13.5	70	30	C	C-	Replace	N/A
163	Platanus racemosa	13.5	70	30	C	C	Replace	N/A
164	Platanus racemosa	9.2	50	12	D	D	Replace	N/A
165	Platanus racemosa	15	55	40	C	C	Replace	N/A
166	Platanus racemosa	8.9	40	30	D	D	Replace	N/A
167	Platanus racemosa	18	80	36	B	C	Replace	N/A
168	Platanus racemosa	11.5	50	30	C	C-	Replace	N/A
169	Platanus racemosa	18	70	30	C	D	Replace	N/A
170	Platanus racemosa	17	50	30	D	F	Replace	N/A
171	Platanus racemosa	16	50	25	D	D	Replace	N/A
172	Platanus racemosa	15	50	25	C-	D	Replace	N/A
173	Platanus racemosa	14	45	22	C	D	Replace	N/A

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
174	Platanus racemosa	17	40	24	C	D	Replace	N/A
175	Platanus racemosa	19	60	35	B	C-	Replace	N/A
176	Platanus racemosa	18	80	38	B	C	Replace	N/A
177	Platanus racemosa	18	80	30	B	C	Replace	N/A
178	Platanus racemosa	20	80	36	B	C	Replace	N/A
179	Platanus racemosa	19	70	50	B	C	Replace	N/A
180	Platanus racemosa	25	70	60	B	C	Replace	N/A
181	Platanus x Hispanica	16	60	50	B	C	Replace	N/A
182	Platanus x Hispanica	10	45	40	C	C	Replace	N/A
183	Platanus x Hispanica	10	35	27	C	C-	Replace	N/A
184	Platanus x Hispanica	10	37	25	C	C-	Replace	N/A
185	Platanus x Hispanica	9	26	12	D	D	Replace	N/A
186	Platanus x Hispanica	10	16	11	D-	D-	Replace	N/A
187	Platanus x Hispanica	9	16	15	D	D	Replace	N/A
188	Platanus x Hispanica	10	30	28	D	D	Replace	N/A
189	Platanus x Hispanica	11	28	25	D	D	Replace	N/A
190	Platanus x Hispanica	10	30	28	C-	C	Replace	N/A
191	Platanus x Hispanica	6.5	21	20	C-	C-	Replace	N/A
192	Platanus x Hispanica	6	20	15	C-	D	Replace	N/A
193	Platanus x Hispanica	10	32	32	B	C	Replace	N/A
194	Platanus x Hispanica	7.5	28	25	C-	C-	Replace	N/A
195	Platanus x Hispanica	9.5	28	28	C	C-	Replace	N/A
196	Platanus x Hispanica	9.5	32	24	C	C-	Replace	N/A
197	Platanus x Hispanica	12	32	30	C	C	Replace	N/A
198	Schinus molle	11	30	30	C	C	Replace	N/A

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
199	Cupaniopsis anacardioides	6.6	14	12	D	D	Replace	N/A
200	Cupaniopsis anacardioides	7.3	14	14	D	D	Replace	N/A
201	Cupaniopsis anacardioides	8	16	16	C-	C-	Replace	N/A
202	Cupaniopsis anacardioides	8	14	16	D	C-	Replace	N/A
203	Cupaniopsis anacardioides	10	18	16	D	C-	Replace	N/A
204	Cupaniopsis anacardioides	6	16	15	C-	C-	Replace	N/A
205	Cupaniopsis anacardioides	5	14	14	C-	C-	Replace	N/A
206	Cupaniopsis anacardioides	8	16	18	C	C-	Replace	N/A
207	Cupaniopsis anacardioides	9.5	18	18	C	C-	Replace	N/A
208	Cupaniopsis anacardioides	11	18	20	B	C	Replace	N/A
209	Ligustrum japonicum	8	18	18	C	C-	Replace	N/A
210	Cupaniopsis anacardioides	9.5	18	16	D	D	Replace	N/A
211	Cupaniopsis anacardioides	6	12	10	D	D-	Replace	N/A
212	Cupaniopsis anacardioides	7	18	10	D	D-	Replace	N/A
213	Cupaniopsis anacardioides	7	15	14	C-	C-	Replace	N/A
214	Cupaniopsis anacardioides	7	14	16	C-	C-	Replace	N/A
215	Cupaniopsis anacardioides	9	18	18	B	C	Replace	N/A
216	Cupaniopsis anacardioides	10	18	18	C	C	Replace	N/A
217	Cupaniopsis anacardioides	12	20	20	B	C	Replace	N/A
218	Cupaniopsis anacardioides	13	18	22	C	C	Replace	N/A
219	Platanus x Hispanica	15	50	30	C	C-	Replace	N/A
220	Platanus x Hispanica	7	27	24	C	C-	Replace	N/A
221	Platanus x Hispanica	8	28	26	C	C-	Replace	N/A
222	Platanus x Hispanica	8	27	20	C	C-	Replace	N/A
223	Platanus x Hispanica	6	18	16	C	C-	Replace	N/A

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
224	Platanus x Hispanica	14	80	35	B	C	Replace	N/A
225	Platanus x Hispanica	11	50	24	B	C-	Replace	N/A
226	Platanus x Hispanica	10	45	24	B	C-	Replace	N/A
227	Platanus x Hispanica	7	45	22	C	C-	Replace	N/A
228	Platanus x Hispanica	9	30	28	B	C-	Replace	N/A
229	Platanus x Hispanica	8	40	20	B	C-	Replace	N/A
230	Platanus x Hispanica	11	45	30	B	C-	Replace	N/A
231	Platanus x Hispanica	11	45	30	B	C-	Replace	N/A
232	Platanus x Hispanica	12	50	30	C	C-	Replace	N/A
233	Platanus x Hispanica	12	50	35	C	C-	Replace	N/A
234	Platanus x Hispanica	13	50	40	B	C-	Replace	N/A
235	Platanus x Hispanica	6	22	15	C	C-	Replace	N/A
236	Platanus x Hispanica	8	28	18	C	D	Replace	N/A
237	Platanus x Hispanica	9.5	28	20	C	D	Replace	N/A
238	Platanus x Hispanica	11	40	22	B	C	Replace	N/A
239	Magnolia grandiflora	13	30	30	C	C-	Replace	N/A
240	Cupaniopsis anacardioides	14	30	30	B	C-	Replace	N/A
241	Cupaniopsis anacardioides	16 @ 3'	26	30	C-	C-	Replace	N/A
242	Cupaniopsis anacardioides	9	18	26	C-	C-	Replace	N/A
243	Cupaniopsis anacardioides	8	18	18	C-	C-	Replace	N/A
244	Cupaniopsis anacardioides	10	20	20	C	C	Replace	N/A
245	Cupaniopsis anacardioides	4.5	14	11	C-	C-	Replace	N/A
246	Cupaniopsis anacardioides	5	14	13	C-	D	Replace	N/A
247	Cupaniopsis anacardioides	7	14	12	D	D	Replace	N/A
248	Cupaniopsis anacardioides	8	12	14	D	D	Replace	N/A

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
249	Cupaniopsis anacardioides	7	16	12	D	D	Replace	N/A
250	Cupaniopsis anacardioides	5	13	10	D	D	Replace	N/A
251	Cupaniopsis anacardioides	9	16	14	D	D	Replace	N/A
252	Cupaniopsis anacardioides	16	30	30	C	C	Replace	N/A
253	Cupaniopsis anacardioides	15	20	24	C-	C-	Replace	N/A
254	Cupaniopsis anacardioides	15	28	38	C-	C-	Replace	N/A
255	Cupaniopsis anacardioides	11	24	26	C-	C-	Replace	N/A
256	Cupaniopsis anacardioides	6	12	9	D	D	Replace	N/A
257	Cupaniopsis anacardioides	6	15	10	D	D	Replace	N/A
258	Cupaniopsis anacardioides	7	15	11	D	D	Replace	N/A
259	Cupaniopsis anacardioides	9.5	18	14	D	D	Replace	N/A
260	Cupaniopsis anacardioides	6.5	16	16	C-	C-	Replace	N/A
261	Corymbia citriodora	20	90	30	C-	C	Maintain in place	20
262	Corymbia citriodora	10	50	24	C-	C-	Maintain in place	10
263	Corymbia citriodora	13	80	30	C	C-	Maintain in place	13
264	Corymbia citriodora	13	80	30	C-	C-	Maintain in place	13
265	Corymbia citriodora	8	60	14	C-	C-	Maintain in place	8
266	Corymbia citriodora	12	65	40	C-	D	Maintain in place	12
267	Cupaniopsis anacardioides	13	24	28	B	C-	Replace	N/A
268	Corymbia citriodora	14	90	30	C	C-	Maintain in place	14
269	Corymbia citriodora	11	80	25	C-	C	Maintain in place	11
270	Corymbia citriodora	7	70	25	C-	C-	Maintain in place	7
271	Corymbia citriodora	11	80	35	C-	C-	Maintain in place	11
272	Corymbia citriodora	9	50	20	C-	C-	Maintain in place	9
273	Corymbia citriodora	30	90	50	C	C-	Maintain in place	30

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
274	Corymbia citriodora	18	80	50	C-	C-	Maintain in place	18
275	Corymbia citriodora	14	70	35	C-	C-	Maintain in place	14
276	Corymbia citriodora	11	45	35	D	D	Maintain in place	11
277	Corymbia citriodora	10	80	35	C-	C-	Maintain in place	10
278	Corymbia citriodora	10	70	30	C	C	Maintain in place	10
279	Corymbia citriodora	8,8,8,9	75	35	C	C-	Maintain in place	17
280	Corymbia citriodora	7	45	25	C-	C-	Maintain in place	7
281	Corymbia citriodora	6	40	14	C-	D	Maintain in place	6
282	Corymbia citriodora	10	65	27	C	C-	Maintain in place	10
283	Corymbia citriodora	11	70	30	C-	C-	Maintain in place	11
284	Corymbia citriodora	8	60	20	C-	C-	Maintain in place	8
285	Corymbia citriodora	8	70	27	C-	C-	Maintain in place	8
286	Corymbia citriodora	5	40	6	D	D	Maintain in place	5
287	Corymbia citriodora	11	80	30	C-	C-	Maintain in place	11
288	Corymbia citriodora	27	90	50	B	C	Maintain in place	27
289	Corymbia citriodora	6	60	16	C-	C-	Maintain in place	6
290	Corymbia citriodora	10	70	20	C-	C-	Maintain in place	10
291	Corymbia citriodora	10	70	40	C	C-	Maintain in place	10
292	Corymbia citriodora	11	70	36	B	C	Maintain in place	11
293	Corymbia citriodora	17	90	40	B	C	Maintain in place	17
294	Corymbia citriodora	9	70	20	C	C	Maintain in place	9
295	Corymbia citriodora	6	40	12	C-	C-	Maintain in place	6
296	Corymbia citriodora	5	45	16	D	C-	Maintain in place	5
297	Corymbia citriodora	5+5+5	45	20	B	C	Maintain in place	9
298	Corymbia citriodora	16	90	30	C	C	Maintain in place	16

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
299	Corymbia citriodora	16	90	30	B	C	Maintain in place	16
300	Corymbia citriodora	16	90	25	C-	D	Maintain in place	16
301	Corymbia citriodora	12	80	28	D	C-	Maintain in place	12
302	Corymbia citriodora	15	80	30	C	C-	Maintain in place	15
303	Corymbia citriodora	8	40	17	C-	C-	Maintain in place	8
304	Corymbia citriodora	16	90	36	B	C-	Maintain in place	16
305	Corymbia citriodora	14	90	30	B	C-	Maintain in place	14
306	Corymbia citriodora	5+6+7	60	32	B	C-	Maintain in place	11
307	Eucalyptus sideroxylon	15	70	40	B	C	Maintain in place	15
308	Eucalyptus sideroxylon	17	75	36	B	D	Maintain in place	17
309	Eucalyptus sideroxylon	19	80	40	B	C-	Maintain in place	19
310	Corymbia citriodora	14	80	45	C	C-	Maintain in place	14
311	Corymbia citriodora	12	50	20	C-	C-	Maintain in place	12
312	Corymbia citriodora	12+13+15	90	50	A	C	Maintain in place	24
313	Eucalyptus sideroxylon	16	70	40	C	C	Maintain in place	16
314	Eucalyptus sideroxylon	9	30	25	C-	C	Maintain in place	9
315	Eucalyptus leucoxylon	5+6+7	25	22	B	C-	Maintain in place	17
316	Corymbia citriodora	6.5	30	25	C-	C-	Maintain in place	6.5
317	Corymbia citriodora	12	60	18	C-	C-	Maintain in place	12
318	Corymbia citriodora	7	40	18	C-	C-	Maintain in place	7
319	Eucalyptus sideroxylon	15	60	30	C	D	Maintain in place	15
320	Corymbia citriodora	30	100	45	B	C	Maintain in place	30
321	Eucalyptus sideroxylon	10+12	25	34	B	D	Maintain in place	15
322	Eucalyptus sideroxylon	15	60	36	C	C-	Maintain in place	15
323	Eucalyptus sideroxylon	17	70	50	C	C-	Maintain in place	17

Tag	Species	DBH	Ht.	Wd.	Health	Structure	Recommendations	Clearance radius
324	Corymbia citriodora	5.5	45	20	D	C-	Maintain in place	5.5
325	Corymbia citriodora	8.5	40	30	C-	C-	Maintain in place	8.5
326	Corymbia citriodora	13	70	40	C-	C-	Maintain in place	13
327	Corymbia citriodora	9	30	20	C-	C-	Maintain in place	9
328	Magnolia grandiflora	9	16	16	C-	C	Replace, Rd. dedication	N/A
329	Magnolia grandiflora	10	20	18	C	C-	Replace, Rd. dedication	N/A
330	Magnolia grandiflora	9	18	16	B	C	Replace, Rd. dedication	N/A
331	Magnolia grandiflora	8	16	16	B	C	Replace, Rd. dedication	N/A
332	Magnolia grandiflora	8	16	16	D	D	Replace, Rd. dedication	N/A
333	Magnolia grandiflora	9	15	14	B	C	Replace, Rd. dedication	N/A
334	Magnolia grandiflora	8	16	15	C	C-	Replace, Rd. dedication	N/A
335	Magnolia grandiflora	7	14	13	C	C-	Replace, Rd. dedication	N/A
336	Magnolia grandiflora	8	14	13	D	C-	Replace, Rd. dedication	N/A
337	Magnolia grandiflora	8	20	18	D	C-	Replace, Rd. dedication	N/A

Appendix

A. Resume
B. Glossary
C. Tree Maps
D. Botanic Name – Common Name Cross-reference
E. Bibliography

A. Resume

Credentials

American Society of Consulting Arborists – Registered Consulting Arborist #365
American Society of Consulting Arborists – Tree & Plant Appraisal Qualified
American Society of Landscape Architects (ASLA), Emeritus
International Society of Arboriculture – Tree Risk Assessment Qualified
International Society of Arboriculture – Certified Arborist #WE-0180a

Experience

Mr. Applegate is an independent consulting arborist. He has been in the horticulture industry since 1963, providing professional arboricultural consulting since 1984 within both private and public sectors. His expertise includes appraisal, tree preservation, diagnosis of tree and palm growth problems, construction impact mitigation, environmental assessment, expert witness testimony, risk assessment, pruning specifications, species selection and tree health monitoring.

Mr. Applegate consults for insurance companies, major developers, universities, theme parks, universities, homeowners' associations, landscape architects, landscape contractors, property managers, attorneys and governmental bodies.

Notable projects on which he has consulted are: Disneyland, Disneyland Hotel, DisneySeas-Tokyo, Disney's Wild Animal Kingdom, the New Tomorrowland, Disney's California Adventure, Disney Hong Kong project, Universal Studios, Knott's Berry Farm, J. Paul Getty Museum, Tustin Ranch, Newport Coast, Crystal Court, Newport Fashion Island Palms, Bixby Ranch Country Club, Playa Vista, MTA Purple and Expo Lines, MWD-California Lakes, Loyola-Marymount campus, Cal Tech, Cal State Long Beach, Pierce College, The Irvine Concourse, UCI, USC, UCLA, LA City College, LA Trade Tech, Riverside City College, Crafton Hills College, and the State of California review of the Landscape Architecture License exam (re: plant materials)

Education

Bachelor of Science in Landscape Architecture,
California State Polytechnic University, Pomona 1973
Arboricultural Consulting Academy (by ASCA)
Arbor-Day Farm, Kansas City 1995
Continuing Education Courses in Arboriculture
required to maintain Certified Arborist status and for ASCA membership

Professional Affiliations

American Society of Consulting Arborists (ASCA), Full Member
American Society of Landscape Architects (ASLA), Full Member
International Society of Arboriculture (ISA), Regular Member
International Palm Society (IPS), Member
California Tree Failure Report Program, UC Davis, Participant
Street Tree Seminar (STS), Associate Member

Community Affiliations

Horticulture Advisory Committee, Saddleback College (1988 – 1998)
Landscape Arch. License Exam prep, Instructor, Cal Poly Pomona (1986-90)
American Institute of Landscape Architects Board of Directors (1980-82)
California Landscape Architect Student Scholarship Fund-Chairman (1985)
International Society of Arboriculture-Examiner-tree worker certification (1990)
Guest lecturer at UCLA, Cal Poly, Saddleback College, & Palomar Junior College

B. Glossary

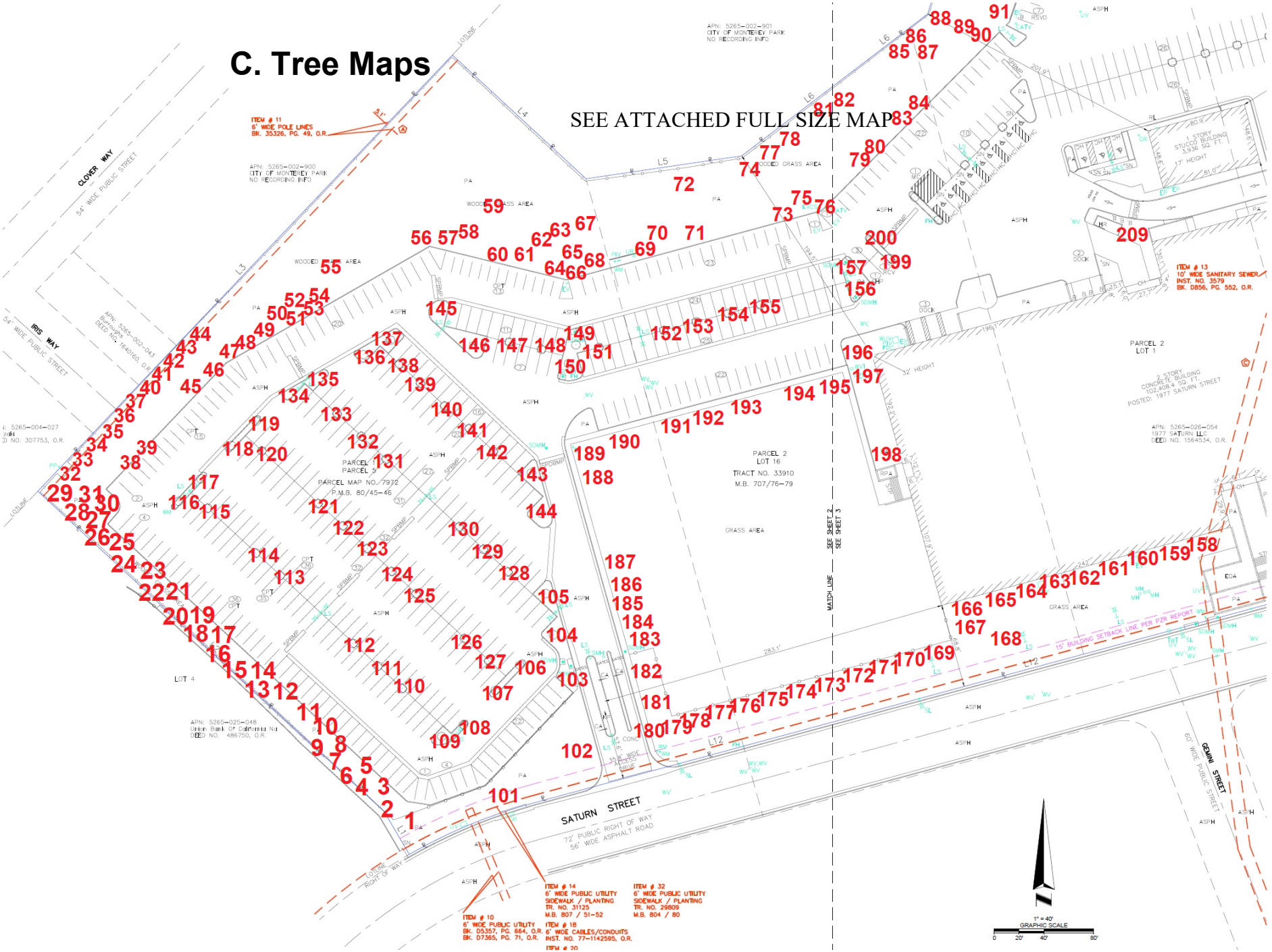
Air-roots	pneumatophores, a special type of breathing root, which is stemmed out from the subterranean root system. Most notably they help the plants of salt marshes to absorb oxygen and other gases from the air, e.g. bald cypress, but also some palm species in heavy and/or wet soils.
ANSI	American National Standards Institute, ANSI A300 pertains to trees, ANSI A300 part 1, pruning
Arboriculture	The selection, cultivation, and care of trees, vines, and shrubs.
Arborist	A person possessing the technical competence through experience and related training to provide for or supervise the management of trees or other woody plants in a landscape setting.
ASCA	The American Society of Consulting Arborists, Inc. a professional society, as described in its by-laws.
ASLA	American Society of Landscape Architects, Inc. a professional society, as described in its by-laws
Branch angle	The angle of attachment between two branches, aka crotch angle.
Canopy	The part of the crown composed of foliage and twigs, for an individual tree or collective group of trees.
Chlorotic	Lacking in chlorophyll, typically yellow or yellowish in color.
Codominant	Leaders equal in size and relative importance, developed from two apical buds at the top of a stem. Each codominant stem is an extension of the stem below it. There are no branch collars or trunk collars at the bases of codominant stems.
Crown	The upper portions of a tree or shrub, including the main limbs, branches, and twigs.
Crown reduction	Reducing the size of the canopy using thinning versus heading cuts. Should not exceed 20 to 25 percent branch removal.
Crown restoration	Restoration of natural and/or structurally sound form to a tree which has been previously topped, headed or damaged. (synonym – crown restructure pruning)
Cultivar	A unique form or type propagated through selective breeding and maintained for specific purposes and retains those attributes in further propagation. An acronym for “cultivated variety”; cultivars can be naturally occurring plants, but usually have been cultivated with specific desirable characteristics in appearance and/or resilience. Maybe a field selection or a horticultural variety that has originated and persisted under cultivation. Usually enclosed in single quotes after the genus and species names.
Decay	Progressive deterioration of organic tissues, usually caused by fungal or bacterial organisms, resulting in loss of cell structure, strength, and function. In wood, the loss of structural strength.

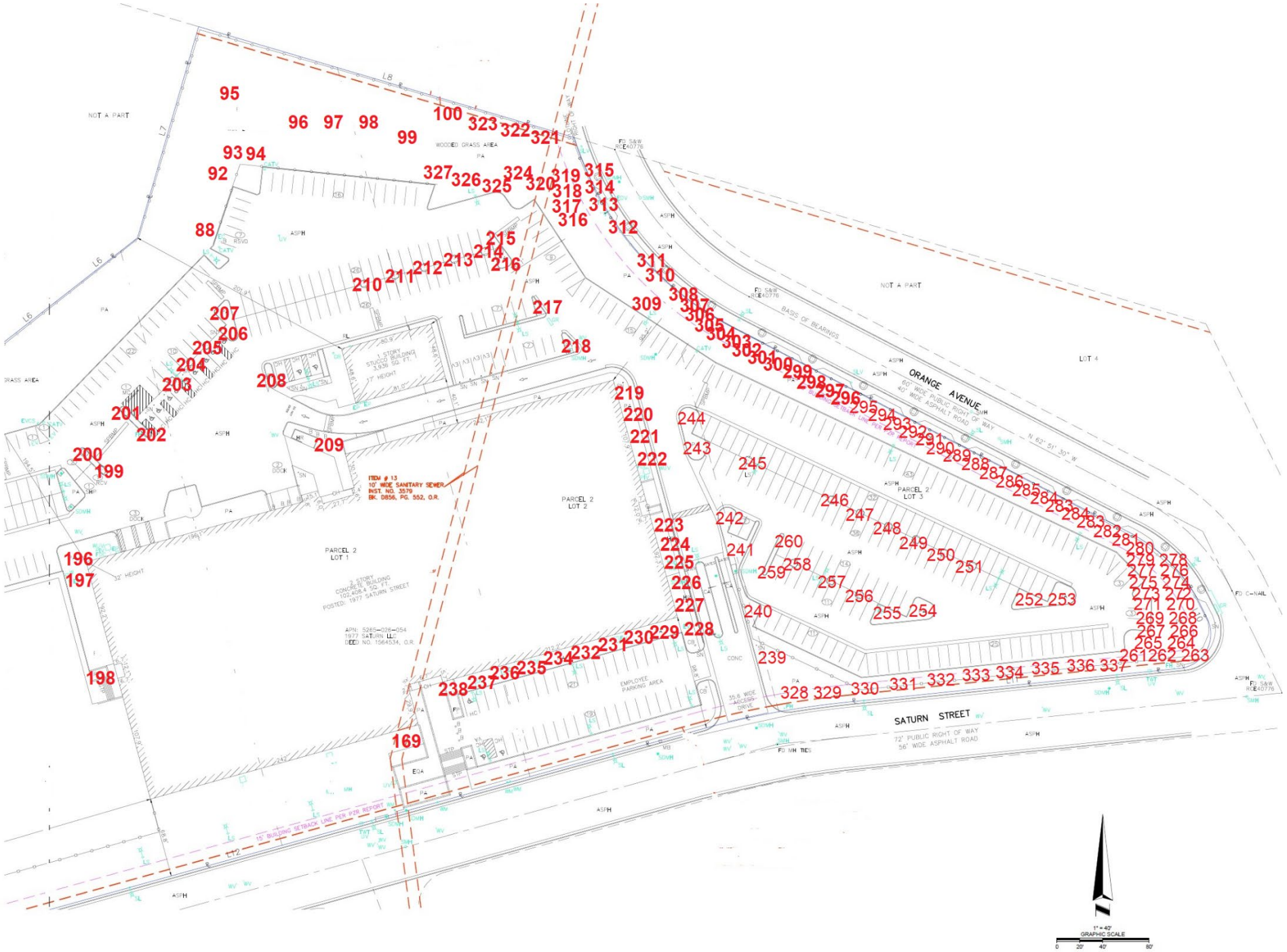
Decline	Progressive reduction of health or vigor of a plant.
Dripline	A projected line on the ground that corresponds to the spread of branches in the canopy; the farthest spread of branches.
Epicormic	Epi - upon; cormic – stem. Branches that are upon the stem, i.e. sprouting from either dormant buds in the cambial zone, or from buds sprung anew from ray traces. Epicormic shoots are a sign that energy reserves have been lowered
Excurrent	Referring to crowns having a strong central leader.
Flush cut	Pruning technique in which both branch and stem tissue are removed, generally considered poor practice
Gall	An abnormal swollen lump on the trunk, limb or roots, possibly caused by insects or bacteria
Girdling root	A root that partially or entirely encircles the trunk and/or buttress roots, which could restrict growth and downward movement of photosynthate and/or water and nutrients up.
Heading	Pruning techniques where the cut is made to a bud, weak lateral branch or stub.
Included bark	Bark or cortex tissue that is included or trapped between close-growing branches. Usually found in narrow or tight crotches.
Leader	A dominant upright stem, usually the main trunk. There can be several leaders in one tree.
Limb	A large lateral branch growing from the main trunk.
Lion-tailed	The removal of all, or a great deal of, the inner branches and/or watersprouts from the crown of a tree. Lion's Tailing is not an acceptable pruning practice, see ANSI A-300.10.1.7.
Over-lifted	More than 30% of the lower limbs removed.
Over-pruned	More than 25% of the foliage removed.
Root system	The portion of the tree containing the root organs, including buttress roots, transport roots, and fine absorbing roots; all underground parts of the tree.
Scaffold limb	Primary structural branch of the crown.
Sprout	Also water sprout. A shoot or stem that grows from the bark of a tree; adventitious or secondary growth.
Stress	"Stress is a potentially injurious, reversible condition, caused by energy drain, disruption, or blockage, or by life processes operating near the limits for which they were genetically programmed." Alex Shigo

Shrub	The name usually given to a relatively short (less than 15 feet) woody plant, with multiple stems arising near the ground.
Suppressed	Trees which have been overtopped and whose crown development is restricted from above
Topping	The practice of cutting large limbs back severely, without regard to form or habit of the tree. Cuts are usually made between lateral branch nodes. This practice is extremely injurious to trees, and promotes decay in the canopy.
Trees	woody plant, (more than 15 feet) with a single or few trunks near the base.
Value	The relative worth, merit, or importance of a thing, expressed as a single point, a range, or a relationship to a benchmark.
Vigor	Active, healthy growth of plants: ability to respond to stress factors.

C. Tree Maps

SEE ATTACHED FULL SIZE MAP




ORANGE AVENUE
SATURN STREET
PARCEL 2 LOT 1
PARCEL 2 LOT 2
PARCEL 2 LOT 3
LOT 4
NOT A PART
ITEM # 13 10' WIDE SANITARY SEWER INST. NO. 3579 BK. D856, PG. 552, O.R.
15' BUILDING SETBACK LINE PER PZR REPORT
1" = 40' GRAPHIC SCALE

D. Botanic Name – Common Name Cross-reference

Botanic name	Common name
Corymbia citriodora	Lemon gum
Cupaniopsis anacardioides	Carrotwood
Eucalyptus leucoxylon	White ironbark
Eucalyptus sideroxylon	Red ironbark
Magnolia grandiflora cv.	Southern magnolia cultivar
Platanus racemosa	California sycamore
Platanus x Hispanica	London plane
Schinus terebinthifolius	Brazil pepper
Ulmus parviflora	Chinese elm

E. Bibliography for Additional Information

American Association of Nurserymen, . ANSI Z60-1990. *American Standard for Nursery Stock*. American Association of Nurserymen

Brenzel, K.N. 2012. *The New Sunset Western Garden Book*, Time Home Entertainment, New York, NY

Clark, J. R., and Matheny, Nelda, 1998. *Trees and Development,* International Society of Arboriculture, Champaign, IL

Gilman, E. F. 1997. *Trees for Urban and Suburban Landscapes*. Delmar Publishers

Harris, R. W., and Clark, J. R., and Matheny, N. P.1999. *Arboriculture - Integrated Management of Landscape Trees, Shrubs, And Vine*s, 4th Edition. Prentice Hall

Mattheck, C., and Breloer, H., 1994. The Body Language of Trees, HMSO, London

Neely, D. and Watson, G. 1998. *The Landscape Below Ground I-III,* International Society of Arboriculture, Champaign, IL

Pinone, P. P., 1988. *Tree Maintenance*, 6th Edition, Oxford University Press, New York, NY.

Shigo, A. 1991. *Modern Arboriculture*. Shigo and Trees, Associates, Durham, NH

Shigo, A. 1989. *Tree Pruning*. Shigo and Trees, Associates, Durham, NH

Sinclair, W. , and Lyon, H. , and Johnson, W. 1987. *Diseases of Trees and Shrubs*. Cornell University Press

Whitcomb, Carl E. *Establishment and Maintenance of Landscape Plants*, 1987, Lacebark Inc., Stillwater, Ok.

Disclaimer

Good, current information on tree preservation has been applied. However, even when every tree is inspected, inspection involves sampling, therefore some areas of decay or weakness may be missed. A complete tree hazard evaluation was not requested or performed. Weather, winds and the magnitude and direction of storms are not predictable and some failures may still occur despite the best application of high professional standards – especially considering the unknown amount of necessary root cutting. Future tree maintenance will also affect the trees health and stability and is not under the supervision or scrutiny of this consultant. Continuing construction activity such as trenching will also affect the health and safety, but are unknown and unsupervised by this consultant. Trees are living, dynamic organisms and their future status cannot be predicted with complete certainty by any expert. This consultant does not assume liability for any tree failures involved with this property.

Should the plans change, additional trees may need to be evaluated for likely impacts and mitigation measures. This report is in response to the proposed plans provided to this consultant, and the accepted scope of work.

Certification

I, Gregory W. Applegate, certify to the best of my knowledge and belief:

That the statements of fact contained in this report are true and correct. That the report analysis, opinions, and conclusions are limited only the reported assumptions and limiting conditions, and are my personal unbiased professional analysis, opinions and conclusions.

That I have no present or prospective interest in the vegetation that is the subject of this report, and I have no personal interest or bias with respect to the parties involved.

That my compensation is not contingent upon a reporting that favors the cause of the client, the attainment of a stipulated result, or the occurrence of a subsequent event.

That my analysis, opinions, and conclusions were developed, and this report has been prepared, in conformity the standards of arboricultural practice.

That I have made a personal inspection of the plants that are the subject of this report.

Furthermore, the opinions above are held with reasonable degree of professional certainty, predicated on over 50 years of experience in the nursery, landscape, and arboricultural industries and the documents and information provided me.

Arborgate Consulting, Inc.
Gregory W. Applegate, ASCA, ASLA emeritus _____ Date 7-15-2024
Registered Consulting Arborist #365