ARBORIST'S REPORT

For the

COUNTY CROSSINGS DEVELOPMENT
WITHIN THE HILLCREST STATION AREA SPECIFIC PLAN

City of Antioch
Contra Costa County, California

October 2008

Prepared For:

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I. INTRODUCTION

RCL Ecology conducted an inventory of regulated trees and prepared the following arborist's report for the County Crossings development per requirements of the City of Antioch (City) and for use in preparation of the Hillcrest Station Area Specific Plan.

II. PROJECT LOCATION

The approximate 284 acre project area is located in northeastern Antioch, California and is generally bound on the south by State Route 4, on the north by residential development, on the east by Hillcrest Avenue, and on the west by State Route 160 (Appendix C).

III. METHODS

The inventory and report was prepared by certified arborist Randall C. Long of RCL Ecology (International Society of Arboriculture certification #WE-7378A), in accordance with the City of Antioch Municipal Code as discussed below.

City of Antioch Municipal Code Section 9-5 - Tree Removal and Protection

The City of Antioch tree ordinance requires approval for the removal of any "established, "mature", or "landmark tree". Trees to be removed or protected will be shown on a site map that includes a description including species, size, general health, and reason for removal. Approval of tree removal and replacement size will be considered during project approval. A bond is required to ensure compliance with replacement and protection conditions specified in the approval document. In the approval process preference is given to protection of trees in the above categories that are also indigenous trees as shown below.

Table 1. – Indigenous Trees

Scientific Name	Common Name
Quercus douglasii	Blue oak
Quercus lobata	Valley oak
Quercus agrifolia	Coast live oak
Quercus chrysolepis	Canyon live oak
Quercus wislizenii	Interior live oak
Aesculus californica	California buckeye
Umbellularia californica	California bay

References

Field Guide to North American Trees-Western Region. The Audubon Society. 1980.

The Jepson Manual, Higher Plants of California. University of California Press.1996.

Inventory Methods

The inventory was conducted using maps prepared by BKF Engineers showing project and parcel boundaries, contours, and tree canopy locations. Using the above criteria all trees having a diameter of 10-inches or greater at breast height (DBH) were inventoried and numbered with round aluminum tags. Information recorded for each of these trees included tree number, species, DBH, height and condition. In the case of multi-trunk trees, only the DBH of the largest trunk was recorded. Tree condition was rated good, fair, or poor with "poor" meaning that that tree was dying due to a variety of conditions as explained in Appendix A.

Exceptions to Inventoried Areas

Two small areas within the project area were not inventoried due to inaccessibility. The first of these was the Esver property located west of the PES Tow Yard. The second was a homeless camp within a dense stand of willows and cottonwoods at the eastern edge of the Trembath Contra Costa County Flood Control Basin (Appendix C – *Tree Inventory Map*). In addition, the two County Flood Control Basins (Trembath and Oakley) were not inventoried as they are not a part of the proposed development.

III RESULTS

Tree Distribution

While natural occurring willows are found in scattered clumps along East Antioch Creek, most trees are introduced species that have been planted around previous house sites and other buildings. Trees within the western side of the area consist primarily of orchard remnants such as almond and black walnut with a few indigenous coast live oaks. Trees within the mid-section and eastern area are a mixture of introduced species such as black locust, Peruvian pepper tree, fruit trees, eucalyptus, poplar, Fremont cottonwood, Mexican fan palm and European olive. One of the introduced species, the invasive tree of heaven, has escaped the former house sites and now occurs in dense stands in the middle of the site and has also invaded other areas of the property. Control of this species should be included in development plans as further discussed under 'Recommendations'. A listing of scientific and common names of trees occurring on the project area is included in Appendix B.

Stand Condition

Stand conditions are generally fair to poor with most trees exhibiting problems related to age, cavities, early signs of rot, broken tops, high amount of dead wood and multiple trunks. This is especially the case in the old orchard areas where English walnut trees were crafted onto black walnut root stock. Over the years the English walnuts have died and the black walnut stumps have sprouted resulting in multiple small trunks and poor condition. Other past uses of the property resulting in land clearing for sand mining,

farming, manufacturing, and wood cutting have also taken their toll reducing the number of trees that were likely present prior to these activities.

Inventory

One hundred and twelve (112) trees in the regulated size class (10-inches DBH and above) were inventoried and marked. Tag numbers used were from 1 to 112. Information recorded for each tree included tag number, species, DBH, height and condition. Of the total trees marked, 51 were rated in poor condition and are recommended for removal. These include two (2) 'mature' white mulberry (No. 31 and 32). The remaining 61 trees were in good or fair condition and should be retained if possible. These include one (1) 'mature' black locust (No. 19), and two (2) 'landmark' Peruvian pepper trees (No. 14 and 17). A list of all inventoried trees is included in Appendix B.

Impacted Trees

At the time of this writing, project plans are only conceptual. Therefore, trees to be retained and removed cannot be yet be determined. When this is determined the following actions are required per the City Municipal Code.

IV. TREE REMOVAL & TREE RETENTION PLANS

A request for removal of 'established trees' will be incorporated into, and submitted to the City with the regular development application. The following information shall be provided.

- A site plan showing the existing topography with location of all established trees clearly labeling those trees which are proposed for either saving or removal.

- A description of all established trees on the property, including the size (in diameter), estimated height, species, and relative condition (i.e. healthy vs. in decline).

- A written statement requesting permission to remove the subject tree (s) providing the reason for the request.

Trees removed will be replaced per guidelines and at the ratios specified in the City ordinance.

A bond will be required to ensure that avoided trees are protected and replaced if necessary. The amount of the bond will vary with the tree size class in accordance with the City ordinance.

V. RECOMMENDATIONS

The following measures are recommended in order to minimize effects on protected trees during construction activities.

- Trees to be preserved immediately adjacent to the construction area should be protected with a minimum 4 feet high fence placed at least 3 feet outside of the dripline.

- Care should be taken to not change the grade of the protected trees either by fill or grading. Any proposed grading within the dripline of protected trees will require further site investigation and recommendations by a certified arborist.

- Trees to be retained at the edge of the construction area should be pruned prior to the start of construction to remove dead wood that might present a safety hazard during construction. Additional pruning of dead wood in 'established' trees should be done in areas where falling limbs could be a human hazard such as along trails in the open space.

- A plan for control of tree of heaven should be prepared and implemented in areas of dense stands of this species in order to prevent root and sprout damage to concrete and asphalt pavement.

VI. APPENDIX:

Appendix A Definition of Tree Condition Rating

Appendix B Tree Inventory Data Sheets

Appendix C Tree Inventory Map

APPENDIX A – Definition of Tree Condition Rating

Good

- No trunk or root cavities or injuries present
- No indication of hollowness
- Root crown is at or slightly above grade
- No decay present except for small stubs
- Strong structure
- Tapered trunk
- No fungus evident
- Below average amount of dead limbs
- No co-dominant branching
- No large callused areas, callusing intact
- No evidence of large scale insect infestation
- Average growth rate
- No excessive limb weight
- Normal foliage, tree not suppressed

Fair

- No decay in the root crown and no major decay in the trunk or limbs
- Small cavities may be present
- No fungus evident
- Some small to moderate callusing injuries may be present
- Some suppression or crowded growing conditions present
- Average amount of dead wood limbs
- Small cavities may be present
- Foliage size, color, and density may vary

Poor (Indications that trees are weakened and dying)

- Significant cavities, dead areas, and decay present
- Tree structurally defective
- Decay present in the root crown or base of trunk
- Fungus bodies present indicating internal decay
- Dead limbs above normal
- Co-dominant branching with included bark present
- Foliage is below average in size and color
- Pest damage may be present

APPENDIX B

Tree Inventory Data Sheets

TREE #	SPECIES	DBH	HEIGHT	HEALTH	NOTES
1	*Populus fremontii* Fremont cottonwood	10	18	G	
2	*Salix laevigata* Red willow	11	20	F	
3	“	13	22	P	
4	“	11	22	F	
5	“	10	20	F	
6	“	11	25	F	
7	“	18	24	G	
8	*Eucalyptus globulus* Bluegum	10	30	F	
9	*Quercus agrifolia* Coast live oak	22	31	G	
10	*Salix laevigata* Red willow	16	25	F	
11	“	18	24	P	
12	“	12	18	F	
13	“	18	18	P	
14	*Schinus molle* Peruvian pepper tree	63	40	F	Landmark tree
15	*Malus sp* Apple	18	13	P	
16	*Quercus agrifolia* Coast live oak	10	21	G	
17	*Schinus molle* Peruvian pepper tree	48	42	F	Landmark tree
18	“	18	26	P	
19	*Robinea pseudoacacia* Black locust	31.5	41	F	Mature tree
20	“	14.5	34	G	
21	“	19	28	F	
22	*Juglans niger* Black walnut	11	21	P	
23	*Prunus persica* Peach	11	13	P	
24	*Olea europaea* European olive	15	30	F	
25	“	15	31	F	
26	“	21	32	F	
27	“	15	35	F	
28	*Salix laevigata* Red willow	12	36	F	
29	*Olea europaea* European olive	13	36	F	

TREE #	SPECIES	DBH	HEIGHT	HEALTH	NOTES
30	*Olea europaea* European olive	14	35	F	
31	*Morus alba* White mulberry	26	25	P	Mature tree
32	“	26	21	P	Mature tree
33	*Eucalyptus globulus* Bluegum	13	31	F	
34	“	22	32	F	
35	“	13	30	P	
36	*Washingtonia robusta* Mexican fan palm	18	32	F	
37	*Cupressus sargentii* Sargent cypress	12	15	P	
38	*Eucalyptus globulus* Bluegum	11	21	P	
39	“	17	29	G	
40	“	17	29	G	
41	*Eucalyptus polyanthemos* Silver dollar gum	19	21	F	
42	*Juglans nigra* Black walnut	11.5	20	P	
43	*Eucalyptus polyanthemos* Silver dollar gum	14.5	32	F	
44	“	16.5	33	F	
45	“	13	30	G	
46	*Populus nigra* Lombardy poplar	11.5	18	P	
47	*Eucalyptus polyanthemos* Silver dollar gum	18	31	F	
48	“	15.5	28	F	
49	“	11	22	P	
50	“	12	18	P	
51	“	12	22	P	
52	“	12.5	23	F	
53	“	13	23	P	
54	*Populus nigra* Lombardy poplar	11	18	P	
55	“	21	21	P	
56	*Eucalyptus polyanthemos* Silver dollar gum	12.5	24	F	
57	“	13	22	P	
58	*Populus nigra* Lombardy poplar	10	19	P	

TREE #	SPECIES	DBH	HEIGHT	HEALTH	NOTES
59	*Eucalyptus polyanthemos* Silver dollar gum	13	29	G	
60	“	15	22	F	
61	“	12	17	P	
62	“	10	17	P	
63	*Schinus molle* Peruvian pepper tree	13	14	P	
64	“	10	12	P	
65	*Pinus radiata* Monterey pine	15	13	P	
66	*Eucalyptus polyanthemos* Silver dollar gum	12.5	18	P	
67	“	11	14	P	
68	“	10	11	P	
69	“	12	13	P	
70	*Cupressus sempervirens* Italian cypress	10	21	F	
71	*Eucalyptus polyanthemos* Silver dollar gum 15	22	F		
72	“	12	15	P	
73	*Eucalyptus globulus* Bluegum	18	33	P	
74	*Juglans regia* English walnut	22	27	F	
75	*Juglans nigra* Black walnut	18	26	F	
76	“	14	28	P	
77	*Ailanthus altissima* Tree of heaven	10	27	P	
78	“	12	27	P	
79	*Juglans nigra* Black walnut	11	21	P	
80	“	11	20	P	
81	“	10	21	P	
82	“	15.5	19	P	
83	“	10	17	P	
84	*Salix laevigata* Red willow	12	16	F	
85	*Quercus agrifolia* Coast live oak	10	16	G	
86	“	12	20	G	
87	“	15.5	17	F	
88	“	11	18	G	
89	“	15	19	G	
90	“	13.5	18	F	
91	“	11	18	G	

TREE #	SPECIES	DBH	HEIGHT	HEALTH	NOTES
92	*Quercus agrifolia* Coast live oak	11	19	G	
93	"	16.5	18	G	
94	"	15	17	G	
95	*Juglans nigra* Black walnut	16.5	29	F	
96	"	13	17	P	
97	*Populus fremontii* Fremont cottonwood	10	20	F	
98	*Salix laevigata* Red willow	10	21	P	
99	"	15.5	20	F	
100	*Juglans nigra* Black walnut	11.5	21	P	
101	"	18	22	P	
102	"	14	18	P	
103	"	16	13	P	
104	"	10	12	P	
105	"	17	12	P	
106	"	13	14	P	
107	*Quercus agrifolia* Coast live oak	11	19	P	
108	"	15	22	F	
109	*Prunus dulcis* Almond	17	17	P	
110	*Juglans nigra* Black walnut	20	29	F	
111	"	13	19	F	
112	"	13	21	F	

APPENDIX C

Tree Inventory Map

COUNTY CROSSINGS DEVELOPMENT WITHIN THE HILLCREST STATION AREA SPECIFIC PLAN

INVENTORY OF ESTABLISHED TREES 10-INCHES DIAMETER AT BREAST HEIGHT (DBH) OR GREATER
BASE MAP, BKF ENGINEERS

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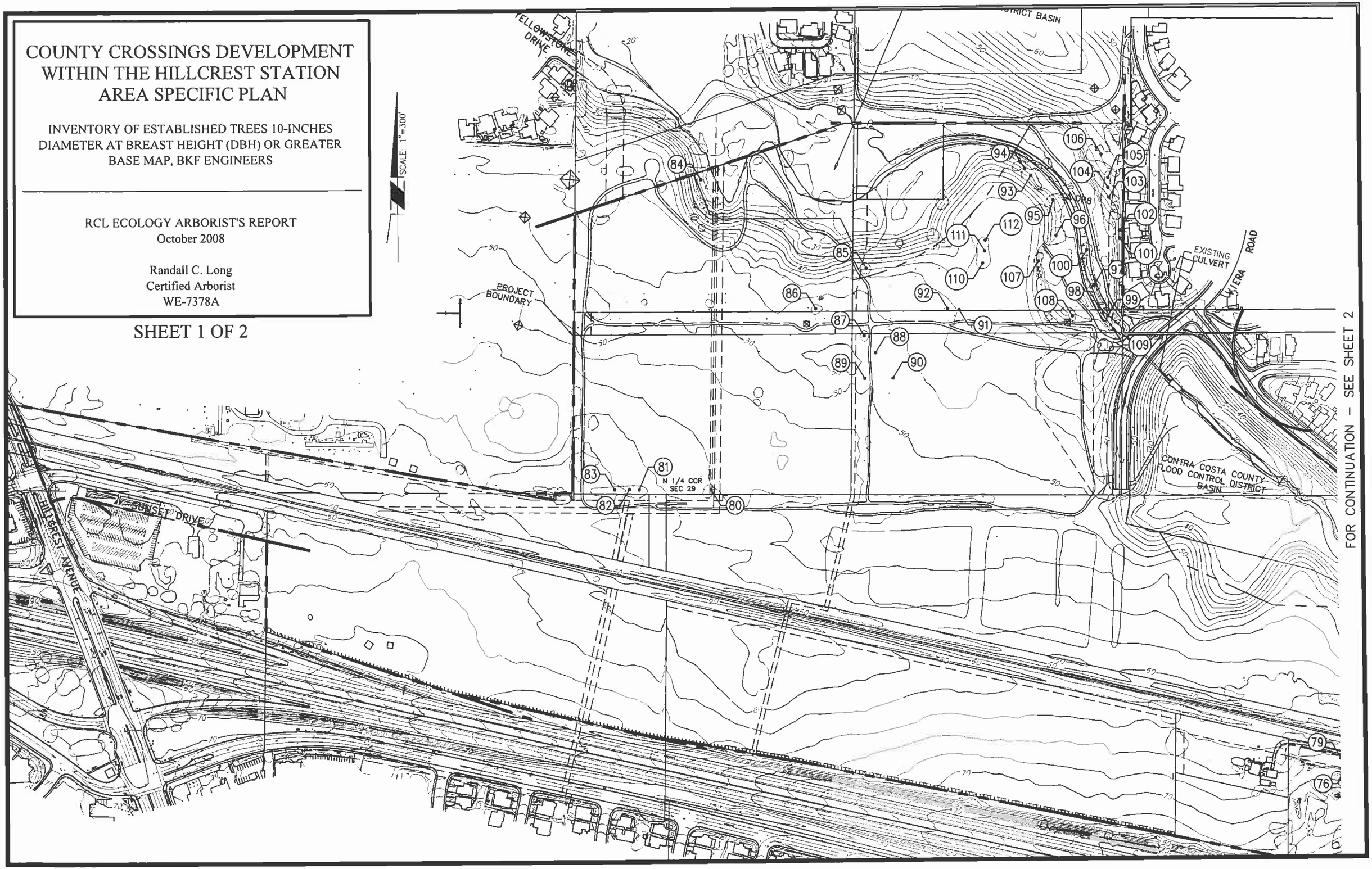
SHEET 1 OF 2

SCALE: 1"=300'



FOR CONTINUATION – SEE SHEET 1

OAKLEY ROAD

EXISTING CULVERT

EXISTING CULVERT

PARCEL B
73 PM 22

PROJECT BOUNDARY

DP1 DP2 DP3 DP4 DP5 DP6 DP7 DP9

COUNTY CROSSINGS DEVELOPMENT WITHIN THE HILLCREST STATION AREA SPECIFIC PLAN

INVENTORY OF ESTABLISHED TREES 10-INCHES DIAMETER AT BREAST HEIGHT (DBH) OR GREATER
BASE MAP, BKF ENGINEERS

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