Board Members:

Leland Walmsley – Chair
Julie Broughton – Vice-Chair
Carol Terry
Kathy Henry
Lindsey Foucht

Location:

Council Chamber
5775 Carpinteria Avenue
Carpinteria, CA 93013
Time: 5:30 P.M.

CITY OF CARPINTERIA
TREE ADVISORY BOARD
Thursday, April 7, 2016
(Special Meeting)

A. CALL TO ORDER

B. ROLL CALL

C. PUBLIC COMMENT

This is a time for public comments on matters not otherwise on the agenda, but within the subject matter jurisdiction of the Tree Advisory Board.

D. OLD BUSINESS

1. Heath Ranch Park Eucalyptus Trees

E. ADJOURNMENT

Next Regular Meeting of the Tree Advisory Board – Thursday, May 19, 2016

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact Melissa Angeles at MelissaA@ci.carpinteria.ca.us or (805) 755-4445 or through the California Relay Service at (866) 735-2929. Notification of two business days prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

City of Carpinteria
DEPARTMENT OF PUBLIC WORKS

Agenda Item #: 1

TREE ADVISORY BOARD

MEETING DATE: April 7, 2016

ITEM FOR CONSIDERATION

Heath Ranch Park Eucalyptus Trees

Action Item: X **Non-Action Item:** ____

Report prepared by: Melissa Angeles
Department of Public Works
Melissa Angeles
Signature

Reviewed by: Charles W. Ebeling, P.E.
Director of Public Works/City Engineer
Signature

I. RECOMMENDATION

Recommend the phased removal and replacement of four Eucalyptus trees and continued maintenance of one other at Heath Ranch Park.

II. DISCUSSION

The Parks and Recreation Department is seeking the Board's recommendation to remove and replace four Eucalyptus trees and continue to maintain one other in Heath Ranch Park. The large Eucalyptus trees in the park are routinely evaluated for health and safety as part of the City's Park Maintenance Program. The Parks and Recreation Department consulted with two arborists who conducted risk assessments of five trees and determined that four trees pose a significant risk of failure; one poses a low risk. Attached to this staff report, you will find arborist reports from Consulting Arborists, Kenneth Knight and Duke McPherson. A report from West Coast Arborists, prepared in 2004, is also attached at the request of your Board.

The Department is proposing to phase out the removals by removing and replacing two trees in 2016 and two others in 2017. One tree was found to be in fair health and will undergo continued maintenance.

Because the Tree Advisory Board (TAB) and the City Council have the authority to remove trees within City property, this request is being brought before you tonight. This item was presented to the TAB on February 18, 2016 but was tabled to allow the Board more time to review the arborist reports and conduct visual inspections of each tree.

Parks and Recreation Director, Matt Roberts will be present to answer questions.

Attachment A: Arborist Report – Kenneth Knight Consulting (Dated 1/25/2015)
Attachment B: Arborist Report – Duke McPherson (Dated 8/20/2015)
Attachment C: Arborist Report – Kenneth Knight Consulting (Dated 12/24/2015)
Attachment D: Arborist Report – West Coast Arborists (Dated 8/11/2004)

ATTACHMENT A

Kenneth A. Knight Consulting LLC
Registered Consulting Arborist #507
69 Calaveras Avenue Goleta, CA 93117
H (805) 968-8523 W (805)252-1952

January 25, 2015
Matthew Roberts, Director, Parks and Recreation
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013
MattR@ci.carpinteria.ca.us

Assignment
Conduct a Level 2 risk assessment of five heritage Blue Gum Eucalyptus (Eucalyptus globulus) trees in Heath Ranch Park. A Level 2 assessment as defined by the American National Standard Institute (ANSI) A300 (part 9) Tree Risk Assessment standard is a detailed ground based 360 degree walk by each tree and visual inspection of a tree and its surrounding site using binoculars, mallet, probe, magnifying glass, diameter tape and trowel. A Level 2 assessment provides analysis of data, evaluation of risk and mitigation options.

Summary of findings
The risk failure ratings for each of the five trees are as follows;
Tree 2 – Moderate Risk
Tree 3 – Low Risk
Tree 4 - Moderate Risk
Tree 5 – Moderate Risk
Tree 6 – High Risk
Residual risk ratings remain the same after mitigation

Limitations of this report
1. Not all potential structure and stability concerns associated with trees can be predicted or eliminated.
2. Sudden branch drop is the sudden, unanticipated failure of a tree branch with little or no discernible defect, often associated with long, horizontal branches and warm temperatures. There are no current means of predicting sudden branch drop.
3. Crown reduction is one method of reducing risk by reduce the weight of long, usually horizontal scaffold extensions with little taper and most of its foliage at the end. Crown reduction can reduce the likelihood but not guarantee the avoidance of limb drop. Crown reduction does increase the likelihood of infection and disease entering cut areas of older trees, permanently disrupts their character, increases their long term maintenance needs, and could cause the tree to enter into a death spiral. General crown reduction to reduce risk liability is not recommended in this report, although specific scaffold and branch reductions are recommended for consideration
4. A Level Two analysis provides some indication of the interior structure of the tree, and to the amount of wood supporting the tree. A Level Three analysis can provide more specific information on the location and amount of structurally supportive wood within a tree. Level three information could be used for more exact recommendations on the extent of mitigation necessary to maintain a tree in a lower risk category, and possibly avoiding the reduction or removal of more of the tree than necessary.

Process
On January 10, 2015, I conducted a Level Two detailed assessment of 5 Eucalyptus trees at Heath Ranch Park in Carpinteria. The format and definitions included in this report are from the 2013 International Society of Arboriculture Tree Risk Assessment Manual and Tree Risk Assessment Best Management Practices.

Observations:

1. Trees one and seven previously failed, possibly due in part to root failure
2. Blue gum trees reconfigure as they age and deteriorate a process sometimes called natural retrenchment. The trunk diameter may continue to grow while branches die and fail—reducing overall height of the tree and increasing stability.
3. This area is in the midst of severe multiple year drought conditions. The trees are in a park area receiving some lawn irrigation at the periphery of the canopies. The trees do not appear to be in a drought stressed condition, but in their native condition, they thrive with regular water. One positive impact of the drought is that root rot from the common Armillaria fungus, which prefers moist conditions, is not as prevalent as it would likely to be given the soil conditions.
4. The area has unrestricted pedestrian access but there are no compaction issues around the trees.
5. The insects causing damages to the leaves are not a cause for significant concern at this time.
6. I did not detect any root problems that revealed themselves through conks and growths on trunks, which usually mean that decay within the tree is extensive.
7. No frass was present indicating the presence of borers such as the eucalyptus long horned beetle.
8. A 2-3 inch mulch underneath the canopies of the trees is beneficial, but care should be taken not to have the mulch deeper than 4". Mulch deeper than 4" prevents necessary water and air from getting to the roots of the tree.
9. While these trees are large heritage trees, the California champion Blue gum measures 141' high, circumference 586" (187" DSH), crown 126'}

Recommendations:

1. **Risk Ratings** –Specific risk ratings and recommended actions are attached for each of the five trees

2. **Mitigations to reduce risk**
    a. **Branch/Scaffold Reductions** – Specific branch/scaffold reductions are one method of attempting to reduce risk levels. General crown reductions are not recommended for risk reduction as there is no guarantee that reduced canopies will not fail. The purpose of the reduction is to gradually reduce weight on the end of a branch/scaffold to avoid its total failure. This process is best done over a several year period with no more than 15% of the total live growth of the tree (leaves and woody material) should be removed in one year.
    Tree care specifications should be written to avoid 'cleaning' a tree of all live and dead interior branches, resulting in 'lion tailing'. As in the case of a lion's tail where there is just a tuft of hair at the end, a lion tailed branch removes all foliage, leaving canopy only at the tip. This type of pruning resulting in structurally unstable trees.
    An essential element of a tree risk management program to avoid tree failures is to maintain trees in healthy and vigorous growing conditions. This maintenance program could include occasional deep watering of periphery of canopy during drought periods
    And installation of 2-3" of mulch under tree canopies (not touching trunks).
    b. **Level 3 Tree Risk Analysis** - Consider conducting Level 3 tree risk analysis on trees 2, 5 and 6 as identified in this Level 2 report. A Level Three analysis generally involves the use of tomography to more clearly identify the extent of decay and remaining structurally sound wood in a tree trunk, along with other more advanced investigative methodologies. This level of analysis provides more information and evidence to support taking aggressive actions, such as crown reductions, as a means of retaining the trees.
    Also of concern in trees 2, 5 and 6 are potential disease/insect issues that could weaken the roots and base of the trees. Further review of the sap and fungal issues is needed to determine if Armillaria is present (identified by white mycelium under the bark) or the presence of dark galleries under the bark made by eucalyptus long horned borers. Root collar inspections approximately one foot below current surface may reveal indications of phytophthora. If phytophthora is present, bark that is oozy and dark should

be removed and the soil around the root system should be allowed to dry out completely. There is no cure for phytophthora, but its effects can be lessened in a drier environment.

3. **Warning signs**
The process of reducing the risk of heritage trees by removing portions of the tree could also endanger the life of the tree. If mitigations to reduce risk are not able to reduce the residual risk of a tree, the City may consider erecting signage to provide basic warning information to park visitors about potentially hazardous trees. A sample warning sign developed by the Tasmanian Parks & Wildlife Service (where Blue Gum trees are native) includes the following language;
General Warnings
- *Trees and limbs may fall at any time and in any weather conditions*
- *High winds may increase the likelihood of trees and limbs falling*
- *The only way to avoid the risk is not to enter forested areas.*

Severe Hazard Area
Using this area exposes you to Severe Hazard Risks. This means you are not protected from natural hazards such as large trees and limbs that may fail at any time and in any weather conditions – but may be especially dangerous during high winds. This natural hazard cannot be effectively reduced by management actions, and there are no steps that you can take to avoid this risk once you have entered this area. You must be prepared to accept this risk and meet this hazard on your own terms. This is your responsibility.

4. **Conduct a Level Two Update Annually on high risk rated trees** – Previous tree inspections occurred on December 2007 and January 2011. The current 1/27/15 assessment reviews likelihood of occurrences within one year from the date of this assessment. The value of these trees combined with their large size, mature status, the number of people visiting the park, changing environmental conditions, and the history of past tree failures indicates a benefit from an annual risk assessment.

Sincerely,

Ken Knight

Ken Knight, Registered Consulting Arborist #507
ISA Risk Assessment Qualified

Tree Risk Assessment – ISA BMP Definitions

Risk- the likelihood for conflict or tree failure occurring and affecting a target, and the severity of the associated consequences—personal injury, property damage, or disruption of activities. Categorized as Low, Moderate, High, Extreme.
Hazard—situation or condition that is likely to cause harm (injury, damage or disruption).
Hazardous tree—a tree identified as a likely source of harm.
Residual risk—risk remaining after mitigation.

Likelihood of Failure –The potential for tree or branch failure within a specified time frame. Based on species, extent of defect, anticipated loads and response growth. Categories based on the time frame established in the report are:

Improbable—failure not likely in normal or severe weather conditions within time frame.
Possible—failure unlikely during normal weather conditions (expected in severe weather).
Probable—failure expected under normal weather conditions within specified time frame.
Imminent—failure has started or is most likely to occur in the near future, regardless of weather.

Likelihood of Impact- The potential of the failed tree or branch impacting a target. Based on target location, occupancy rate, anticipated fall direction, and target protection factors. Categories are:

Very low— chance of impact is remote.
Low—not likely that the failed tree or branch will impact the target.
Medium—may or may not impact the target, with nearly equal likelihood.
High —will most likely impact the target.

Consequences—effects or outcome of an event, including personal injury, property damage, or disruption of activities. Based on target value, tree part size, fall distance, and target protection. Categories are:

Negligible - low-value property damage (replace or repair), and do not involve personal injury.
Minor -moderate property damage, small disruptions of traffic or utility, or very minor injury.
Significant -high value property damage, considerable disruption, or personal injury.
Severe -serious personal injury or death, high-value damage, or disruption of important activities.

Matrix 1. Likelihood matrix

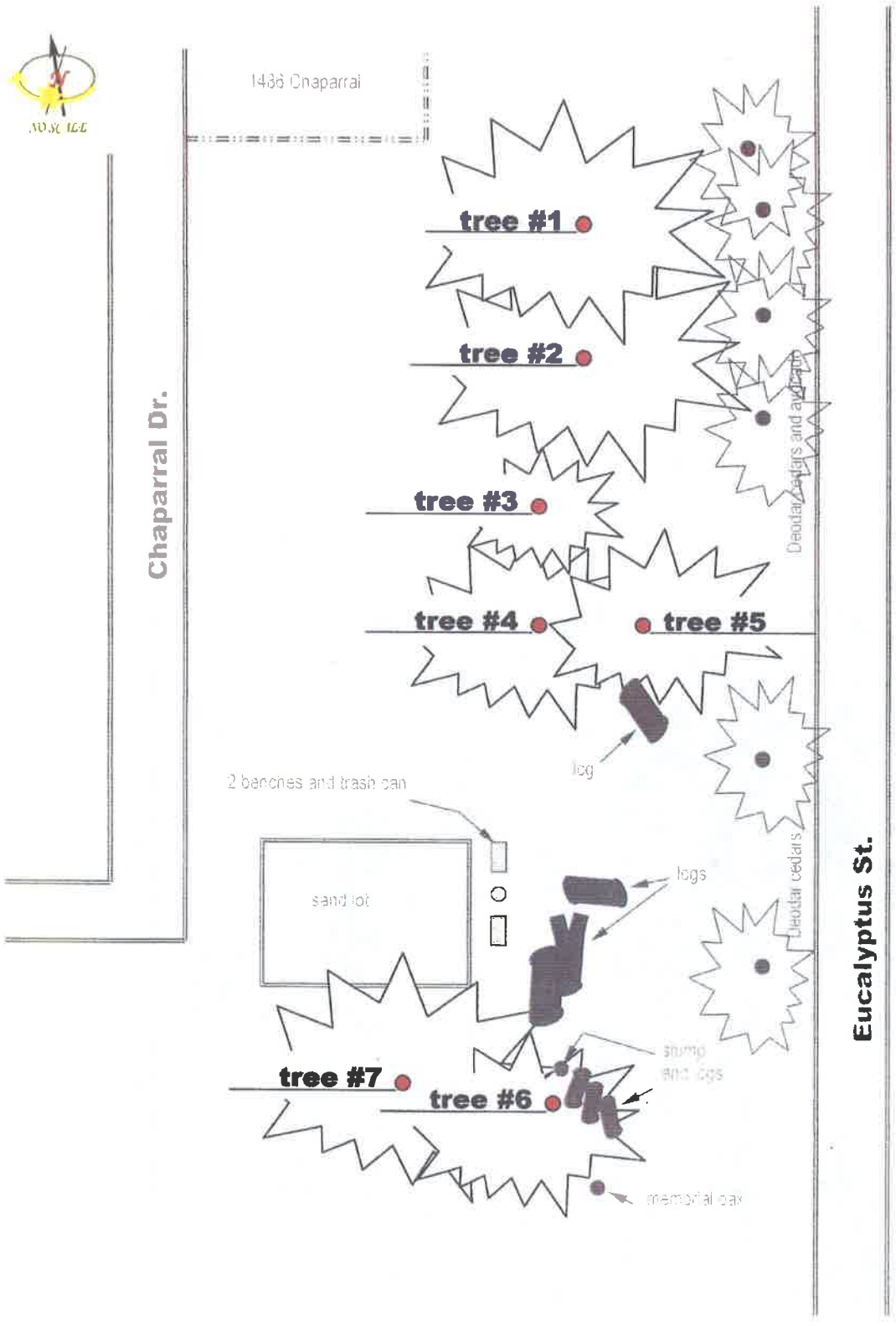
Likelihood of Failure	Likelihood of Impacting Target			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Western Chapter ISA Preconference Workshop on Tree Risk Assessment
E. Thomas Smiley, Ph.D. F.A. Bartlett Tree Expert Co.

April 7, 2014
Jim Clark, Ph.D. HortScience, Pleasanton CA


1438 Chaparral
Chaparral Dr.
tree #1
tree #2
tree #3
tree #4
tree #5
Deodar cedars and a pine
log
2 benches and trash can
sand lot
logs
Deodar cedars
Eucalyptus St.
stump and logs
tree #7
tree #6
memorial bar

Tree 2

Species:	Tasmanian Blue Gum (Eucalyptus globulus)
DSH:	69" Diameter at Standard Height
Height:	110 feet
Canopy:	95" (53' x 95')
Observations:	Tree 2 appears to be in good condition. The burl on the bottom of the tree is primarily hollow and does exhibit evidence of sap ooze. This appears to be slime ooze, a harmless bacteria infection and not symptoms of damage from eucalyptus long horned beetle insect activity.
Tree Defects:	The parts of the tree most at risk of failure is weak scaffold branch approximately 2/3 of the way up the tree, and two overextended branches with weak attachments. Also possible root issues with sap oozing from burl.
Targets:	People walking in the Park under tree 2 and within 165' of the tree. People walking on Eucalyptus St. sidewalks People in cars parked along Eucalyptus St.
Likelihood of failure:	Possible
Likelihood of Impact to target:	High
Likelihood Matrix:	Somewhat likely
Consequences of failure:	Severe
Tree 2 Risk Rating:	Moderate
Mitigation Options:	Reduce two overextended branches in the upper canopy, no parking on west side of Eucalyptus St. within target area, warning signage
Residual risk:	Moderate

Tree 2

Potential scaffold reductions on north east side

Weak attachment

Sap oozing from burl

Tree 3

Species:	Tasmanian Blue Gum (Eucalyptus globulus)
DSH:	36" Diameter at Standard Height
Height:	70'
Canopy:	49' (54' x 43')
Observations:	Tree 3 appears to be in good condition. Tree 3 is protected on three sides by trees 2, 4 and 5.
Tree Defects:	The parts of the tree most at risk of failure are the three, codominant scaffold branches approximately 15-20 feet up the tree.
Targets:	People walking in the Park under tree 2 and within 105' of the tree.
Likelihood of failure:	Unlikely
Likelihood of Impact:	High
Likelihood of impacting target matrix:	Unlikely
Consequences of failure:	Severe
Tree 2 Risk Rating:	Low
Mitigation Options:	None recommended
Residual risk:	Low

Tree 4

Species:	Tasmanian Blue Gum (Eucalyptus globulus)
DSH:	64" Diameter at Standard Height
Height:	120 feet
Canopy:	85" (89' x 80')
Observations:	Tree 4 appears to be in good condition.
Tree Defects:	There are two parts of the tree most at risk of failure. The first is a approximately ¾ up the trunk where three 25"+ scaffolds have V-joints extending from the main trunk. Although the scaffolds are large in relation to the main trunk, the joints do not have included bark. The second risk area is approximately half way up the trunk with three 25-30" scaffolds are within one foot of each other. The scaffold joints do not exhibit included bark, and the scaffolds are tapered, but overextended.
Targets:	People walking in the Park under tree 4 and within 180' of the tree. People walking on Eucalyptus St. sidewalks People in cars parked along Eucalyptus St.
Likelihood of failure:	Possible
Likelihood of Impact to target:	High
Likelihood Matrix:	Somewhat likely
Consequences of failure:	Severe
Tree 4 Risk Rating:	Moderate
Mitigation Options:	Reduce length of overextended branches in middle and upper canopy
Residual risk:	Moderate

Tree 4

Potential scaffold reduction

Tree 4

Potential scaffold reductions

Tree 5

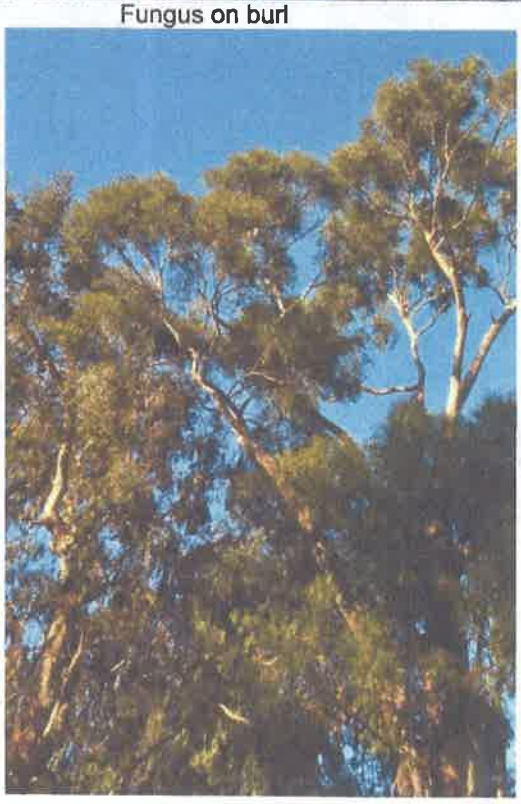
Species:	Tasmanian Blue Gum (Eucalyptus globulus)
DSH:	125" Diameter at Standard Height
Height:	125 feet
Canopy:	93" (92' x 93')
Observations:	Tree 5 appears to be in good condition. Areas of white fungus are located on the north east side of the burl, which sounds mostly hollow
Tree Defects:	The parts of the tree most at risk of failure are 1) the 30"+ scaffold branch half way up the tree on the northwest side that is overextended and lion-tailed. 2) The scaffold one quarter of the way up on the west side with a poor junction with the trunk. 3) The two over-extended branches three-quarter of the way up the tree on the east side
Targets:	People walking in the Park under tree 5 and within 188' of the tree. People walking on Eucalyptus St. sidewalks People in cars parked along Eucalyptus St. People in houses along Eucalyptus St.
Likelihood of failure:	Possible
Likelihood of Impact to Target:	High
Likelihood Matrix:	Somewhat likely
Consequences of failure:	Severe
Tree 5 Risk Rating:	Moderate
Mitigation Options:	Reduction of scaffolds, no parking on west side of Eucalyptus St. within target area, warning signage,
Residual risk:	Moderate

Tree 5 potential scaffold reduction

Tree 5 potential scaffold reduction

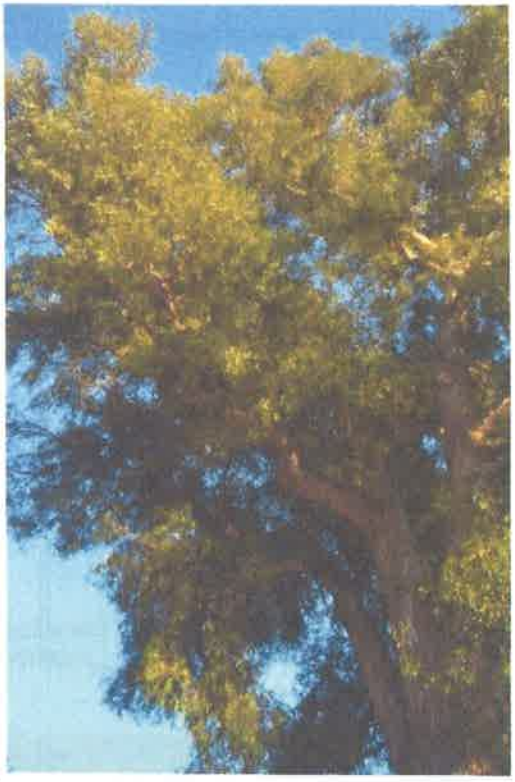
Fungus on burl

Potential scaffold reduction



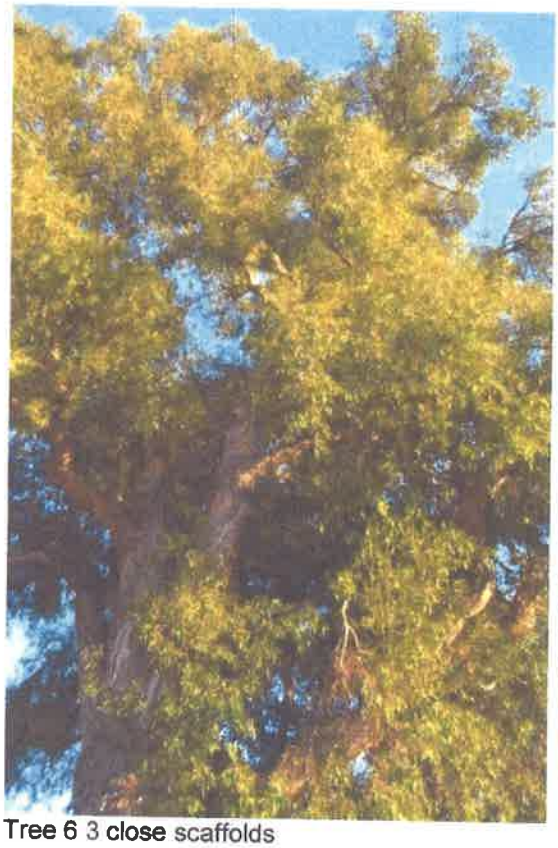
Tree 6	
Species:	Tasmanian Blue Gum (Eucalyptus globulus)
DSH:	93" Diameter at Standard Height
Height:	95 feet
Canopy:	75"
Observations:	Tree 6 appears to be in fair condition. The bottom of the tree is partially hollow, with a flat edge on the southeast side indicating root issues, and sap ooze. The sap appears to be slime ooze, a harmless bacteria infection and not symptoms of damage from eucalyptus long horned beetle insect activity.
Tree Defects:	The parts of the tree most at risk of failure are 1) the overextended branches on the north side of tree, 2) the three scaffolds next to each other about one quarter up the tree on the west side. 3) The scaffold on the southeast side. 4) The base of the tree and possible insect/root issues
Targets:	People walking in the Park under tree 2 and within 143' of the tree. People in playground People in houses within target zone on south side Chaparral Dr.
Likelihood of failure:	Possible
Likelihood of Impact to target:	High
Likelihood Matrix:	Somewhat likely
Consequences of failure:	Severe
Tree 6 Risk Rating:	High
Mitigation Options:	Reduce two overextended branches on north side of tree, or consider moving playground 143' from trunk, level three analyses of sap wounds and root collar
Residual risk:	Moderate

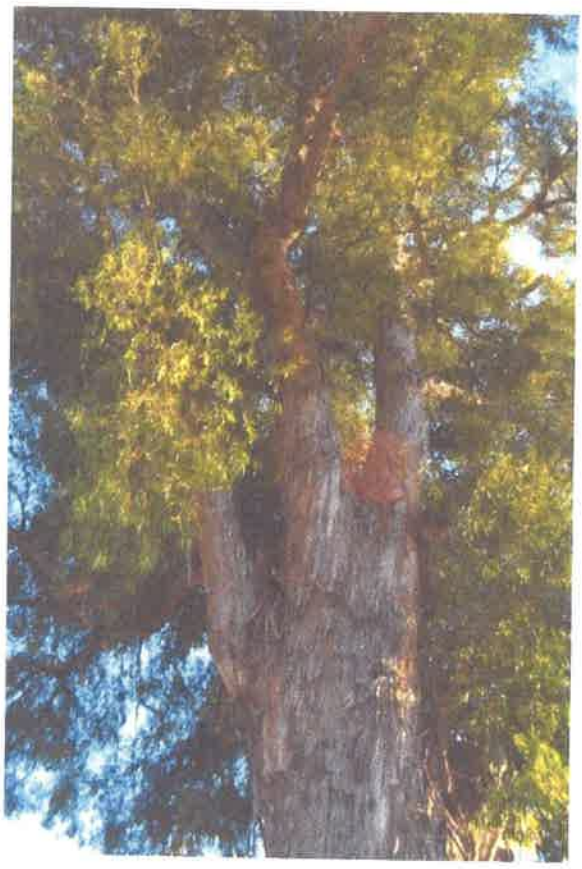
Tree 6 sap ooze, flat base



Tree 6 – Scaffold reduction on playground side

Tree 6 scaffold reduction





Tree 6 3 close scaffolds

ATTACHMENT B

Arborist Report
Heath Ranch Park

Submitted to:
Matthew Roberts
Parks and Recreation Director
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria CA 93013

Prepared by:
Duke McPherson, Arborist
201 East Mountain Drive
Santa Barbara, California 93108

August 20, 2015

Table of Contents

Duke McPherson, Arborist

201 East Mountain Drive
Santa Barbara, CA 93108
Phone 805 705-9529
E-mail: treemanduke@cox.net

August 20, 2015

Matthew Roberts
Parks and Recreation Director
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria CA 93013

Arborist Report

Introduction

I was asked by Matthew Roberts, Director of the City of Carpinteria Parks and Recreation Department, to present my opinion as to the health and safety of the five mature Tasmanian Blue Gum trees, *Eucalyptus globulus* found on the property known as Heath Ranch Park located in Carpinteria, California.

Observations and Discussion

The five trees on the property are highly prized for their historical significance and beauty. On the other hand consideration must be given to the following conditions within and around each tree:

1. They are older trees which over the years have built up both obvious and hidden 'defects' which can contribute to hazardous conditions (Refer to an arborist report by Kenneth Knight of January 25, 2015 titled Heath Ranch Park Heritage Trees Level 2 Assessment and Dan Condon's letter to Matthew Roberts dated January 31, 2011)..
    a. In this grove there are signs of hollowing and internal decay occurring (see photographs in Appendix's A-C pages 4-6).
    b. There are numerous poorly attached branches in most of the trees (See the report by Kenneth Knight and Dan Condon's letter).

2. There are over weighted and over extended branches throughout the grove (See Kenneth Knight's report).

3. The logs from previously fallen trees in the Park had exhibited an internal decay called Brown Cubical Rot, *Phaeolus schweinitzii.* In my Arborist Report of October 17, 2005 I noted that it appeared that the large trunk lignotubers (galls) on the fallen trees had provided entry points for this variety of internal rot which eventually compromised the support tissue in the trees.

4. The trees have grown to great heights (70'-125'). Their high canopies carry branches which, when they break off, have the potential to injure and possibly kill park users.

5. The phenomenon called 'sudden limb drop' can strike at any time in this tree species and does not depend on wind to dislodge branches

5. The property provides 'targets' in the form of park users on a daily basis.

Further Discussion

I address below in more detail the potential and possible anticipated problems regarding the subject trees which were noted in the above section:

1. Defects

a. In the photos presented on pages 4-6 visually observed decay is occurring in three of the five trees under study. In trees 2 and 5, the decay at this point appears not to have invaded wood deeply. More research needs to be done with tree number 7 to determine the extent of decay and hollowing out. The same process may now be in progress in the existing trees which caused toppling in those which were described in #3 above.

b. Numerous poorly attached branches were noted in Mr. Knight's report. Dan Condon recommended that a trained professional in an aerial bucket truck be employed to look more closely at limb attachments and other possible defects throughout the grove to better determine a course of action. In my view, retaining most of the lower branches but pruning out their excessive weight may provide catch places for possible upper level breaks.

2, 4. Over weighted and over extended branches, high canopies, sudden limb drop.

To a certain extent, these existing and potential future problems can be ameliorated through pruning by trained professionals as was described in detail in Mr. Knight's report. In his report he presented recommendations regarding each specific tree's safety concerns. However, even with the best efforts to prevent it, the phenomenon of 'sudden limb drop' will always haunt this grove.

5. Targets

Concerns over safety would not be a consideration if it were not for the large number of people who frequent this park for recreation. It could be added that the trees present a threat to properties adjacent to the park as well. Whatever measures are employed to help insure safety, whether it be safety pruning, signage, or exclusion fencing, the City of Carpinteria must face the specter of the threat to human safety and life which these trees will continue to pose.

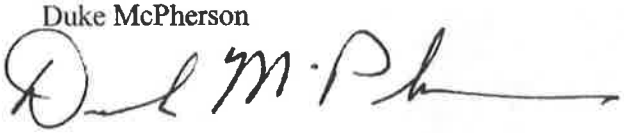
Conclusions and Recommendations

Throughout the years of my involvement with the maintenance of the Heath Ranch Park Eucalyptus grove, I recommended the removal of one tree (tree #1) and the safety pruning of the remaining trees. Tree number 5 has been an exception due to its rangy, poorly branched structure. In my arborist report of October 2005, I recommended that it be cordoned off to prevent possible harm to park users from falling branches (the tree has had a history of breakage).

I have come to conclude at the present time that even with the best efforts, these mature trees present a significant liability for the City and pose a threat to human safety. The central issue is that their dangerous condition, on many counts, continues to progress. It is only a matter of time before an accident will happen which will prompt their removal. My recommendation is that all the trees except for #7 should be removed at this time. Tree #7 needs basic pruning, especially over the playset. The cavity at its base on the north side needs to be thoroughly dug out to determine the extent of active decay.

Report prepared by

Duke McPherson



Certified Arborist with the
International Society of Arboriculture
Certification # WE-0690A

Appendix A

Figure 1. Photo shows a basal burl on the west side of tree #2 which has decayed away. Note the depth to which decay has advanced into its center. Decay of this kind can provide a point of entry for the very destructive Brown Cubicle Rot.

Appendix B

Figure 2. Photo shows burl decay in two places at the base of tree #5.

Appendix C

Figure 3. Photo shows a deep cavity on the north side of tree #7 in which Brown Cubicle Rot is abundantly present.

ATTACHMENT C

Kenneth A. Knight Consulting LLC
Registered Consulting Arborist #507
69 Calaveras Avenue Goleta, CA 93117
H (805) 968-8523 W (805)252-1952
kennethknight@cox.net www.goletaarborists.com

December 24, 2015

Matthew Roberts
Parks and Recreation Director
City of Carpinteria
5775 Carpinteria Avenue
Carpinteria CA 93013

Arborist Report: Health Ranch Park Eucalyptus Tree #7

Assignment

I was requested to follow up the September 4, 2015 pruning of Heath Park Ranch Eucalyptus Tree Number 7 with an air spade evaluation of the root collar. The purpose of the inspection was to identify potential structural root collar deficiencies that could result in whole tree failure, and to also improve tree health by loosening the soil under the canopy.

Observations

On December 15, 2015, after extensive watering around the tree by City staff, West Coast Arborist staff attempted to use an air spade to dislodge soil around the base of tree 7. However, the soil next to the tree was heavily compacted clay where the water could not penetrate. We stopped work and returned on December 23, 2015 after City staff again heavily watered around the tree, including the use of a soaker hose at the base of the tree.

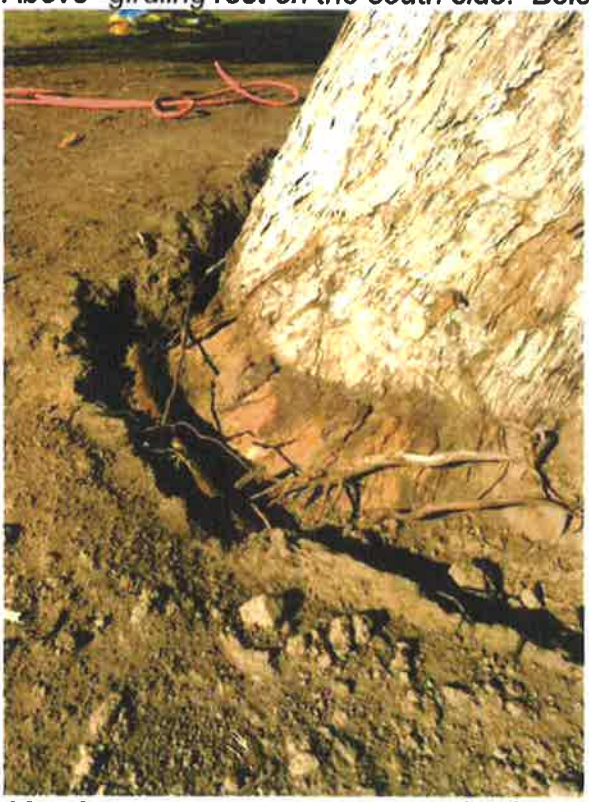
The irrigation penetrated approximately 3 inches of the upper soil, which did not allow as deep penetration with the air spade as we had anticipated, but it did allow the removal of approximately 8 to 12 inches of soil around the root color. I was particularly interested in the gall at ground level on the south side of the tree, I did not see any cankers, fungal bodies, or wood discoloration at that location or elsewhere around the outside of the tree. I sounded the root collar with a rubber mallet all around the tree and I did not detect any significant hollow sounds.

Duke McPherson's August 20, 2015 Arborist Report called for a closer inspection of the cavity on the north side of the tree. The cavity extends approximately 2 feet into the tree and about two feet high. While there is Brown Cubical Rot in the deadwood of the cavity, the remaining wood when probed by hand and with a five-foot probe is relatively solid. The tree is seven feet wide at this point, so there is approximately 5 feet of good wood on the southern side that will continue to support the tree.


Above-Cavity on north side, Right-decayed pieces, below looking up from inside cavity

The air spade did uncover a 7' to 9" diameter girdling root on the south side of the tree. The flat shape of the southern side of the trunk indicated that this was likely.

Above -girdling root on the south side. Below – girdling root extending east along trunk



After finishing the root collar examination, City staff refilled the hole with existing loose soil.

West Coast Arborist staff used the air spade to create eight trenches around the tree, each one about six inches deep and one foot wide. Each trench started about ten feet from the tree and extended about 25 feet to the edge of the canopy. Each trench was then backfilled with one two cubic foot bag of compost mixed in with the original soil. The purpose of the trenches is to loosen the compacted soil, add some organic material to the soil, and improve the ability of the tree roots to receive air and water.

Above -trench radiating from tree. Right- cell phone idincates depth of trench, note soil is dry about 3 inches below surface

Conclusions

1. There is some decay in the northern base of tree seven, but this decay is not present around the exterior root collar. There appears to be sufficient good, structurally sound wood to support the main trunk of tree seven under normal conditions.
2. Under the current drought conditions, the irrigation system for the grass is not penetrating deep enough to provide irrigation to tree seven.
3. Although the radial trenching will assist the ability of tree seven roots to secure water and minerals, the majority of the ground around tree seven remains heavily compacted clay.

Recommendations

1. To slow the progress of decay, the area around the cavity and the tree seven dripline should remain dry and not irrigated. Should the drought continue, the tree's periodic irrigation needs should be reevaluated in summer of 2016.
2. Tree seven is likely to continue to live for decades, thus the girdling root on the south side of the tree should be cleanly cut and removed along the approximately 10 foot length adjacent to the trunk.
3. The City should consider annually loosening the soil under the canopy of tree seven in different locations than done in 2015. Since the City has a number of high value trees where this soil loosening would be beneficial, the City may want to consider purchasing their own heavy duty Air Spade or Supersonic Air Knife.
4. All of the ground underneath the dripline of tree seven, especially the radial trench areas where the soil was recently loosened, should be covered with 3 to 4 inches of organic bark mulch. The grass does not have to be removed, but if the water is turned off, and the mulch is in place under the tree seven shady canopy, the grass will minimally active.
5. Tree seven is experiencing regrowth from the September 4, 2015 pruning of 15% of the canopy. The City should consider an annual strategic structural pruning to remove 15% of end weight.

Sincerely,

Ken Knight

Ken Knight, Registered Consulting Arborist #507

ATTACHMENT D

Tree Evaluation Report: Blue Gums at Heath Ranch Park, City of Carpinteria

August 11, 2004

August 11, 2004

City of Carpinteria
ATTN: Mr. Rick Fullmer
5775 Carpinteria Avenue
Carpinteria, CA 93013

RE: Heath Ranch Park – Blue Gum Eucalyptus

Dear Mr. Fullmer,

Pursuant to your request, I examined seven Blue Gum Eucalyptus Trees (*Eucalyptus globulus*) located in Heath Ranch Park in the City of Carpinteria. The purpose of the visit was to assess their condition. This report is a commentary on this examination, separated into sections as follows:

1.) Tree Locations, Vitals, and Visual Observations
2.) Test Description, Analysis, and Results
3.) Comments
4.) Recommendations
5.) Appendix
    A.) Site Map
    B.) Resistograph® Results & Root Tissue Results
6.) Figures

1.) Tree Locations, Vitals, and Visual Observations

The trees are located mainly in the central area of the park, in a loose row running north / south (see Appendix A). They all are large, mature specimens, with their sizes (all approximate) as follows (from north to south):

	DSH*	Height	Canopy Spread
Tree #1	87"	123'	68'
Tree #2	62"	118'	82'
Tree #3	35"	95'	45'
Tree #4	62"	108'	73'
Tree #5	106"	129'	77'
Tree #6	49"	88'	43'
Tree #7	82"	102'	97'

*Diameter at Standard Height: 4.5 feet above ground (in usual cases)

The following are observations taken on July 15, 2004, for each Blue Gum listed above, with figures included for reference. In addition, during the same week, Mike T. Mahoney, independent consulting arborist, conducted Resistograph® tests on each of the seven trees, and here I have included brief results of each test within the observations being made for each tree. (Capital letter in parenthesis refers to geographical side of tree a cavity was found)

Tree #1: This tree is located the farthest north in the park (see Figure 1.1, tree on left). It has a rather sparse canopy, with most of its growth up top (see Figure 1.2). Its trunk base has a huge lignotuber (see Figure 1.3), which is a woody tuberous mass that occurs naturally in some Eucalyptus species[1]. There are two small cavities within the lignotubers, and there are signs of borer infestation (see Figure 1.4). There is turf growing with six feet of one side of the trunk, and the soil around the trunk was moist the day of the inspection. RESISTOGRAPH RESULTS (see Appendix B): 4 locations tested, 1 cavity found (S).

Tree #2: This tree is next to Tree #1 (see Figure 1.1, second tree on left). It has both canopy and subcanopy growth as well as a profusion of seed caps. There is one questionable attachment of a major limb that appears to be included, which inherently are weak (see Figure 2.1). It too has a lignotuber, on which there is some decay (see Figure 2.2). The soil around the tree was moist. RESISTOGRAPH RESULTS: 4 locations tested, no cavity or significant decay detected.

COULD THERE STILL BE UNDETECTED CAVITIES

Tree #3: This is the smallest tree of the group (see Figure 1.1, 3rd tree from right). It has a lot of watersprout growth from about 12 feet up, and the canopy is rather open and sparse. It has a proliferation of seed caps. RESISTOGRAPH RESULTS: 4 locations tested, 2 cavities found (N, E)

Tree #4: This tree is located on the north side of playground (see Figure 4.1, tree on left). Although it has a lot of foliage, much of it is below the main canopy structure. This tree also has a profusion of seed caps throughout most of its foliage, and there is some evidence of tortoise beetle damage on some leaves. There is also one major limb that extends out over a picnic table on its west side (see Figure 4.2). Like the other trees, the base of the trunk is surrounded by damp soil (with turf nearby), and there is moss growing on the bark in some areas (see Figure 4.3). RESISTOGRAPH RESULTS: 4 locations tested, no cavities found.

Tree #5: This tree is located more on the Eucalyptus Street side (see Figure 5.1). It is the tallest of the Blue Gums at the park and it has the largest trunk diameter. However, it has a rather sparse canopy, with a profusion of watersprout growth covering one side of its lower trunk (see Figure 5.2), and both the watersprout growth and the sparse canopy growth contain many seed caps. Its trunk base is swollen with lignotubers, and there are

[1] *A Field Guide to Eucalypts: Volume 1*. M.I.H. Brooker & D.A. Kleinig. Inkata Press, 1993.

trunk inclusions as well (see Figure 5.3). The soil was moist but not damp. RESISTOGRAPH RESULTS: 4 locations tested, 2 cavities found (N, E)

Tree #6: This tree is at the south end of the park (see Figure 6.1). Most of its foliage is up in the canopy, although there is more watersprout growth on the lower limbs (see Figure 6.2). There is a beehive at one of the limb scars and some minor tortoise beetle damage, as well as a profusion of seed caps within the foliage. The soil around the trunk is wet, and there are several sections on some trunk swellings that show some rot (see Figure 6.3). RESISTOGRAPH RESULTS: 4 locations tested, 2 cavities found (N, E)

Tree #7: located next to the sand lot, this Blue Gum has the largest canopy spread of all the trees (see Figure 7.1). Its major limbs are spread out to form a large canopy, although there is one included attachment between two major limbs (see Figure 7.2). Most of its growth and foliage is up in the canopy, and there is minor tortoise beetle damage. Also, the tree has just a small number of seed capsules within its foliage. There is one bird's nest within a crotch up in the canopy (see Figure 7.3). The trunk is swollen, with one cavity near its base (see Figures 7.3 & 7.4). The soil around the trunk is damp, with grass growing less than two feet from the circumference of the trunk. RESISTOGRAPH RESULTS: 4 locations tested, no cavities found.

2.) Test Description, Analysis, and Results

A Resistograph® was used to detect decay and the presence of any cavities in the internal woody tissues. Briefly stated, the device consists of a small needle that is inserted into the tree, and it detects and reads resistance that the needle encounters as it bores into the wood. The results are recorded on a graph and this graph can show the degree of resistance (from high, meaning rather hard wood, to low, meaning decay or even a cavity). The device can also detect barrier zones, which can suggest significant deterioration developing in the entire bole below the zone[2]. The results show that Trees #1, #3, #5, and #6 have significant cavities or other factors worth considering.

In additon, a tissue (from roots) test was done on Tree #6, to look for any pathogens. Results showed that no pathogens were found.

3.) Comments

Blue Gums (technically, Tasmanian Blue Gums[3]) are native mainly to coastal southeastern Australia and Tasmania, and though they are classified as a forest tree, they are known for thriving especially well in Mediterranean climate regions, characterized by cool wet winters and dry, warm summers, and they can thrive with only twenty-one inches of annual rainfall (and certainly it is often less in Southern California) accompanied by a pronounced dry season[4]. Also, their natural shape is similar to Tree #7, which appears to be the healthiest tree of the seven. However, in a city-managed

[2] Letter from Mr. Mahoney regarding test results.
[3] Ibid.
[4] Website: *California Invasive Plant Council – Eucalyptus globulus.* http://ucce.ucdavis.edu/datastore/

park setting, Blue Gums tend to have their ideal conditions compromised primarily by the fact that they are being irrigated year round. Also, Blue Gums prefer sandy, fast-draining soils, and they are prone to having root problems in constantly damp and wet soil. Thus, in less than ideal conditions, they (and most trees, for that matter) will experience stresses that can predispose them to other problems. As the trees are too large to warrant a thorough visual inspection, there are noticeable symptoms that need to be accounted for; in particular, the formation of the lignotubers, and surge of subcanopy watersprout growth, and the proliferation of seed caps. As stated above, the lignotubers occur naturally on many Eucalyptus species, but their purpose is to assist in producing new shoot growth from itself, as a survival mechanism in the event of death (by failure, old age, fire in natural conditions, or by above ground decay within its trunk system). The existence of watersprouts also is another indicator of stress, as the tree is trying to produce foliage quickly, at its most ideal location, to continue to feed itself, since its canopy cannot do so to the extent that it can sustain the tree's health. It must be remembered that foliage is also vital to a tree's survival. It is worth noting that Trees #3, #5, and #6, all of which have proven signs of trunk decay, also have produced considerable watersprout growth. And though it is common for most trees to periodically produce a considerable number of flowers and seed caps, with many trees it can be a sign of stress, as the tree is showing a need to reproduce as it is threatened with dying. Tree #7, considered the healthiest, has a far less number of caps (based on a considerable binocular examination of its canopy) than the other trees.

Perhaps the most significant consideration is for the trees' age. Although it is clear that the park was founded in 1858, I can only assume that most if not all the trees are over 100 years old, which is quite old for Blue Gums. Because of this, it will be necessary to consider seriously how much longer the trees will continue to live and how much risk the City is willing to accept for continuing to maintain these trees. On the day of my visit, I was asked by several children who were there playing around the base of the trees, and a couple of them asked me, in a concerned tone of voice, 'Are you going to remove the trees'? I replied that I was merely taking a look at them, but my conclusion was that these trees indeed are liked by a part of the City population.

4.) Recommendations

Thus, my recommendations are as follows:

- Consider a plan for eventual removal of all of the trees, prioritizing from those with the highest priority (most hazardous) to be removed as soon as possible. In this case, based on the field observations and on the data received from the two tests, I would rate the priority: #3, #5, #6 as high priority, then #1, #2, #4 as moderate, and then #7 last. Removing #3, #5, and #6 first will accomplish two things: first, the trees with the most serious internal defects (per Resistograph® test) can be taken down; and second, by removing these trees, you permit more space for the other trees to grow.
- Put the remaining trees on a monitoring program, where they are assessed at least four times per year (preferably during a Santa Ana wind event and after the onset of rains), as they all still carry some element of risk. Monitoring can

include checking for soil issues, pest issues, needed pruning, or any other issues that would require mitigation of some kind.

- For the remaining trees, remove any turf within a minimum 20-foot radius (where it exists as such) of the dripline, and cut any sprinkler irrigation that falls within the radius. Both the soil and the lower trunks of many trees were far too wet, especially during my visit in July. It may be preferable to leave the radius around the tree trunks bare (as opposed to applying mulch), to permit drying out in the event of heavy rains.
- Put the remaining Eucalyptus trees on an annual pruning program; the purpose of the pruning is to remove any dead, diseased, or broken limbs that can fall in any circumstance, as well as thin lightly any areas of the crown that are too heavy.
- For each tree that is removed, plant a new tree somewhere in the park. For suggestions on species types, that would be at the discretion and agreement of all parties concerned, although we can provide recommendations.
- Inform the public what the situation is regarding the Blue Gums, and how important it is to consider the risks involved in continuing to maintain them at their age and stature.

Should you have any questions or require additional information, please feel free to contact me at (714) 991 – 1900.

Sincerely,

Tony Uno
Certified Arborist #WE-6204

ASSUMPTIONS AND LIMITING CONDITIONS

1. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the Consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

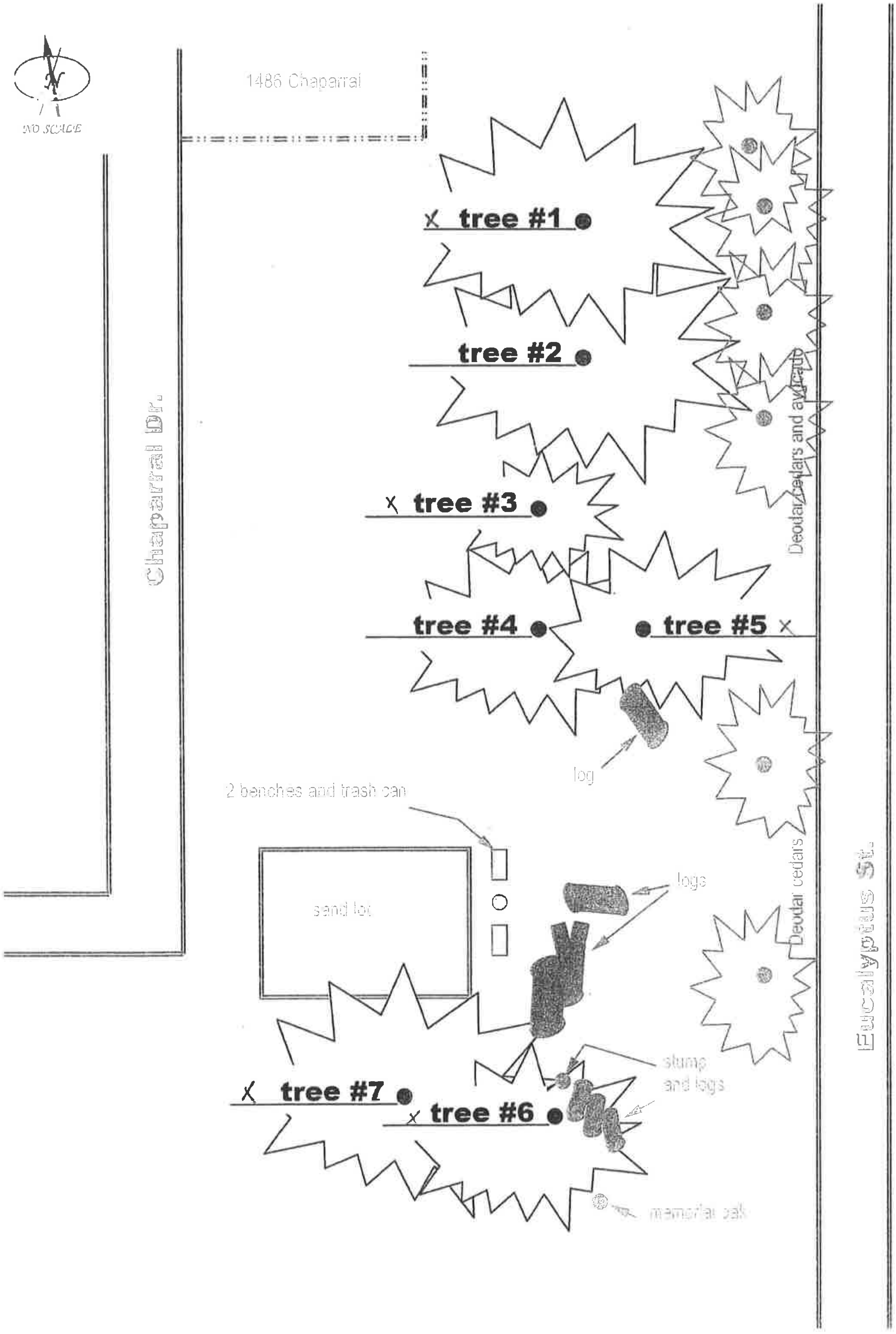
2. Loss or alteration of any part of this report invalidates the entire report.

3. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior written or verbal consent of the Consultant.

4. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a stipulated result, nor upon any finding to be reported.

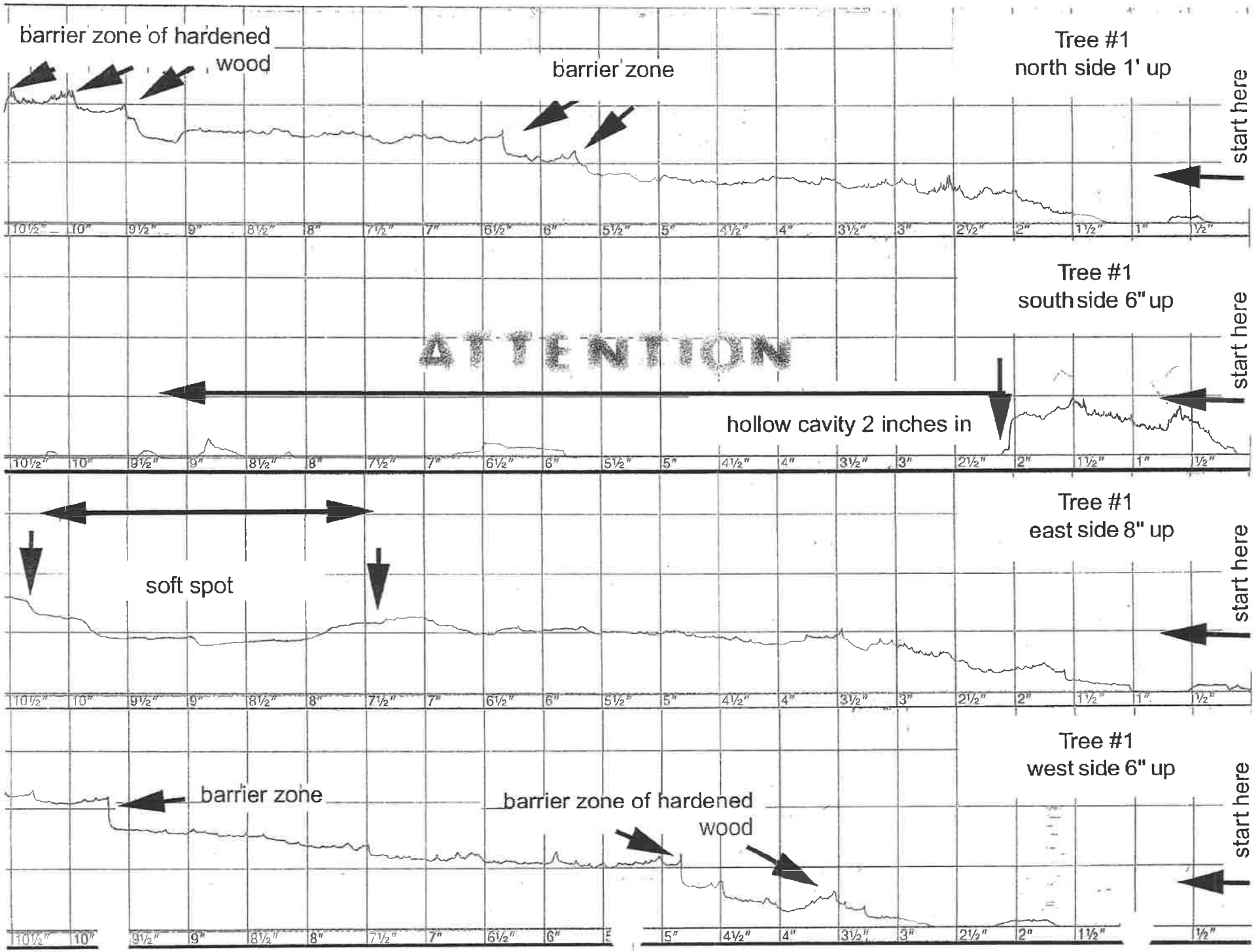
5. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection and 2) the inspection is limited only to visual examination of accessible items, Resistograph® tests on particular areas of the seven trees, and one root tissue test. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the tree(s) or property in question may not arise in the future.

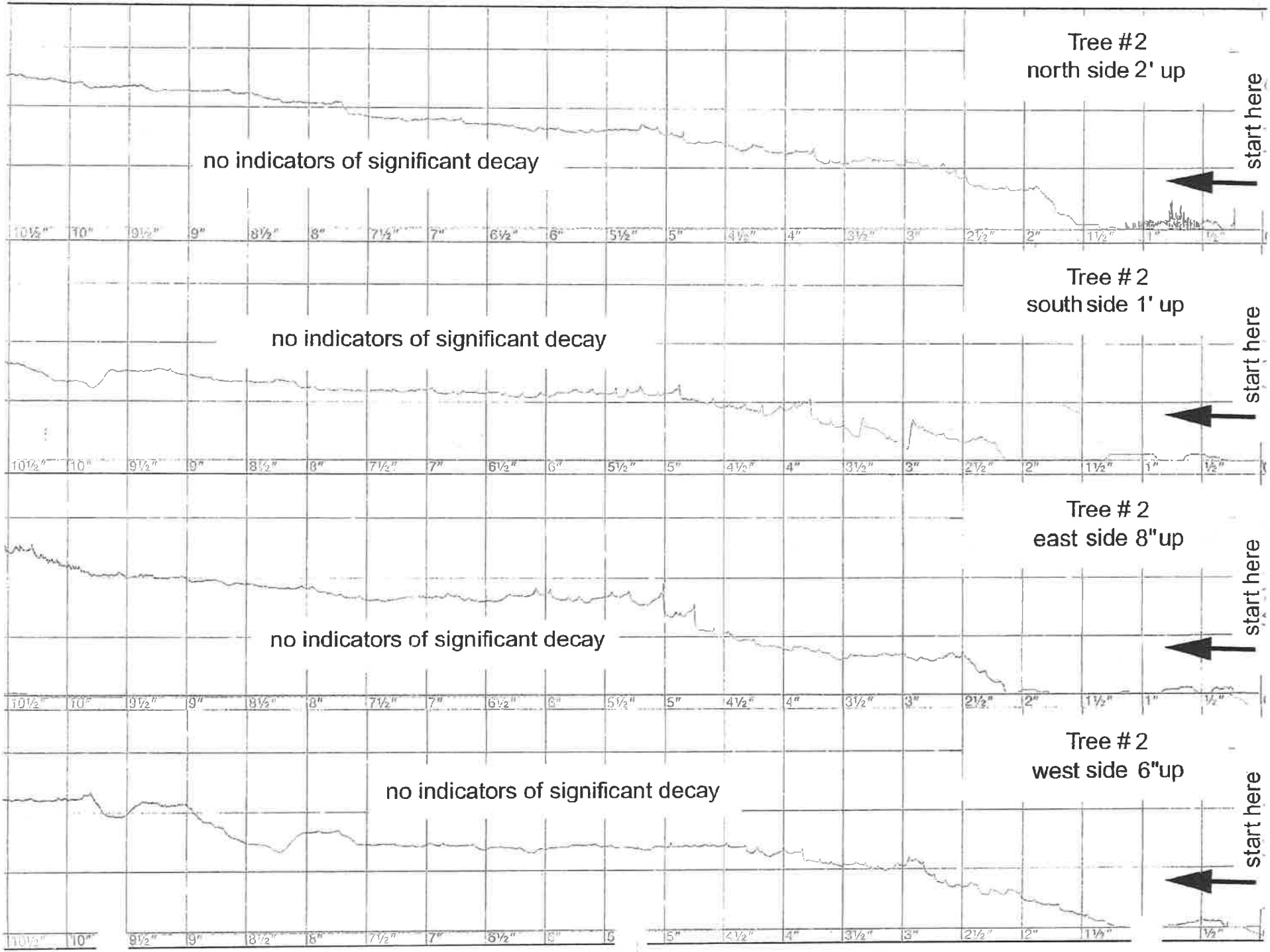
Appendix A: Site Map

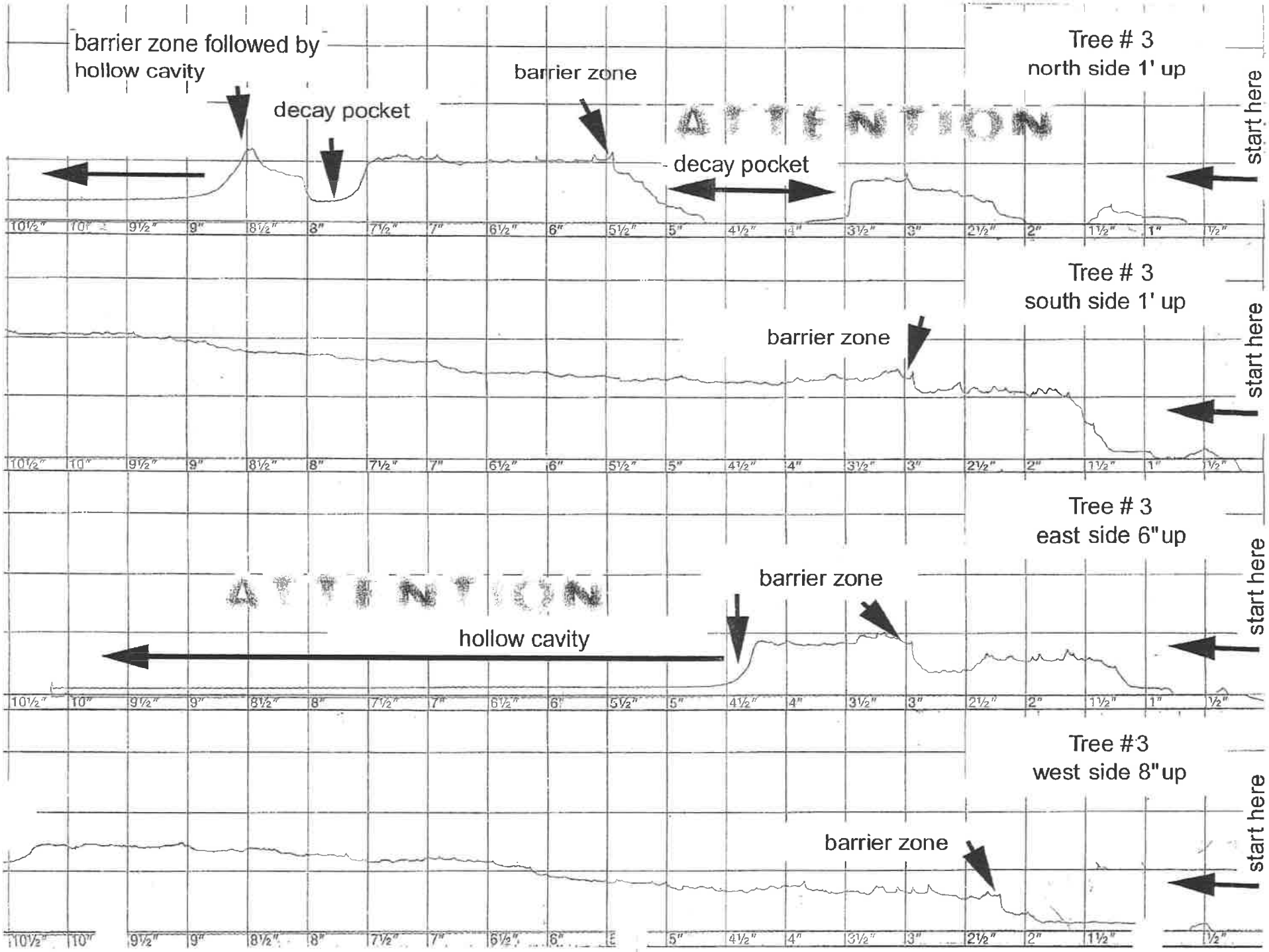


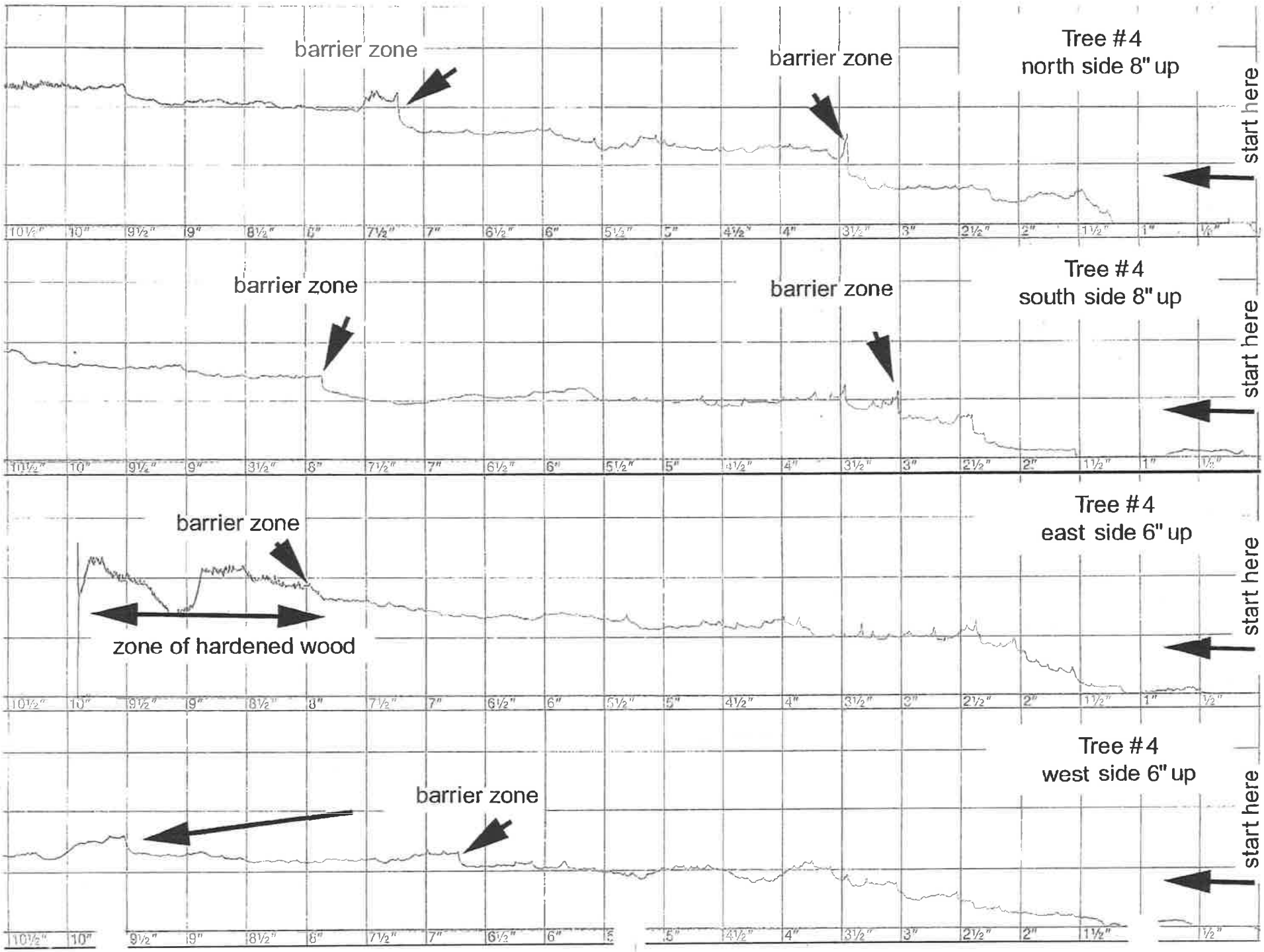
N
NO SCALE
1486 Chaparral
Chaparral Dr.
tree #1
tree #2
tree #3
tree #4
tree #5
Deodar cedars and
log
2 benches and trash can
Deodar cedars
logs
sand lot
Deodar cedars
Eucalyptus St.
stump
and logs
tree #7
tree #6
memorial oak

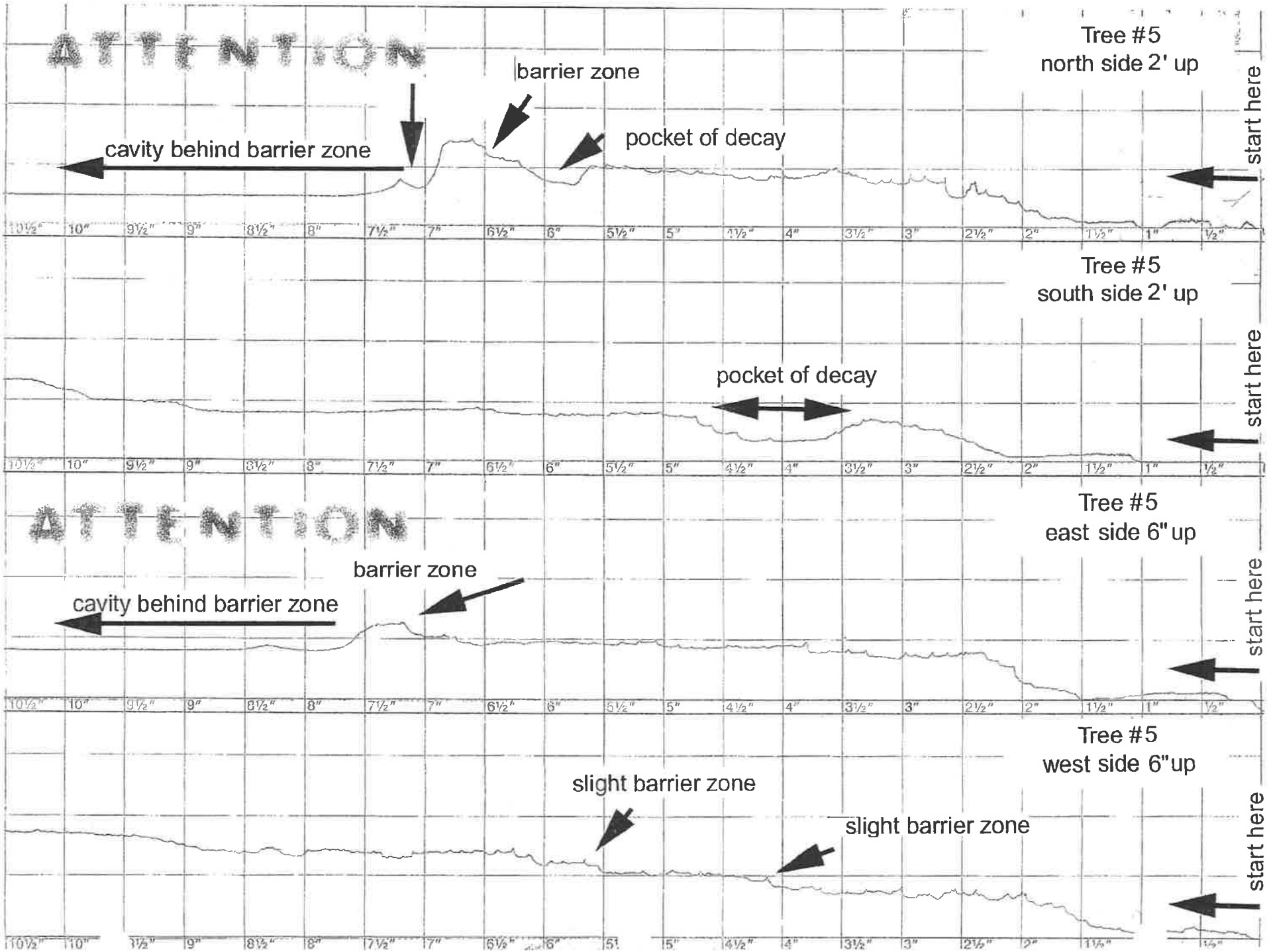
Appendix B: Resistograph® Results & Root Tissue Results

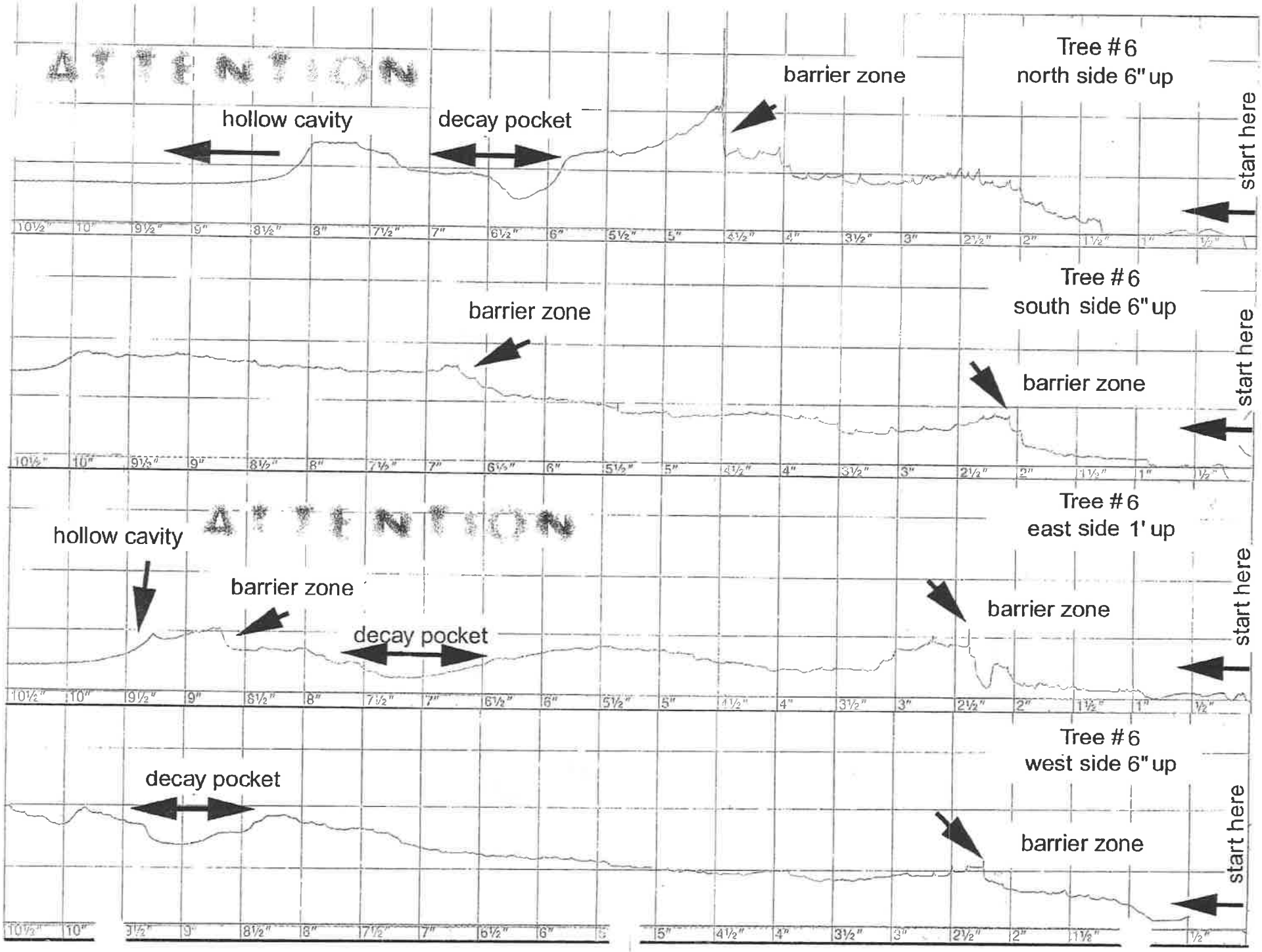

barrier zone of hardened wood
barrier zone
Tree #1
north side 1' up
start here
Tree #1
south side 6" up
start here
ATTENTION
hollow cavity 2 inches in
Tree #1
east side 8" up
start here
soft spot
Tree #1
west side 6" up
start here
barrier zone
barrier zone of hardened wood

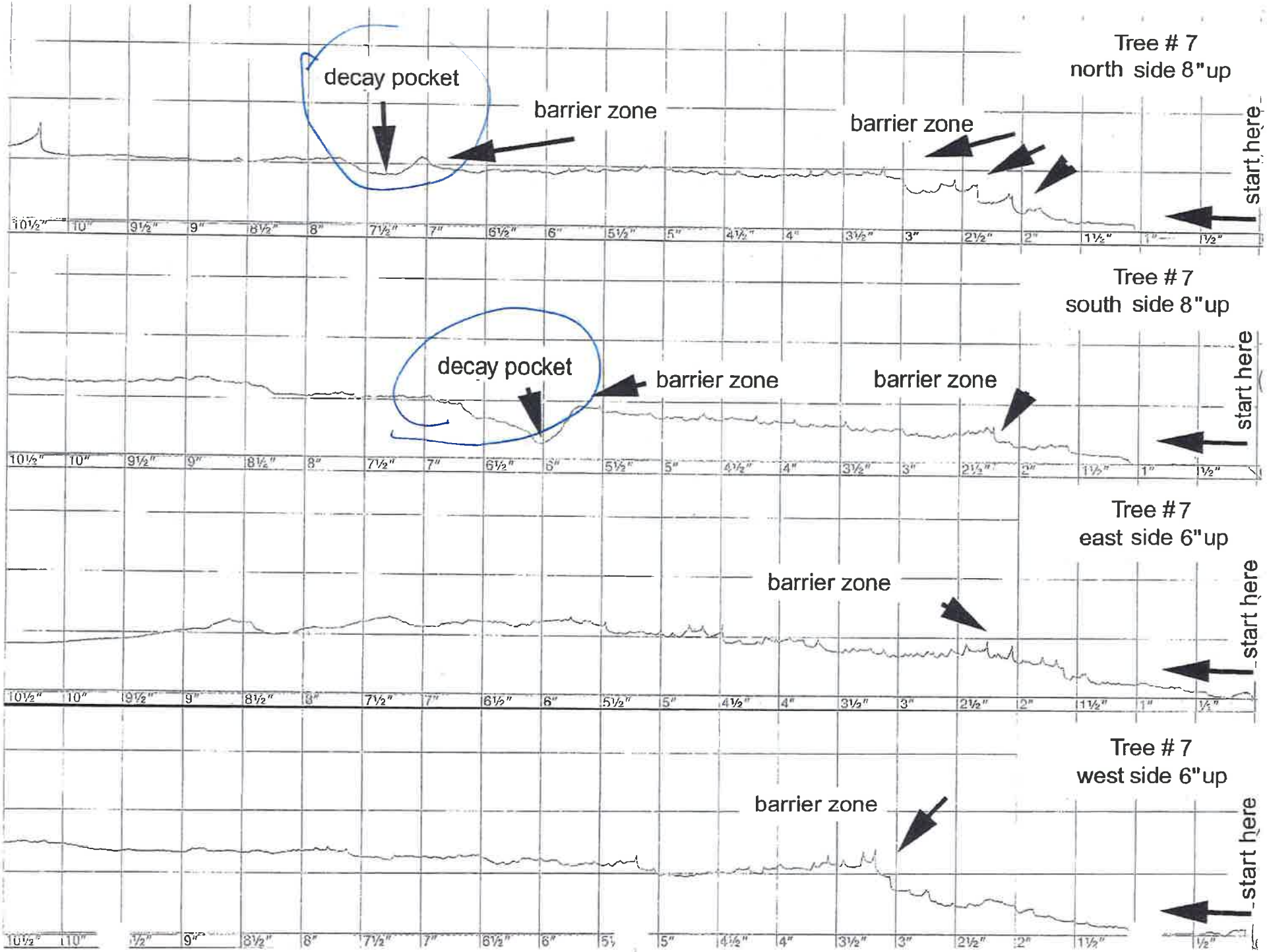

Tree #2
north side 2' up
no indicators of significant decay
start here
Tree # 2
south side 1' up
no indicators of significant decay
start here
Tree # 2
east side 8"up
no indicators of significant decay
start here
Tree # 2
west side 6"up
no indicators of significant decay
start here


barrier zone followed by
hollow cavity
decay pocket
barrier zone
decay pocket
Tree # 3
north side 1' up
start here
Tree # 3
south side 1' up
barrier zone
start here
Tree # 3
east side 6"up
barrier zone
hollow cavity
start here
Tree #3
west side 8"up
barrier zone
start here


barrier zone
barrier zone
Tree #4
north side 8" up
start here
barrier zone
barrier zone
Tree #4
south side 8" up
start here
barrier zone
zone of hardened wood
Tree #4
east side 6" up
start here
barrier zone
Tree #4
west side 6" up
start here


ATTENTION
barrier zone
Tree #5
north side 2' up
cavity behind barrier zone
pocket of decay
start here
10½" 10" 9½" 9" 8½" 8" 7½" 7" 6½" 6" 5½" 5" 4½" 4" 3½" 3" 2½" 2" 1½" 1" ½"
Tree #5
south side 2' up
pocket of decay
start here
10½" 10" 9½" 9" 8½" 8" 7½" 7" 6½" 6" 5½" 5" 4½" 4" 3½" 3" 2½" 2" 1½" 1" ½"
ATTENTION
Tree #5
east side 6" up
barrier zone
cavity behind barrier zone
start here
10½" 10" 9½" 9" 8½" 8" 7½" 7" 6½" 6" 5½" 5" 4½" 4" 3½" 3" 2½" 2" 1½" 1" ½"
Tree #5
west side 6"up
slight barrier zone
slight barrier zone
start here
10½" 10" 9½" 9" 8½" 8" 7½" 7" 6½" 6" 5½" 5" 4½" 4" 3½" 3" 2½" 2" 1½"


Tree #6
north side 6" up
barrier zone
hollow cavity
decay pocket
start here
Tree #6
south side 6" up
barrier zone
barrier zone
start here
Tree #6
east side 1' up
hollow cavity
barrier zone
decay pocket
barrier zone
start here
Tree #6
west side 6" up
decay pocket
barrier zone
start here


Tree # 7
north side 8"up
decay pocket
barrier zone
barrier zone
start here
Tree # 7
south side 8"up
decay pocket
barrier zone
barrier zone
start here
Tree # 7
east side 6"up
barrier zone
start here
Tree # 7
west side 6"up
barrier zone
start here

SOIL AND PLANT LABORATORY, INC.

Orange Office
Path No. 601
Lab No. 55194
July 12, 2004

West Coast Arborist
2200 E. Via Burton
Anaheim, CA 92806

Attn: Sarah Young

PATHOLOGY RESULTS: EUCALYPTUS GLOBULUS

Examination and culturing of the plant specimen(s) delivered to our laboratory on 6/30/04 found the following microorganisms.

Tissues examined and cultured: roots

No pathogens were isolated from the submitted root sample.

Please call if you have any questions.

Paul F. Santos, M.S.
Plant Pathologist

P.O. Box 6566, Orange, California 92863-6566 (714) 282-8777 • FAX (714) 282-8575
P.O. Box 153, Santa Clara, California 95052-0153 (408) 727-0330 • FAX (408) 727-5125
P.O. Box 1648, Bellevue, Washington 98009-1648 (425) 746-6665 • FAX (425) 562-9531

Figures

Figure 1.1, Tree #1 (farthest left), #2 (second), and #3 (smallest)

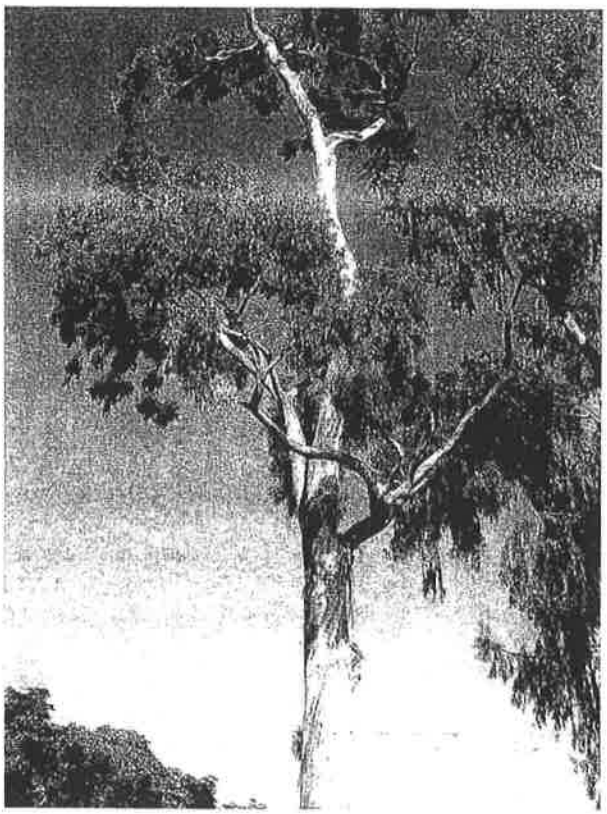


Figure 1.2

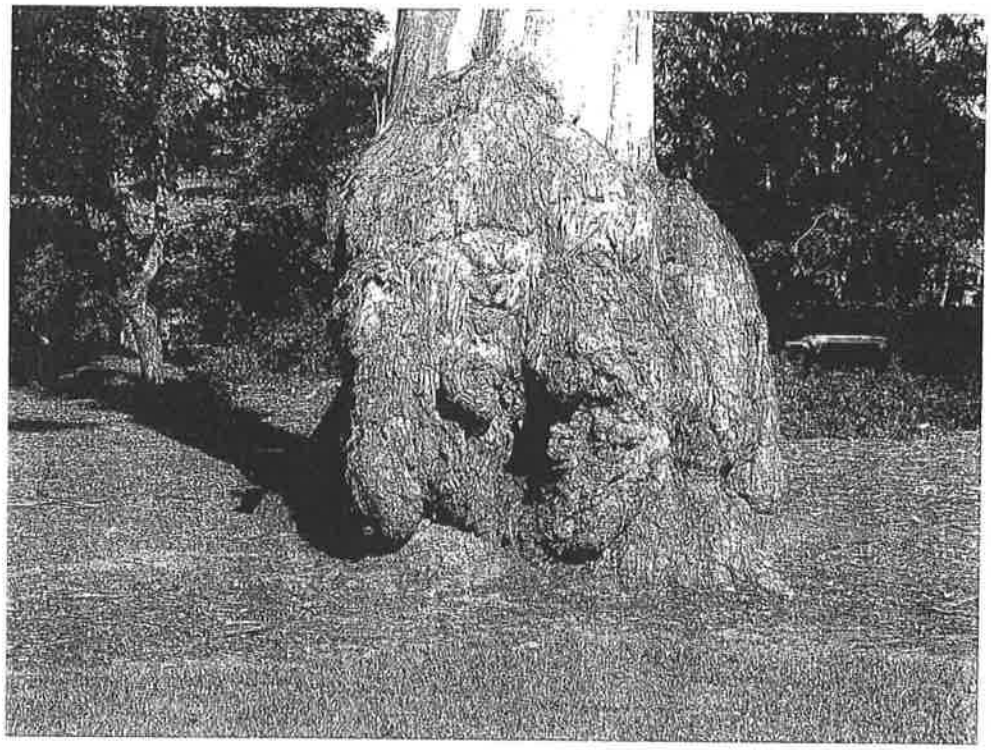


Figure 1.3, Lignotuber with Cavity

Figure 1.4

Figure 2.1, Included Attachment

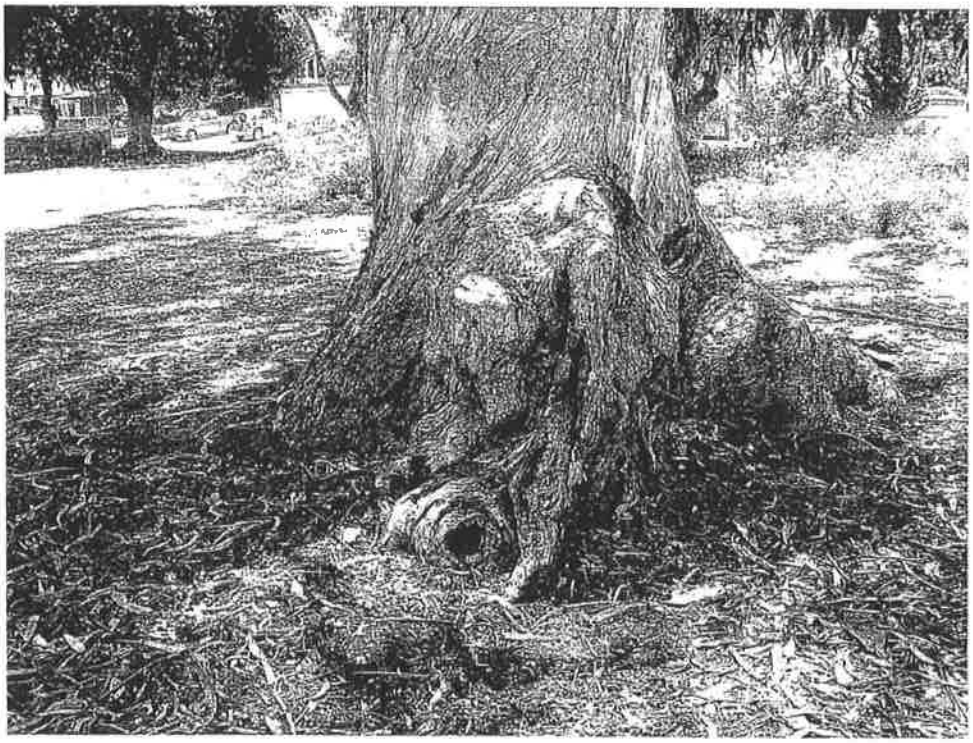


Figure 2.2

Figure 4.1, Tree #4 (left)

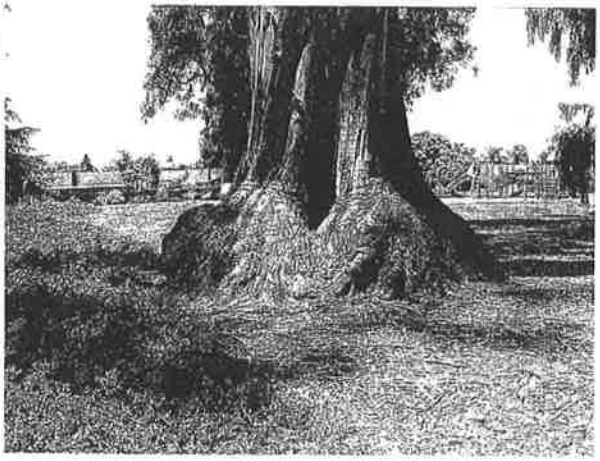
Figure 4.2

Figure 4.3

Figure 5.1, Tree #5

Figure 5.2

Figure 5.3



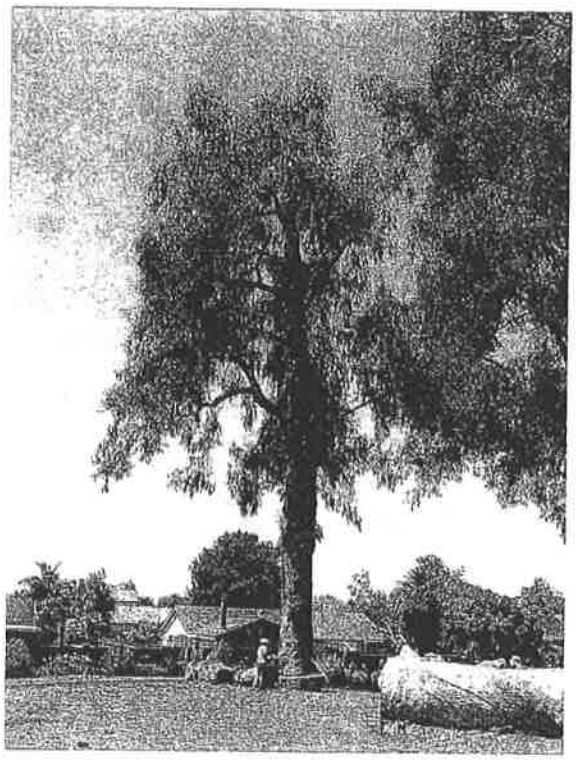


Figure 6.1, Tree #6

Figure 6.2

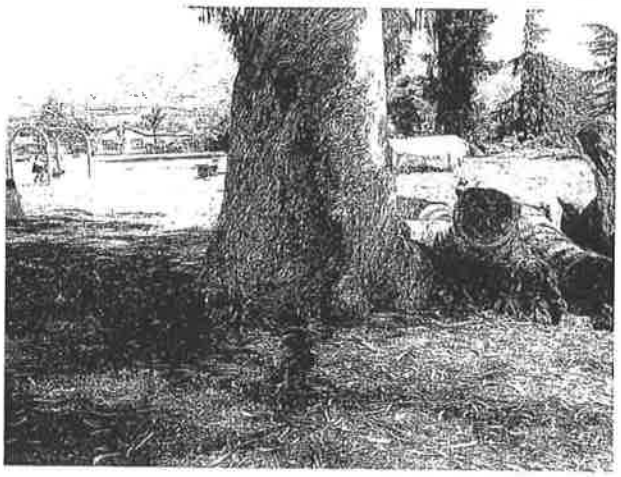


Figure 6.3

Figure 7.1, Tree #7

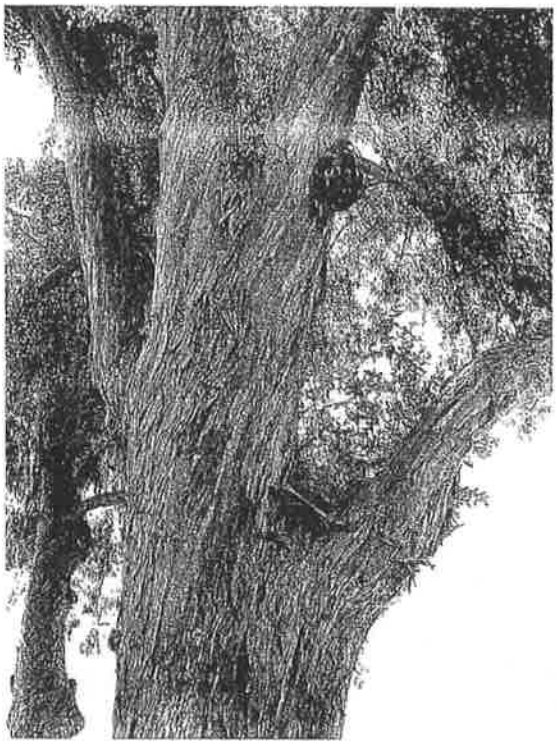


Figure 7.2, Included Attachment

Figure 7.3

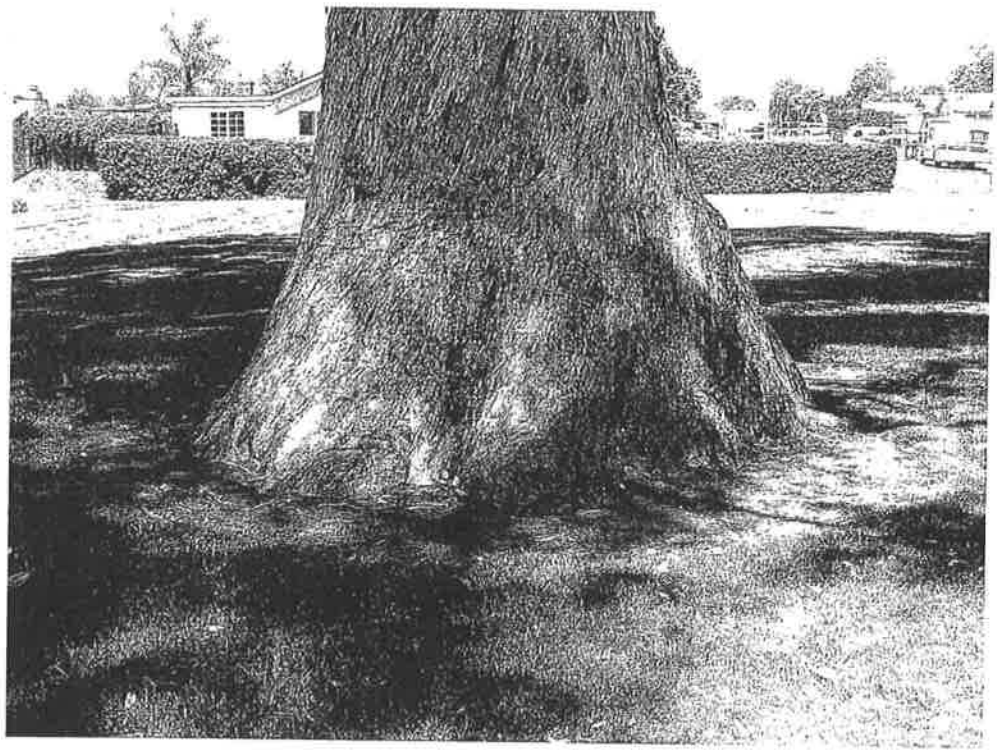


Figure 7.4

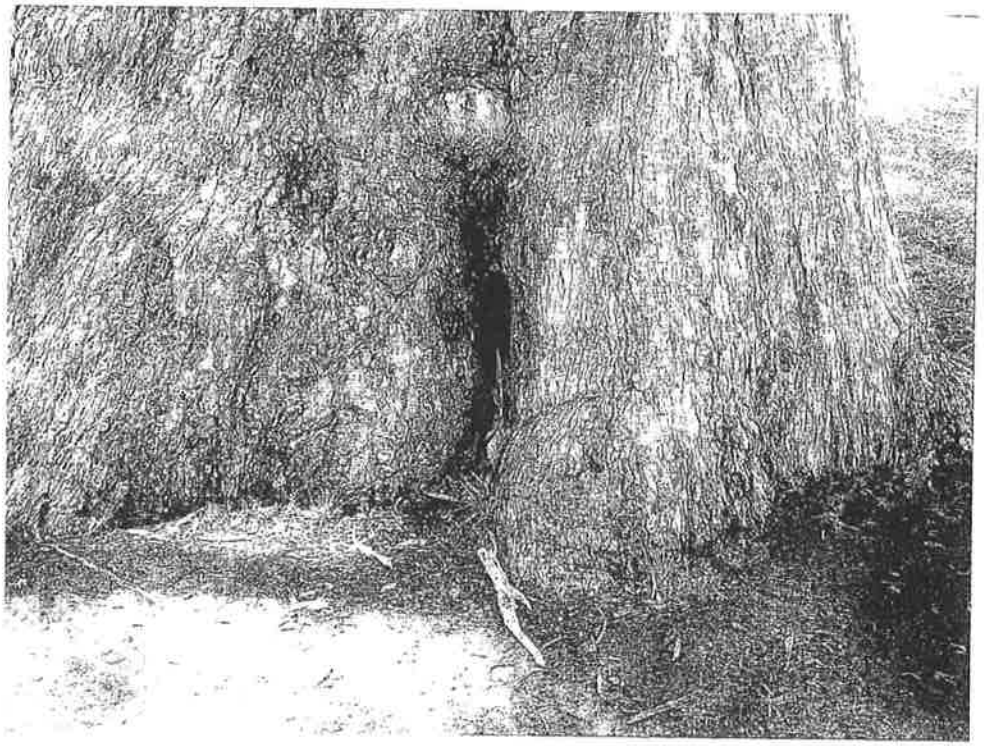


Figure 7.5