Attachment E
March 8, 2017

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SUBJECT: Report on trees at 1715 and 1725 Oak Park Boulevard, Pleasant Hill, their condition, proposed grading, construction and drainage at the site, with expected resulting impacts and measures to reduce impacts on those trees.

PURPOSE OF THIS REPORT  
Pleasant Hill requires a survey and construction protection/management plan for native trees nine inches or larger in trunk diameter, and nonnative trees 18 inches or larger in trunk diameter, or adjacent to construction sites, which triggers the need for this document.

This report includes all such trees on this lot or immediately on neighboring properties. The purpose of this report is to identify each of these trees, describe their condition, and provide probable impacts that will occur to them as a result of the proposed construction, as well as general measures for managing and reducing impacts to trees that will be preserved, to hold impact levels to those described.

SUMMARY  
You proposed to remove existing buildings and construct a new one, with associated flatwork. This report considers 17 trees, eleven on your property and six overhanging from neighboring properties.

The lot on which you intend to build is level. One of the trees on the lot is to be preserved, a London plane in good condition and outside grading or sidewalk replacement. All others will be removed, either because they are in the building or parking footprint or because they are small and in relatively poor condition, and do not justify modification to the proposed improvements for their preservation. Neighboring trees may be impacted by the construction of a driveway on the west and south sides of the property, with impacts ranging from slight to moderate.

Of the 17 trees, ten will be removed. Five removals are poorly maintained nursery stock with potential for serious problems in the future.

POTENTIAL DISTURBANCE TO TREES  
Damage to trees may occur directly, from mechanical injury to roots, trunks or limbs, or more indirectly, if soil characteristics such as density, soil atmosphere or moisture content are altered. Manifestations of these injuries may occur immediately, or may be delayed for a number of years, resulting in progressive decline.
Many tree roots on most sites, including this one, may be in the top 18 inches of soil, a zone which is easily altered by even minor grading, trenching, or material storage. Further such alterations may occur during demolition, grading, construction, and landscaping activities. Soil may become further compacted, soil oxygen may then become easily depleted, drainage patterns upon which trees have become dependent may be altered, so that trees become drought stressed. Any changes in grade, increase or decrease, compaction, or pavement may have this effect. Where cuts must be made for utilities or other reasons, the soil may quickly dry out from the side of the cut and kill roots.

Awareness of these concepts is key to tree management on construction sites. It is less important to avoid encroachment under tree canopies, which may be acceptable, than it is to dedicate a reasonable and necessary area under the tree as a protected root zone, and assure that this area remains dedicated to the needs of the roots.

If such an area cannot be dedicated to a given tree, or the condition of that tree is such that it may not contribute into the future, the tree should be removed.

SITE MAP
The site map is based on the map provided by Newell Arnerich, architect, and modified by me. It is included with this report as a 20 scale 11 x 17 inch PDF. If later plans require comments from me I will provide them as addenda to this report.

Trees are numbered on the drawing, corresponding to the table in this report and to tags placed on the tree trunks. I measured tree canopies and placed them on the drawings as required by the city. Such canopy outlines are intended as a guideline to establishing tree protection zones, that is, protecting a sufficiently large root area to assure survival of the tree. As noted in the previous section encroachment into the canopy is acceptable depending on the vigor of the tree and degree of protection for roots in the area remaining in the tree protection zone outside the encroachment.

Typical location for temporary protective fencing is shown. Final location will be set on-site, prior to construction, as acceptable to both the project arborist for root protection and the grading contractor for access.

HOW TO READ THE TABLE OF TREES
The specific information for each of the six trees assessed is found in the table attached to this report, at the end.

The Species of each tree or shrub is noted in the second column, by common name.

The Diameter of the trunk, or trunks, in inches, is given in the third column, measured at 54 inches, or at the best representative height. If there are several trunks, each is listed.

The Health of the tree and the Structure are rated in the next two columns. Both are rated on a scale of 0-5, with 5 being the most favorable. Health is a measure of the vigor of the tree. Lower ratings, (below 3) indicate that a tree is seriously declining in health.
Structure is a measure of the mechanical form and arrangement of the trunk and limbs. Trees with low structure ratings may have codominant limbs or included bark (factors that could contribute to mechanical failure), or may have failed mechanically in the past, or are for other reasons at higher risk to do so in the future than trees with higher (better) structure rating.

Suitability is an assessment of how desirable the retention of this tree is, independently of proposed design or site alterations. This rating is based on intrinsic features of the tree itself. It is a combination of:

- Species. Oaks are generally highly desirable. Redwood are less so in Contra Costa County, as they are water-demanding.
- Health and Structure. Trees with defects or health problems do not warrant special effort to retain.
- Nearby trees. If trees are crowded some may be less desirable.
- Size. Even highly desirable species in good condition can be replaced if they are small enough. Their suitability rating is thus lower.

Generally, trees with a suitability rating of 4 or 5 are worth extra effort to preserve. This does not mean that they must be preserved, or that it is inappropriate to remove them or permit activities that may affect them. Realistic use of the lot may require construction near, or removal of otherwise desirable trees. The best use of the land may require removal of or impact on even trees with the highest suitability.

Trees with a rating of 3 should be considered for retention.

For trees with a suitability of 1 or 2, no effort should be made to preserve. This does not mean they should not be retained, only that, unless there are other considerations, the project should not be specially altered to accommodate them.

Trees with a suitability of zero are generally incapable of providing benefit in the developed setting and should usually be removed.

Construction Impact is an estimate of the probable effects of proposed construction. It assumes that all possible care will be exercised in fencing, protection, traffic prevention, material storage, landscaping, and other phases of demolition and construction, within constraints of the proposed project.

Construction impacts on this project range from:

- “None”.
- “Minimal”. There may be some root injury which should not be manifest in the appearance of the tree if construction techniques are careful and the root zone is protected.
- “Slight”. There is slightly more injury, and there may be some subtle injury response, but not to a serious degree.
- “Moderate”. There may be visible signs in the tree canopy that root injury has occurred.
"Severe". There is a reasonable chance that the tree will not survive for the long term. (There are no trees in this category on this project)

"Remove". Retention of the tree is likely incompatible with the project or the tree will intentionally be removed.

Impact assessment at the time of this report are based on assumptions of construction as illustrated in the drawings or otherwise discussed in this report and an assumption that recommendations of the arborist are followed.

The Comments column contains general observations about each tree.

TEMPORARY PROTECTIVE FENCING, TREE PROTECTION ZONES
To assure against intrusion into root zones by material storage or construction equipment, temporary protective fence is shown on the referenced drawing. This is intended to provide sufficient room for construction activity while protecting root zones, and will define the Tree Protection Zone (TPZ).

No grading or trenching for irrigation, planting or lighting should occur within these zones without review and approval of the project arborist. Landscape plant types (groundcovers or turf) will be limited in these zones and must be reviewed by the arborist.

There may be no temporary storage of construction materials within this zone. There must be no disposal of waste or equipment washout that could drain into the protected zone.

The fencing should be minimum five foot chain link securely fastened to the ground or on driven posts, to prevent casual displacement by site workers who may not understand its purpose. The location shown on the drawing should be reviewed on-site to the satisfaction of both the arborist and the general contractor or site supervisor.

Each fence section must have 8 ½ by 11 inch plasticized signs fastened every 50 feet, reading, "THIS FENCE MAY BE MOVED ONLY WITH PERMISSION OF THE PROJECT ARBORIST". A template sign is attached to this report.

Fencing to protect retained trees should be in place as shown before any grading, construction or other site work begins. Fencing should remain in place during the entire demolition, grading or construction phases and should not be moved by any subcontractor for any reason, without approval of the project arborist.

ORDER OF DEMOLITION, PLACEMENT OF TEMPORARY FENCING
Existing interior fencing, AC and PCC flatwork, and existing sheds and compost bins near trees #975, #990 and #986 through #989 must be removed before the TPZ can be fenced. This work must be done from outside the zone that will later be fenced. Do not enter the TPZ with wheeled or tracked equipment. Instead, use an excavator bucket to demolish from outside the TPZ, including picking back flatwork.
Consider using Eccleston Avenue for demolition access routes via the southeast corner of the property, as to avoid encroaching on root zones of trees #975 and #990 prior to fencing the TPZ.

We have not yet reviewed removal or abandonment in place of underground utilities to the existing building, or utilities to be installed to the new one. To the extent these may extend within the Tree Protection Zone of tree #975 we may request modification, or use of special installation or trenching techniques.

Fencing location for tree #991 will be determined in the field during a pre-construction meeting. Fencing location for tree #990 will be determined in the field during excavation; I expect to be on-site for this phase of construction.

When the area is cleared the fencing must be installed immediately, as shown in the drawing.

MULCHING UNDER TREES
Four inches of mulch in areas of bare soil is highly beneficial for trees being preserved. Because most such trees are on neighboring properties I expect to make recommendations for mulching at the time the project is underway. The ideal, and by far the most beneficial mulch for the trees, is chips from a tree service. This mulch can be a permanent feature of the landscape, and a maintained depth of two to four inches is probably the single most effective measure that can be taken to assure health of the trees.

Mulch should gradually recede in depth from four inches to zero, beginning three feet out from the trunk as to not place mulch directly against tree trunks. Decorative mulch may be used instead of the natural mulch, but is far less effective in maintaining tree health, and typically much more expensive.

TREE #990
This mulberry tree is relatively close to excavation for the driveway and parking section. Excavation for this section immediately east of the tree will start three feet east of the back of curb shown on the “Proposed Conditions” drawing, and will be done under my on-site supervision.

Depending on roots encountered, the excavation will gradually be moved west until, in my judgment, the excavation cannot be carried further west, closer to the tree or until the excavation is to the required location behind the back of curb as shown in the drawing.

The result may be that the driveway can be built as shown, or it may be that the curb must be “wowed” out in an arc so that it is two feet further east of the tree than shown. At most it could be three feet, although this is unlikely, in my opinion. If it is necessary to wow the curb around the root zone one parking space will be sacrificed. I recommend, after excavation and curb construction is complete, installing a root barrier to a minimum depth of 18 inches from the top of back of curb, along the west side of the driveway, 15 feet north and 15 feet south of tree #990. If, in my judgement the tree will be seriously injured or its stability called into questions by moving the curb as much as
three feet east it may be necessary to consider removing the tree. In my opinion this is unlikely to be the case.

**TASKS TO BE COMPLETED**
- We have yet to determine management of the mulberry tree, #990, as described above.
- I expect to meet on-site with the contractor prior to commencement of site layout and grading, to confirm temporary fence location to their satisfaction.
- I expect to be on-site for the excavation near tree #990.
- I expect to review landscape design, if any is planned under the trees, such as #990 and #975 and in that instance meet with the landscape contractor prior to installation.
- I expect to review removal of existing underground utilities to existing building and installation of new underground utilities associated with new buildings within TPZ of trees #990 and #975.

**LIMITING CONDITIONS OF THIS REPORT**
The observations and recommendations in this report are limited to current conditions, for the site, as described in the report. There appeared to be no indication for laboratory diagnostics, or extensive basal or aerial inspection and this report does not contain them.

This report relies upon representations by Newell Arnerich concerning property and easement boundaries and proposed construction.

My comments on the health, structure, and potential of these trees are restricted to the condition of the trees if the general specifications in this report and specific recommendations in any future reports are observed and followed.

This report can be reproduced by you as necessary, in its entirety only. Portions of this report may not be reproduced.

It is outside the scope of this or the final report to suggest suitability of design or land use.

**CERTIFICATION OF THIS DOCUMENT**
I certify that the observations and recommendations in this document are complete and correct, to the best of my knowledge and belief, and are made in good faith. Please contact me as further questions arise.

Sincerely,

Todd McNeil
Certified Arborist #WE-11635A
ISA Qualified Tree Risk Assessor
<table>
<thead>
<tr>
<th>Tree Number</th>
<th>Species</th>
<th>Diameter</th>
<th>Health</th>
<th>Structure</th>
<th>Suitability</th>
<th>Comments</th>
<th>Construction Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>975</td>
<td>London Plane</td>
<td>19</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>Under high voltage, topped by utility</td>
<td>Minimal</td>
</tr>
<tr>
<td>976</td>
<td>Plum (Prunus sp.)</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>Sunscald on south side of trunk 0-2.5'</td>
<td>Remove</td>
</tr>
<tr>
<td>977</td>
<td>Apple</td>
<td>9@3'</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>Flush cut topping, 4&quot; diameter</td>
<td>Remove</td>
</tr>
<tr>
<td>978</td>
<td>Apple</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
<td>Remove</td>
</tr>
<tr>
<td>979</td>
<td>Plum (Prunus sp.)</td>
<td>10@2'</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>Topped at nursery, multiple attachments and sunscald</td>
<td>Remove</td>
</tr>
<tr>
<td>980</td>
<td>Plum (Prunus sp.)</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Crack at base, through ~75% of trunk. REMOVE.</td>
<td>Remove</td>
</tr>
<tr>
<td>981</td>
<td>Plum (Prunus sp.)</td>
<td>4,3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>In parking</td>
<td>Remove</td>
</tr>
<tr>
<td>982</td>
<td>Jane magnolia</td>
<td>5,4,3,3,3</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>Multiple stems at base</td>
<td>Remove</td>
</tr>
<tr>
<td>983</td>
<td>Elm, sp.</td>
<td>31@1'</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>Buried, in concrete walkway. Codominant at 3'</td>
<td>Remove</td>
</tr>
<tr>
<td>984</td>
<td>Elm, sp.</td>
<td>32@1'</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>Codominant at 5' and 10', topped at 20'</td>
<td>Remove</td>
</tr>
<tr>
<td>985</td>
<td>Monterey Pine</td>
<td>19</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>Suffering from pitch canker</td>
<td>Remove</td>
</tr>
<tr>
<td>986</td>
<td>Elm, sp.</td>
<td>~28</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>Neighbor tree, no tag</td>
<td>Minimal</td>
</tr>
<tr>
<td>987</td>
<td>Coast redwood</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>Neighbor tree, no tag</td>
<td>Minimal</td>
</tr>
<tr>
<td>988</td>
<td>Coast redwood</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>Neighbor tree, no tag</td>
<td>Slight</td>
</tr>
<tr>
<td>989</td>
<td>Pear</td>
<td>~20</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>Neighbor tree, no tag</td>
<td>Slight</td>
</tr>
<tr>
<td>990</td>
<td>Mulberry</td>
<td>~28@1'</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>Neighbor tree, no tag</td>
<td>Moderate</td>
</tr>
<tr>
<td>991</td>
<td>Plum (Prunus sp.)</td>
<td>~14</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>Neighbor tree, no tag</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
This fence may be moved only with permission of the project arborist.