



June 27, 2016

Ms Karen Garrett
The Spanos Corporation
10100 Trinity Parkway, Suite 500
Stockton, CA

Re: North River Landing Petaluma Arborist Tree Survey, Petaluma, CA.

Dear Ms Garrett:

This letter summarizes the methods and results of an arborist survey performed on June 7, 2016 at North River Landing at 368 and 402 Petaluma Boulevard, Petaluma (City), California (Study Area). The survey was conducted by ISA-Certified Arborist, Erich Schickenberg (ISA #WE-10211A) for the purpose of identifying and documenting the presence of protected trees as defined by Chapter 17 "Tree Preservation", of the City of Petaluma Municipal Code (Tree Ordinance) and additional non-protected trees within and directly adjacent to the Study Area, as shown on a surveyor's map provided by the client.

Study Area Description

The Study Area covers approximately 3.8 acres and is located in the 300 and 400 blocks of Petaluma Blvd. North in Petaluma, Sonoma County California. The Study Area is bounded by Petaluma Blvd. North to the west and commercial retail, residential development, and light industry on the south, north, east (across the Petaluma River). A railroad spur runs through the center of the proposed project. The Study Area contains vacant lands comprised of mostly non-native grasses and forbs. The Study Area also contains a few structures including buildings, sheds, fences, and access roads. A tree survey was conducted to identify the presence of trees protected, per the City of Petaluma Tree Ordinance (Tree Ordinance), within the Study Area in order to inform the permitting process and to provide recommendations for tree preservation and protection during construction. Additionally, mitigation requirements if unavoidable removal of protected trees is required are also included in this report.

Regulatory Background

The City regulates the removal of protected trees, as defined by the Tree Ordinance, in order to preserve and protect the economic, aesthetic, and environmental values mature trees provide to the citizens of Petaluma. A Tree Permit is generally required to remove, cut or destroy any protected tree on private property, except those except as provided for in Chapter 17.030 (Exceptions). Trees that are exempt from the Tree Ordinance are referred to as "non-protected", and trees not exempt are referred to as "protected" for the purposes of this report. Removal or damage of any protected tree without an approved permit is considered a misdemeanor offense and can result in fines or penalties.

The City defines a “protected tree” as: any of the following:

- Black oak (*Quercus kelloggii*) four inches DBH* or greater
- Valley oak (*Quercus lobata*) four inches DBH or greater
- Blue oak (*Quercus douglasii*) four inches DBH or greater
- Interior live oak (*Quercus wislizenii*) four inches DBH or greater
- Coast live oak (*Quercus agrifolia*) four inches DBH or greater
- Oracle oak (*Quercus x morehus*) four inches DBH or greater
- Oregon oak (*Quercus garryana*) four inches DBH or greater
- Other native California oak four inches DBH or greater
- California buckeye (*Aesculus californica*) 12 inches DBH or greater
- California or coast redwood (*Sequoia*) 18 inches DBH or greater
- Heritage trees as approved by Council resolution per Title 8 of the Petaluma Municipal Code.
- Significant groves or stands of trees.
- Trees located on riparian corridors.
- Any tree required to be planted or preserved as environmental mitigation or condition of approval for a discretionary development application or other development permit.
- Trees in the public right of way.

*Trunk diameter measured at a height of 4.5 feet or diameter at breast height (DBH) above existing grade. Multiple trunk trees must have at least one trunk with the above diameter, specific to the species, to be considered protected. Smaller trees might also be protected under certain circumstances and shall be considered individually during the development review process.

The owner of property upon which a protected tree is located may request to remove protected trees not otherwise exempt from the Tree Ordinance by filling an application for a Tree Permit.

Methods

On June 7, 2016, ISA-Certified Arborist, Erich Schickenberg, traversed the Study Area on foot to evaluate, identify and inventory all protected trees as defined by the City of Petaluma Tree Ordinance, and additional non-protected trees with at least one trunk greater than or equal to 4 inches diameter, within or directly adjacent to the Study Area. Locations of surveyed trees were recorded using a handheld GPS unit with sub-meter accuracy, and each surveyed tree was given an aluminum tree tag with unique identification number. Information including species and size measured in diameter at breast height (DBH), 4.5 feet above ground was recorded. Additional information pertinent to the tree removal permitting process was recorded including a preliminary assessment of the condition, health and structure of the surveyed trees.

General notes on the condition of the protected trees were taken, including health, structure, and overall condition. Assessment of the health, structure, and overall condition of each tree was conducted according to the narratives listed in Table 1.

Table 1. Rating narratives for tree assessment

Tree Condition		
	0	Tree is dead.
Poor	1	Tree in severe decline, very poor crown form and structure; dieback of scaffold branches and/or trunk; most of foliage from epicormic shoots; extensive structural defects that cannot be abated.
Marginal	2	Tree in decline, poor crown form & structure, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
Moderate	3	Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
Good	4	Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
Excellent	5	A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.

Results

A total of three protected trees as defined by the Tree Ordinance were identified within the Study Area. A complete list of all trees surveyed is presented in Attachment 1. The protected trees within the Study Area are composed of two species, including coast live oak (*Quercus agrifolia*) and trident maple (*Acer buergerianum*). The two coast live oaks meet the DBH requirements for designation as protected trees. One trident maple is located in the public right of way and is considered to be a protected tree. The protected trees range in size from 5.5 inches to 21.4 inches in DBH. The largest tree measured was tree #93, an Italian cypress located in the South portion of the Study Area.

A total of three non-protected trees were surveyed within the Study Area. The three non-protected trees are composed of three species including weeping willow (*Salix babylonica*), bronze loquat (*Eriobotrya deflexa*), and Italian cypress (*Cupressus sempervirens*) and range in size from 7.2 to 22 inches in DBH.

The overall condition, health and structure of non-protected trees inventoried during this assessment ranged from poor to good, with most trees ranking moderate to good in health, structure, and general condition. The weeping willow (*Salix babylonica*) (tree #36) ranked marginal in structure due to poor growth form/lean, and possible mechanical injury and/or improper pruning.

The three protected trees within the Study Area ranged from marginal to moderate in general condition and health, and marginal to good in general structure. One protected coast live oak tree (tree #38) ranked moderate in all categories and it appears to be healthy and structurally sound. One small coast live oak (tree #39) is structurally sound but is of poor general health and condition, likely as a result of poor pruning and/or mechanical injury. The trident maple, located in the public right of way ranks as moderate in general condition, health, and structure.

The observed maladies and considerations of severity, along with species characteristics guided the assignment of the structural condition, health, and overall condition score for each tree. The overall condition, structural condition, health of inventoried trees was found to be

generally fair. Table 2 below summarizes the assessment results of all inventoried trees in the Study Area.

Table 2. Tree Assessment Results Summary

Criteria Assessed/Rating	Condition	Health	Structure
Good	0 (0%)	0 (0%)	1 (17%)
Moderate	5 (83%)	5 (83%)	4 (67%)
Marginal	1 (17%)	1 (17%)	1 (17%)

Recommended Tree Protection Measures

In order to avoid and minimize damage to existing trees which are designated for preservation and not proposed for direct impact by project activities, the following measures are recommended during construction:

- A tree removal permit from the City of Petaluma is required for the removal of any protected tree.
- All construction activity (grading, filling, paving, landscaping etc.) should respect the root protection zone (RPZ) around all trees within the vicinity of the Study Area that are selected for preservation. The RPZ should be a distance of 1.0 times the dripline radius measured from the trunk of the tree. Exception to this standard could be considered on a case-by-case basis, provided that it is demonstrated that an encroachment into the RPZ will not critically damage the root system or the health of the tree, and is authorized by an ISA Certified Arborist or comparable specialist.
- Where possible, temporary protective fencing shall be installed around the dripline of existing trees designated for preservation prior to commencement of any construction activity conducted within 25' of the tree canopy, of a tree designated for preservation. The fence shall be clearly marked to prevent inadvertent encroachment by heavy machinery.
- If any trees require trimming and/or root pruning to accommodate construction, they shall be pruned to American National Standards Institute (ANSI) A300 standards for tree care practices.
- An ISA Certified Arborist or tree specialist shall be retained to perform any necessary pruning of trees during construction activity.
- If grading takes place within the RPZ of a preserved tree, roots should be exposed using the least injurious method possible, and selective root pruning is the preferred method of removal.
- Roots exposed, as a result of construction activities shall be covered with wet burlap to avoid desiccation, and should be buried as soon as practicable.
- Construction materials or heavy equipment shall not be stored within the root protection zone of preserved trees.
- Only an ISA Certified Arborist or tree specialist will make specific recommendations as to where any existing trees can safely tolerate some level of fill within the drip line.
- Trenches which are required within the root protection zone of existing native trees shall be bored (tunneled) under the root(s) using an auger or drill, rather than trenched, to avoid root disturbance.
- Construction materials shall be properly stored away from existing trees to avoid spillage or damage to trees.

Mitigation Requirements

The Tree Ordinance states in Chapter 17.065 (Tree Mitigation and Replacement) that tree mitigation may be in the form of in-kind replacement, in-lieu replacement, or a combination of both. If a protected tree must be removed then the City will require replacement trees at the following ratios:

- All protected trees, determined by the project arborist to be in good (4) or excellent (5) health, and/or with moderate (3) to good (4) structure, shall be replaced on a one-to-one trunk diameter basis. (Example: A 24-inch protected tree in good or excellent condition must be replaced with new trees totaling 24 inches in trunk diameters.)
- All protected trees, determined by the project arborist to have moderate (3) or marginal (2) health, and/or with marginal (2) structure, shall be replaced on a two-to-one trunk diameter basis. (Example: A 24-inch protected tree in fair-to-marginal condition must be replaced with new trees totaling 12 inches in trunk diameter.)
- All protected trees, determined by the project arborist to have poor (1) health or poor (1) structure, are not required to be replaced.

A tree designated for preservation in a development project must have a good chance of long-term survival as determined by an assessment of proposed development impacts. The preservation of a tree does not excuse it from mitigation requirements. The tree must be determined by a professional to have a good chance of survival after construction related impacts are considered.

If the location of the replacement tree planting will remain as part of a natural area suitable for the healthy and long-term growth of native trees, replacement of protected trees should occur in kind. If the location of replacement tree planting will be part of an irrigated, ornamental landscape area, replacement of protected trees may occur with a species as identified by the project arborist and approved by the City arborist.

Replacement tree ratios shall be at minimum 24-inch box size and be applied as follows:

- 24-inch box replacement tree = 2-inch replacement trunk diameter
- 36-inch box replacement tree = 3-inch replacement trunk diameter
- 48-inch box replacement tree = 4-inch replacement trunk diameter

If the project site is insufficient in size or use to plant any or all of the replacement trees, the City may accept payment of in-lieu fees by the applicant. The replacement tree costs for the purpose of satisfying in-lieu fees shall be based on a combination of average wholesale tree costs plus typical installation fees.

Conclusions

A total of three trees protected by the City of Petaluma Tree Ordinance were identified within the Study Area. A complete list of all trees surveyed within and directly adjacent to the Study Area is presented in Attachment 1. A figure displaying the locations of all surveyed trees is presented in Attachment 2.

Please feel free to contact me if you have any questions or concerns.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Erich Schickenberg', written over a thin vertical line.

Erich Schickenberg
Plant Biologist, ISA Certified Arborist WE-10211A
schickenberg@wra-ca.com

**Attachment 1. North River Landing Petaluma Tree Survey Results Table
June 2016**

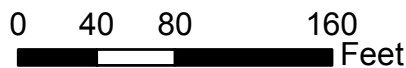


WRA ID	Species	Common Name	Protected	DBH (in)	Condition	Health	Structure
21	<i>Acer buergerianum</i>	trident maple	Y	3.7	3	3	3
36	<i>Salix babylonica</i>	weeping willow	N	20.4	3	3	2
37	<i>Eriobotrya deflexa</i>	bronze loquat	N	7.2	3	3	3
38	<i>Quercus agrifolia</i>	coast live oak	Y	21.4	3	3	3
39	<i>Quercus agrifolia</i>	coast live oak	Y	5.5	2	2	3
93	<i>Cupressus sempervirens</i>	Italian cypress	N	22	3	3	4



Attachment 2. Tree Location Map

Spanos Petaluma
Sonoma County, California



Map Prepared Date: 6/24/2016
 Map Prepared By: czumwalt
 Base Source: Esri, National Geographic
 Data Source(s): WRA, FEMA