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TREE RESOURCE EVALUATION
CONSTRUCTION IMPACT ANALYSIS
1170 SIGNAL HILL ROAD, PEBBLE BEACH

Prepared for
Massy Mehdipour

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ASSIGNMENT/SCOPE OF SERVICES

Residential development plans have been updated for property located at 1170 Signal Hill Road in Pebble Beach (APN 008-261-007). The project includes the demolition of an existing residence and construction of a new home using a portion of the original footprint. The property is sparsely forested with both native and planted Monterey cypress that will be impacted by the project. I was retained to evaluate the condition of the existing trees and determine the impacts related to the proposed development. I submitted the analysis in October of 2010. Since that time the plans have been modified and updated and the following evaluation is based on the most recent plans. To revise my initial findings I have performed the following:

- Visually inspect each tree to update the health status, structural integrity and suitability for incorporation into the development based on tree condition and species tolerances.
- Review most recent development plans (grading plans prepared by Whitson Engineering) and evaluate potential construction related impacts.
- Provide recommendations for tree removal/tree retention based on construction related impacts.
- Provide recommendations for reducing impacts to retained trees.
- Create a tree protection plan.

SUMMARY

Residential development is plans have been recently modified for property located at 1170 Signal Hill Road in Pebble Beach. The project includes the demolition of an existing residence and construction of a new home on a portion of the original footprint.

The site is a sloping sand dune area at the edge of a native Monterey cypress habitat. Eight trees on the property were evaluated and inventoried, recommendations have been made for tree retention and tree removal based on the proposed impacts. Three “planted” cypress and one cluster of eucalyptus are growing within the footprint of the new development and will require removal.

Two additional cypress were removed previously without proper approvals. Replacment Monterey cypress seedlings acquired from Pebble Beach Company and generated from Crocker Grove seed stock have been installed in the same area to represent the removed trees as required by Monterey County Planning staff. As the orginal trees would have been within the footprint of the proposed residence the total tree removal to develop the site as planned is five trees.

Grade changes are proposed adjacent to two retained trees. Any site disturbance within the defined Critical Root Zone (CRZ) will require monitoring and proper root pruning. During construction the retained trees will be protected by exclusionary fencing and straw bale barricades.

BACKGROUND

In October of 2010 I inspected eight individual trees growing on property at 1170 Signal Hill Road to evaluate their health status, structural integrity and suitability for incorporation into a development project. For purposes of identification numbered metal tags were affixed to the tree trunks with corresponding locations documented on the attached site map. The most recent grading plans prepared by Whitson Engineering have been reviewed to analyze the potential impacts to the trees.

The attached inventory includes tree species and trunk diameter at 24 inches above natural grade. Ratings for tree health, structure and suitability along with a summary of the potential impacts and recommendations for reducing impacts are included. Ratings are determined following the completion of a visual tree assessment. This type of evaluation is based on methods developed by Claus Mattheck and documented in The Body Language of Trees. The assessment involves an analysis of the biology and mechanics of each tree, which are then rated as “good”, “fair” or “poor”.

Suitability is determined using overall tree condition and industry data on species characteristics, including tolerances to site changes and specific construction impacts.

Monterey cypress (*Cupressus macrocarpa*) as a species has a low tolerance to construction related impacts (Matheny & Clark 1998). Monterey pine (*Pinus radiata*) as a species have a moderate tolerance to construction related impacts.

Along with ratings for tree condition the attached inventory includes the size of the **Critical Root Zone**; this area is determined following the evaluation of tree condition and tolerances. This exclusionary zone is an area of root development that, if possible, is left undisturbed. This exclusion zone is not related to the extents of the foliar canopy (sometimes referred to as the “dripline”). The size of the canopy does not provide an indication of root development and cannot be perceived as a boundary when evaluating construction related impacts.

The **Critical Root Zone** method has been successfully utilized to define the “optimum” protection area for tree roots. It is based on the British Standards Institute (BSI) method developed in 1991. It uses ranges in trunk diameter, tree age and vigor to calculate the exclusionary zone. This method can be modified to include species tolerances and tree architecture.

In addition to the Critical Root Zone the attached inventory defines the level of cumulative impacts related to the proposed construction as **Low, Moderate or High.**

Low impacts are minimal, the optimum protection zone has been allowed.

Moderate impacts may impact the absorbing or structural root systems. Canopy modifications of more than 20% could be required. Special construction methods or pre-construction treatments will be recommended to reduce impacts to an acceptable level and eliminate the potential decline of the tree.

High impacts may require tree removal. If retained, special construction methods must be implemented, supplemental irrigation may be recommended and tree condition monitored.

OBSERVATIONS

Site Description

The development site is located mid slope at the edge of a native Monterey cypress habitat. The vegetation on the property consists of ice plant, dune grasses and both native and "planted" Monterey cypress trees.

Tree Description

Monterey cypress (*Cupressus macrocarpa*) is the dominant species on the property, one small Monterey pine (*Pinus radiata*) is growing on the slope below the existing home.

Trees #1, #3 and #4 are remnants of the native cypress forest. Tree #3 is pictured at right. It consists of multiple large diameter stems with a short, broad spreading canopy. This form is typical of the species when it develops in a low nutrient, windy environment.

Trees #5, #6 and #8 are cypress that have been planted in the landscape. Although a native species, they are not native to the site or a member of the protected cypress forest habitat.

Similar trunk diameters and the single trunk form indicate that the plants were generated at a nursery and planted during the same time period. Tree #5 is pictured below at right.

These trees are in poor vigor. The canopies are thinning and small to medium size dead branching is visible. This could be caused by exposure to extensive salt spray and wind. The dead and discolored foliage is a symptom of cypress canker (*Seiridium cardinale*) a disease common to the species.

Two cypress trees were removed prior to my initial site visit. They were located below the existing residence. One stump remains, there is no evidence of the second stump but the tree is visible on an aeirial photo dated 2007.

Six Monterey cypress have been planted in the general area as replacements. The trees were generated from seed stock that originated at nearby Crocker Grove and provided by the Pebble Beach Company.

The trees are “plugs” and are the only trees available that have been generated from native, local stock.

CONSTRUCTION IMPACTS/RECOMMENDATIONS

Monterey County Code Section 20.147.050 and the Del Monte Forest Land Use Plan restrict and discourage the removal of native trees.

> "Monterey cypress: within its indigenous range, removal of any size tree will be allowed only in cases where life, properly, or existing access is immediately threatened or where a diseased tree is determine by a qualified professional forester to represent a severe and serious infection hazard to the rest of the forest."

The tree removal that has occurred previously included two trees of native origin growing at the edge of the Monterey cypress habitat. The mitigation for this removal has been completed.

The tree removal that is proposed for the new development includes three planted Monterey cypress (trees #5, #6 and #8) trees that are not components of the native habitat. Replanting three cypress trees from 36 inch box nursery stock as replacements is recommended. The trees shall be planted between the public road and the new residence.

Proper root pruning, described below, may be required for tree #3 and #4. Once the site staking is in place the need for this procedure and minor canopy alterations will be determined. If root pruning becomes necessary the following recommendations must be followed.

All root pruning should be performed by skilled labor. If roots are encountered by excavation equipment work must stop until the roots are property pruned. Roots are to be pruned cleanly leaving bark intact. The following tools should be used:

- Hand-pruners
- Loppers
- Handsaw
- Reciprocating saw
- Chainsaw

The impacts as evaluated are not excessive and the loss of major supporting or absorbing roots is not anticipated. No detrimental long term affects are expected for the retained trees.

The tree protection specifications attached within this report include recommendations for exclusionary fencing and straw bale barricades to avoid damage to trees during the construction process. The recommendations made within this report should be included as a condition of approval by Monterey County Planning Department.

Please call my office with any questions regarding the trees on this development site or the content of this report.

Respectfully submitted,

Maureen Hamb-WCISA Certified Arborist #2280

Tree #	Species	Diameter	Health	Structure	Suitability	Impacts: High Moderate Low	Comments/Recommendations	CRZ
1	Monterey cypress	3 stems 21-28"	good	fair	good	low	Growing outside construction area/Protect with fencing and barricades	20
2	Monterey pine	12.4"	poor	poor	fair	low	Growing below proposed construction area/ Grading, excavation or other site disturbance must be located outside CRZ. Protect with fencing and barricades.	8
3	Monterey cypress	group of 3 22, 30 & 24"	good	fair	good	moderate	Grading is proposed adjacent to canopy/ Excavation must be monitored by project arborist. Any roots unearthed must be properly pruned as described within report. Protect with fencing and barricades.	15
4	Monterey cypress	11.2"	fair	fair	good	moderate	Young tree with short stature and compact canopy/ Grading or excavation must be eliminated within CRZ. Protect with fencing and barricades.	6
5	Monterey cypress	22.4"	poor	fair	poor	high	Planted tree with considerable dieback in foliar canopy caused by excessive wind, salt and cypress canker. Within footprint of proposed driveway/Remove and replant same species	15

Tree #	Species	Diameter	Health	Structure	Suitability	Impacts: High Moderate Low	Comments/Recommendations	CRZ
6	Monterey cypress	16.5"	poor	fair	poor	high	Planted tree with considerable dieback in foliar canopy caused by excessive wind, salt and cypress canker. Within footprint of development/Remove and replant same species	12
7	Eucalyptus	cluster	poor	poor	poor	high	Weakly structured cluster of stems, a portion has failed in the past. Within footprint of development/Remove	
8	Monterey cypress	22.5"	poor	fair	poor	high	As with trees 5 & 6, planted tree with dieback from wind, salt and cypress canker has reduced tree vigor. Within development footprint/Remove and replace with same species.	15
9	Monterey cypress	41" @ grade	unknown	unknown	unknown	high	Tree removed prior to my initial site visit. Tree would have been within the building footprint. Three replacement trees have been planted to represent the removed tree/Replacement trees will be relocated to another area on the property prior to the onset of construction.	
10	Monterey cypress	unknown	unknown	unknown	unknown	high	As with tree #9, this tree was removed prior to my initial site visit. No stump remains. The tree is documented on an aerial photo dated 2007. The tree would have been located within the footprint of the proposed residence. /Replacement trees will be relocated to another area on the property prior to construction.	