

Exhibit D

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PROJECT IMPACT ANALYSIS
TREE PROTECTION PLAN

SANTA LUCIA PRESERVE
LOT 195

Prepared for
Chris and Kellie Thomas

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ASSIGNMENT/SCOPE OF SERVICES

Residential development plans have been completed for lot 195 of the Santa Lucia Preserve, the Thomas residence. In May of 2017 the property owners Chris and Kellie Thomas retained me to evaluate the health, structural stability and suitability of the trees on the property in preparation for development.

Recently I reviewed the final plans prepared by Tom Meaney the project architect, Bliss Landscape Architects and C3 Engineering. The potential impacts to the trees have been evaluated and documented in this report.

SUMMARY

Since May of 2017 I have visited the site on a number of occasions. In November of 2017 I completed an evaluation of 49 trees growing within the homeland boundary of lot 195.

Final plans have been completed and impacts to the trees have been analyzed. The attached inventory includes specific impacts and recommendations for protecting the trees evaluated in the initial study.

The homeland is grassland/woodland mixed with individual specimen trees along with larger dense groves of both mature and immature native trees and small groupings of coast live oak.

The oaks display structural defects that are common to the species in their native environment. They include medium to large diameter dead branching, areas of decay and minor insect infestations. The site is dominated by coast live oaks with a minor presence of madrone.

The residential development project proposed for the site includes a driveway access, main residence and detached garage. Tree growth is dense in most areas of the homeland, the design team identified the only open areas without 30% slopes to site the driveway and residence.

Tree removal will be required to develop the site as planned. Five protected trees will be removed, they are growing within the proposed garage and autocourt.

The retained trees will be protected with the installation of exclusionary fencing bordered by straw bales as a barricade.

BACKGROUND/TREE INVENTORY OVERVIEW

I have completed a visual assessment of 49 trees to evaluate their health status, structural integrity and suitability for incorporation into the development project. My findings, along with a tree location map were documented in a Tree Resource Evaluation/Preliminary Construction Impact Analysis.

I recently visited the site to note any changes in tree condition and evaluate potential impacts related to the completed development plans. The inventory included in this report includes tree species, trunk diameter, current tree condition, CRZ radius, level of potential impacts and recommendations for tree protection.

Tree Species

Each tree was inspected to determine species. On this site two species are present, coast live oak (*Quercus agrifolia*) and madrone (*Arbutus menziesii*).

Trunk Diameter

Trunk diameter is determined using a specialized diameter tape and measured at a point 24 inches above natural grade. Monterey County ordinances protect oaks greater than six inches in diameter (21.64.260.D.3.5).

Ratings for Tree Condition

Initial ratings were determined using the visual tree assessment methods developed by Clause Mattheck and described in The Body Language of Trees. Trees are rated as “good”, “fair”, or “poor” based on both biological and mechanical analysis.

Impact Ratings

This rating system evaluates 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** indicates impacts to either the absorbing or structural root systems. Special construction methods such as manual grading or reducing excavation depths may be required to reduce impacts to a low level.
- **High** impacts generally require tree removal. In many cases minor modifications to proposed excavation, grading or reduction of intense landscaping and reduce the impacts to a lower level. Monitoring of construction activities can aid in documenting the actual level of impacts rather than the anticipated impacts evaluated using development plans.

Recommendations

This section of the inventory summarizes the condition of the tree, construction impacts and recommendations for protection or the final disposition of the tree.

Critical Root Zone

The radius of the CRZ is determined following the evaluation of tree condition and tolerances. This exclusionary zone is an area of root or canopy development that, if possible, is left undisturbed.

The method that has been successfully utilized to define the “optimum” critical root zone is based on the British Standards Institute (BSI) method developed in 2012. 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.

OBSERVATIONS

The property is accessed by Potrero Trail within the Santa Lucia Preserve. The site has both level and sloped areas that are forested in variety of configurations. Large sized groves of mature trees along with young and semi mature groupings are scattered throughout the site.

The oaks are young to overmature, and generally in fair condition. Several oaks display structural defects that are common to the species as they mature in their native environment. Decayed and dead branching is visible in the canopies; defects of this type can be mitigated with proper pruning.

In addition to the 49 trees inventoried the homeland is forested with at least 200 additional trees that are outside the development area.

DISCUSSION

Tree Removal

Monterey County ordinances encourage the preservation of trees and discourage unnecessary tree removal. On development projects tree removal must be kept to the minimum necessary on a case-by-case basis (21.64.260.D.3.5).

Five living trees that are protected by local ordinances will be removed on this project site. No “landmark” trees will be removed.

The original forest Management Plan for the Santa Lucia Preserve (Osterling 1994) included estimates for tree removal based on assumptions of lot and home sizes. At the time the report was prepared not all lot locations were accurate, in addition, the number of “protected” trees have increased as trunk diameters have grown larger over time.

This property is within the “Phase C” portion of the Preserve; an estimate of zero removed trees was made for this site.

Oak Woodland Act

California Public Resources code 2183.4 provides guidelines for determining impacts to oak woodlands proposed for conversion. Within the code, required mitigation strategies are defined and must include at least one of the following:

- Impact Avoidance
- Creation of permanent conservation easements
- Reforestation/replanting programs

Restrictions within the code state that replanting or reforestation efforts cannot be utilized as the only strategy for reducing impacts to the oak woodland. At least one of the other methods must be used in conjunction with replanting.

The project proposed for this site follows the guidelines for oak woodland protection required by the Oak Woodlands Conservation Law. The first and most important strategy, avoidance of impact has been utilized.

The third mitigation strategy of the Oak Woodland Act is the creation of a conservation easement. All development sites within the Santa Lucia Preserve have areas set aside as permanent conservation easements that are under the stewardship of the Santa Lucia Conservancy.

(The discussion of the California Oak Woodland Conservation Law is based on information included in the Oak Woodland Impact Decision Matrix 2008 prepared by the UC Integrated Hardwood Range Management Program.)

Construction Impacts

The impacts to trees on this site have been rated from moderate to high. Eight trees have been assigned a “high” impact rating. Five of those trees will be removed. The remainder of the trees have been rated as “moderate” or “low”.

Minor pruning will be completed to provide clearance and remove dead/decayed branching. Pruning will not exceed 10% of the live canopy.

All trees will be protected by a system of fencing and barricades that consists of fencing bordered by straw bale barricades in areas where impacts are moderate.

Replacement Trees

The Santa Lucia Preserve requires three replacement trees for every one tree less than 24 inches in trunk diameter. Landmark size trees (greater than 24 inches in trunk diameter) are replaced at one tree removed, five trees planted.

On this site 15 coast live oaks will be planted as replacements. New trees should be installed during the landscape phase of the project.

Planting during construction is not feasible as it may not be possible to adequately protect the small trees from construction impacts.

CONCLUSION

The proposed development on lot 195 will require the removal of five trees. The tree removal will not affect the qualities of the surrounding oak woodland or any other trees on the site. No landmark trees will be removed to complete this project.

All trees will be protected by the implementation of the recommendations made within this report and the attached Tree Preservation Guidelines.

Any questions regarding the trees on this site or the content of this report can be directed to my office.

Respectfully submitted,
Maureen Hamb- Certified Arborist WE2280

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
1	Coast Live Oak	17.8	Fair	low	9	Outside direct construction area/Protect with exclusionary fencing
2	Coast Live Oak	14.3	Poor	low	14	Outside direct construction area/Protect with exclusionary fencing
3	Coast Live Oak	18.2	Fair	low	9	Outside direct construction area/Protect with exclusionary fencing
4*	Coast Live Oak	34.2	Fair	moderate	17	Growing below proposed residence adjacent to pathway/Protect with exclusionary fencing and straw bale barricades
5	Coast Live Oak	21	Fair	moderate	11	Growing below proposed residence adjacent to pathway/Protect with exclusionary fencing and straw bale barricades
6	Coast Live Oak	15.2	Fair	moderate	8	Growing below proposed residence adjacent to pathway/Protect with exclusionary fencing and straw bale barricades

* Indicates "Landmark" Tree

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
7*	Coast Live Oak	29.2	Poor	moderate	25	Growing adjacent to proposed pathway/Protect with exclusionary fencing and straw bale barricades
8	Coast Live Oak	21	Poor	low	20	Impacts not anticipated/Protect with fencing
9*	Coast Live Oak	24.4	Fair	moderate	20	Growing adjacent to proposed pathway/Protect with exclusionary fencing and straw bale barricades
10*	Coast Live Oak	18.0-20.0	Poor	low	20	Growing above proposed pathway/protect with exclusionary fencing
11	Coast Live Oak	14.5	Fair	moderate	7	Growing adjacent to proposed pathway/Protect with exclusionary fencing and straw bale barricades
12	Coast Live Oak	20.5	Fair	moderate	10	Growing adjacent to proposed pathway/Protect with exclusionary fencing and straw bale barricades

* Indicates "Landmark" Tree

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
13	Coast Live Oak	17	Fair	low	9	Protect with exclusionary fencing
14	Coast Live Oak	19	Fair	low	10	Protect with exclusionary fencing
15	Coast Live Oak	10	Poor	moderate	10	Growing adjacent to wall at pathway/Protect with exclusionary fencing bordered by straw bale barricades
16	Coast Live Oak	5.5	Fair	low	5	Protect with exclusionary fencing
17	Coast Live Oak	5.5-7.6	Fair	moderate	5	Growing adjacent to pathway/Protect with exclusionary fencing bordered by straw bale barricades
18	Coast Live Oak	7.5	Fair	moderate	5	Growing adjacent to pathway/Protect with exclusionary fencing bordered by straw bale barricades

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
19	Coast Live Oak	12	Fair	moderate	6	Growing adjacent to pathway/Protect with exclusionary fencing bordered by straw bale barricades
20	Coast Live Oak	11.4	Fair	low	10	Protect with exclusionary fencing
21	Coast Live Oak	8.4	Fair	moderate	8	Growing adjacent to pathway/Protect with exclusionary fencing bordered by straw bale barricades
22	Coast Live Oak	9.5	Fair	moderate	4	Growing above proposed pathway/protect with exclusionary fencing
23	Coast Live Oak	small grove	Fair	high	5	Within footprint of garage/Remove and plant 3 coast live oak trees as replacements
24	Coast Live Oak	9	Fair	high	8	Within garage footprint/Remove and plant 3 coast live oak trees as replacements

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
25	Madrone	9.5-9.8-10.0	Fair	high	6	Within garage footprint/Remove and plant 3 coast live oak trees as replacements
26*	Coast Live Oak	26	Fair	moderate	14	Protect with exclusionary fencing
27	Coast Live Oak	14.7	Fair	high	8	Within autocourt/Remove and plant 3 coast live oaks as replacements
28	Coast Live Oak	22.2	Fair	high	11	Within autocourt/Remove and plant 3 coast live oaks as replacements
29	Coast Live Oak	14.2-15.0-16.5	Fair	low	15	Growing below proposed retaining wall/Protect with exclusionary fencing and straw bale barricades
30	Coast Live Oak	19.5	Fair	low	6	Protect with exclusionary fencing

* Indicates "Landmark" Tree

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
31	Coast Live Oak	13.0-19.0	Fair	moderate	11	Protect with exclusionary fencing
32	Coast Live Oak	8.8	Fair	moderate	5	Protect with exclusionary fencing
33	Coast Live Oak	6.0-10.6	Fair	moderate	8	Protect with exclusionary fencing
34	Madrone	6.2	Fair	low	4	Protect with exclusionary fencing
35	Coast Live Oak	6.9	Poor	high	4	Growing at edge of proposed driveway/Protect with exclusionary fencing and straw bale barricades

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
36	Coast Live Oak	19.3	Fair	low	6	Protect with exclusionary fencing
37	Coast Live Oak	11	Fair	low	6	Protect with exclusionary fencing
38	Coast Live Oak	13.4	Good	moderate	7	Protect with exclusionary fencing
39*	Coast Live Oak	18.0-36.0	Fair	low	20	Protect with exclusionary fencing
40	Coast Live Oak	18.0-18.0	Fair	low	11	Protect with exclusionary fencing
41	Coast Live Oak	12.0-18.0-18.0	Fair	low	10	Protect with exclusionary fencing

* Indicates "Landmark" Tree

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
42	Coast Live Oak	11.5-12.0	Fair	low	8	Protect with exclusionary fencing
43	Coast Live Oak	14.0-16.0-22.0	Fair	low	12	Protect with exclusionary fencing
44	Coast Live Oak	8.0-10.0	Fair	low	6	Protect with exclusionary fencing
45	coast Live Oak	24.2	fair	high	12	Growing adjacent to proposed spa and deck/Protect with exclusionary fencing and straw bale barricades
46	coast Live Oak	19.5	fair	high	10	Growing adjacent to proposed spa and deck/Protect with exclusionary fencing and straw bale barricades
47	coast Live Oak	16.8	fair	moderate	8	Growing adjacent to proposed spa and deck/Protect with exclusionary fencing and straw bale barricades

Santa Lucia Preserve
Lot 195
Final Impact Inventory

Tree #	Species	Diameter @ 24"	Condition	Impacts: Low Moderate High	CRZ Radius in Feet	Comments/Recommendations
48	Coast Live Oak	14.5	fair	moderate	7	Growing adjacent to proposed spa and deck/Protect with exclusionary fencing and straw bale barricades
49	coast Live Oak	14.8	fair	moderate	7	Growing adjacent to proposed spa and deck/Protect with exclusionary fencing and straw bale barricades

FUEL MANAGEMENT NOTES

1. To comply with the CA Department of Forestry and Fire Protection regulations, both a 30 ft. firebreak and an additional 70 ft. (totaling a 100 ft.) wide 'defensible fuel management zone' around all structures will have to be created and maintained.
- an understory less than 18" high

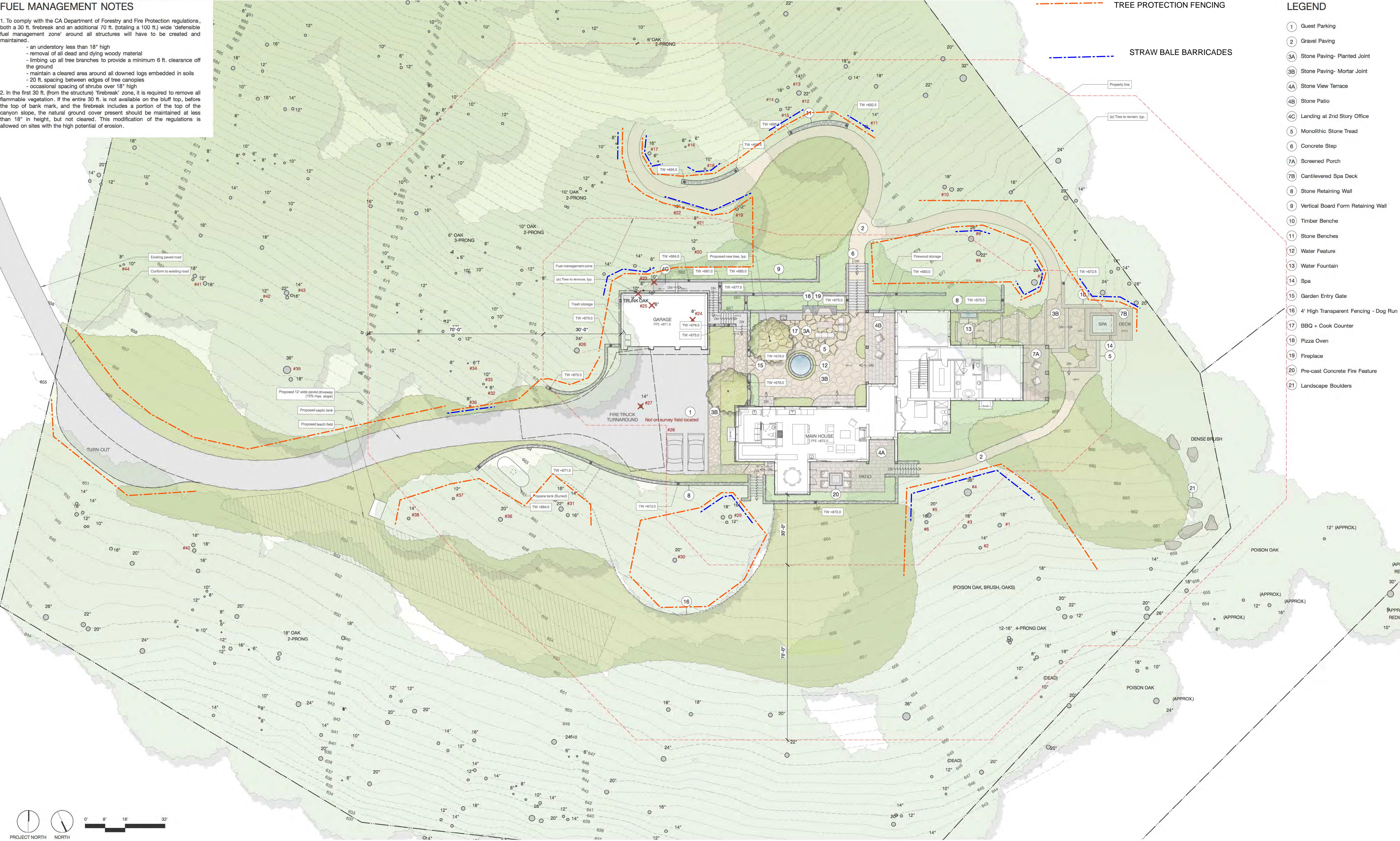
- removal of all dead and dying woody material

- limbing up all tree branches to provide a minimum 6 ft. clearance off the ground

- maintain a cleared area around all downed logs embedded in soils

- 20 ft. spacing between edges of tree canopies

- occasional spacing of shrubs over 18" high
2. In the first 30 ft. (from the structure) 'firebreak' zone, it is required to remove all flammable vegetation. If the entire 30 ft. is not available on the bluff top, before the top of bank mark, and the firebreak includes a portion of the top of the canyon slope, the natural ground cover present should be maintained at less than 18" in height, but not cleared. This modification of the regulations is allowed on sites with the high potential of erosion.



TREE PROTECTION SPECIFICATIONS

Establishment of a tree preservation zone (TPZ)

Fencing shall be installed in areas defined on the attached map. Fencing will consist of sturdy welded wire fencing supported by 4 X 4 wooden posts securely embedded in the ground (example pictured below). Fencing will be installed prior to equipment staging or site disturbance. Fencing placement will be inspected by the project arborist.



Fencing along the proposed driveway will consist of orange plastic fencing supported by metal “T” posts spaced no further than six feet apart. Straw bales will be placed either behind or in front of the fencing depending on available space. (typical example of fencing and barricades on following page).



Straw Bale Barricades

Straw bales placed end to end will be installed inside or outside the protection fencing. They shall be secured in place with stakes (wooden or metal rebar). This barricade will limit damage to the fencing and prevent grading spoils from encroaching into the critical root zone area and help stop excess moisture from gathering under the retained trees.

Restrictions within the Critical Root Zone (CRZ) of existing trees

No storage of construction materials, debris, or excess soil will be allowed within the CPZ. Parking of vehicles or construction equipment will be allowed in defined areas only. Solvents or liquids of any type should be disposed of properly, never within this protected area.

Minimize soil compaction on the construction site

Protect the soil surface with a deep layer (at least three inches) of mulch (tree chips). The addition of mulch will reduce compaction, retain moisture, and stabilize soil temperature. Areas where equipment and personnel are concentrated will be mulched to a depth of at least six inches.

Alteration of grade

Maintain the natural grade around trees. No additional fill or excavation will be permitted within the critical root zone. If trees roots are unearthed during the construction process the consulting arborist will be notified immediately. Exposed roots will be covered with moistened burlap until a determination is made by the project arborist.

Trenching requirements

Any areas of proposed trenching will be evaluated with the consulting arborist and the contractor prior to construction. All trenching on this site will be approved by the project arborist. Tree roots encountered will be avoided or properly pruned under the guidance of the consulting arborist.

Tree canopy alterations

Unauthorized pruning of any tree on this site will not be allowed. If any tree canopy encroaches on the building site the required pruning will be done on the authority of the consulting arborist and to ISA pruning guidelines and ANSI A-300 pruning standards.

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