

Appendix F

TREE REPORT PER THE GENERAL MSHCP HABITAT ASSESSMENT/CONSTRAINTS ANALYSIS FOR THE 15.78-ACRE MURRIETA PROJECT SITE

WESTERN RIVERSIDE COUNTY, CALIFORNIA

Submitted to:

City of Murrieta
1 Town Square
Murrieta, California 92562

Prepared for:

Joseph Sapp
Murrieta Development II, LLC
23656 Bellwood Court
Murrieta, California 92562

Prepared by:

Gerhard Bombe
Tree Talk, PLLC
c/o Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064



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INTRODUCTION

This Tree Study is a part of the General MSHCP Habitat Assessment/Constraints Analysis for the 15.78-Acre Murrieta Project Site, Western Riverside County, California, located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Southwest Area Plan, as prepared by Cadre Environmental. The City of Murrieta requires a Tree Report per Municipal Code 16.42. Specifically the trees are located on USGS 7.5' Series Murrieta Quadrangle, Riverside County, Township 6 South, Range 3 West, Section 36, 35451 McElwain Road, North of Linnel Lane and East of McElwain Road, City of Murrieta, California, as shown in Figure 1, Vicinity Map and Figure 2, Project Site Map.

PROJECT PURPOSE AND SCOPE

This report presents the findings of a tree assessment and analysis for the 15.78-acre project site ("Project Site") located within the western region of Riverside County, California, and within the City of Murrieta, CA. Specifically, the Project Site is located within APN 392-280-007. The purpose of this assessment, conducted by Tree Talk PLLC, is to document the condition of the trees and assess the potential preservation or removal of this sensitive biological resource. In case of tree removal, mitigation measures are proposed. The City of Murrieta's Municipal Code 16.42, Tree Preservation, requires a study of all existing on-site trees.

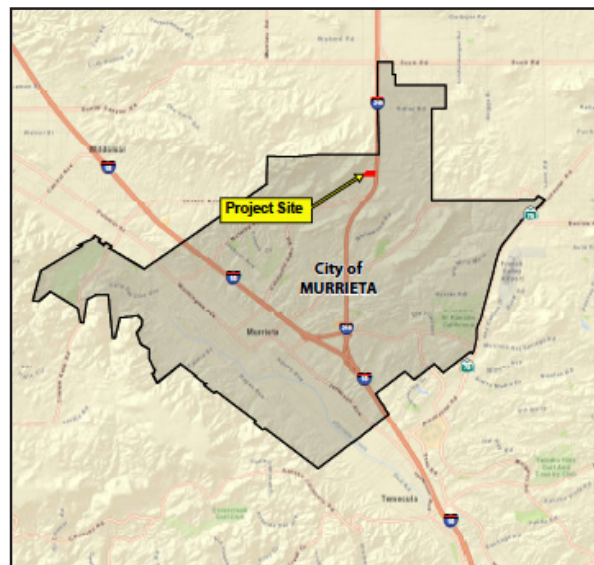


Figure 1. Project Vicinity Map.

EXISTING SITE CONDITION

Six mature, ornamental trees, including two coast live oak trees, *Quercus agrifolia* occupy the site. Tree locations within the Project Site are as shown in Figure 3, Tree Locations. Two oak trees are located in the southern portion of the site. Other trees are scattered in the northern portion of the site. The Project Site is currently dominated by disturbed/ruderal, California buckwheat scrub and coastal sage scrub.

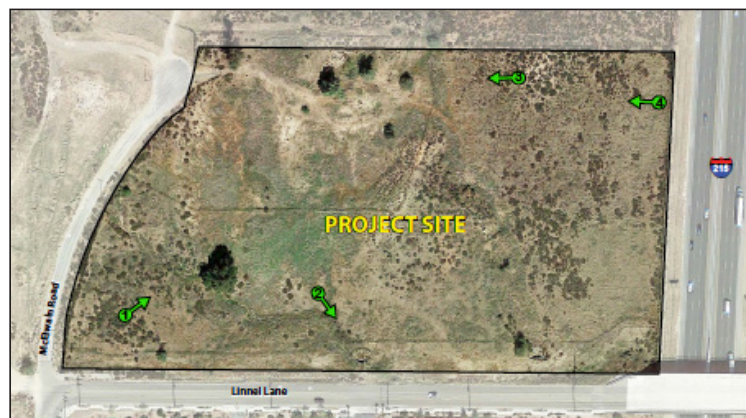


Figure 2. Project Site Map.

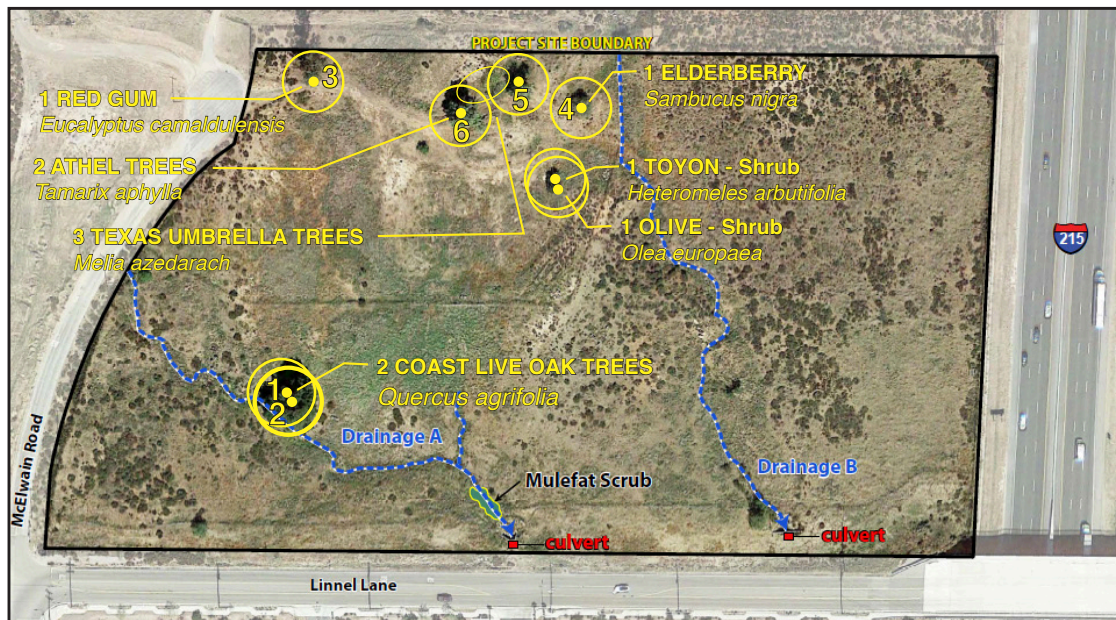


Figure 3. Tree locations on project site.

TREE INSPECTION

ISA Certified Arborist, WE#1888A, Gerhard Bombe, conducted the inspection of the on-site oak trees on February 24, 2019, in clear weather and warm temperatures. The remaining trees were surveyed on May 6, 2019, in cloudy and cool weather. A Tree Condition Survey Form, on iPhone, was used to record tree condition details in the field, see Appendix A. Photographs were also taken of the trees and are included throughout and attached as a photo log.

TREE DESCRIPTIONS

COAST LIVE OAK, (*Quercus agrifolia*)

Coast Live Oak trees, are evergreen natives trees of California, prized for their majestic size in old age. Trees can reach a height of 60 feet or more at maturity, with an age of up to 250 years. There are two coast live oaks on the site Figure 4. Together, both oak trees are the dominant trees on the project site. At first glance it would appear that this is one oak tree. But a closer look revealed that there are actually two trees, with trunks in very close proximity to each other, Figure 5. There is no physical connection between the two trees. This is confirmed by the different nature of their canopies. For ease of description, the trees are labeled “#1” and “#2”. Tree #1 has a single trunk. Tree #2 bifurcates at about 30 inches above grade, resulting in two trunks, labeled “Trunk B1” and “Trunk B2”. Both trees are in an excellent growing location, which is immediately adjacent to Drainage A.



Figure 4. Coast Live Oaks trees #1&#2

Both trees were surrounded by a chain link fence, making the access to measure the trunks impossible, except for Tree #2, Trunk B2. Trunk 2B was able to be measured with a diameter tape, and showed a DBH of 24.5 inches. The other DBH measurements were estimated. Tree #2's Trunk B1 is estimated at 30 inches. Tree #2's DBH totals 54.5 inches. Tree #1's DBH is estimated at 26 inches. The combined canopy spread of the trees is 75-80 feet along the North-South axis, and 55-60 feet along the East-West axis. The combined tree height is approximately 40-45 feet. The trees are growing too close to each other to have distinctly separate canopies. Both trees are in a relatively healthy, natural condition, unpruned, with no apparent mechanical or biological damage visible. See Attachment A.



Figure 5. Two oak trees side by side.

Tree #1 appears to have been under considerable drought related stress in the past. The trees' color, typical of the species, is "off", as can also be clearly seen in photographs of the tree. Tip dieback in the canopy is evident, and a "thinning" in the overall canopy leaf density was observed. It should be noted that the thinning of the canopy is not a negative health issue at this point, but may have been related to the current drought. Currently, the tree is already flowering, see Figure 6, which is a good sign. Recent rain events will also help the tree to regain its vigor. The tree is rated a "B" in health and a "B" in aesthetics, for an overall rating of "B".



Figure 6. Tree #1 is flowering, a sign of improving good health.

Tree #2 shows good color, typical to the species, and new shoot elongation indicates that the tree is healthy and growing. Bud formation, size and color of the buds and leaves is indicative of excellent growth and health as well, see Figure 7. New growth is present at the tips of the branches. Older leaves, closer to the center of the tree have been shed. Unlike Tree #1, there did not appear to be any lingering drought stress. The tree is rated an "A" in health and an "A" in aesthetics, for an overall rating of "A". See Attachment B for a tree rating explanation.



Figure 7. Excellent bud formation, color and shoot elongation on Tree #2.

There are no notable mechanical or biological injuries to the trunk or the scaffold branches of both trees. On the underside of the canopy there are many smaller branches that have died back due to shading from the outer canopy. This is typical of the species, and should be of no concern. Eventually these small branches will fall from the tree by themselves.



Figure 8. Minor "flagging" present on both oak trees.

Minor presence of insects and/or disease were noted on the tree. However, this is also typical for the species, and as long as these insects and diseases do not exceed the threshold where the tree becomes stressed as a result, it too should be of no concern. The most noticeable evidence of insect presence was the minor amount of “flagging” visible in the canopy of both trees, see Figure 8. This flagging is the result of a twig girdler (*Agrilus angelicus*) laying it’s eggs in the end of small twigs. As the eggs hatch, they begin to feed in the cambium of the twig, robbing the foliage at the end of the twig of nutrients and water. The twig then dies, which results in the “flagging”. Other minor signs of leaf chewing insects, galls, and some anthracnose were observed, but none pose a serious threat to the trees, as they are commonly occurring in the wild. Other minor damage resulted to the leaves from insects that suck live oak sap, such as several kinds of scale insects, aphids, treehoppers and whiteflies. No obvious root problems, such as armillaria, was observed.

ATHEL TREE (*Tamarix aphylla*)

This is the largest of the tamarix genus of shrubs and trees. Athel trees are a non-native, evergreen tree, widely planted in the southwest as a wind and fire break. It has not naturalized in the US, whereas other species of tamarix can be highly invasive, (such as [*Tamarix ramosissima*], salt cedar, a shrub). The high salt and ash content of the foliage make it resistant to burning. It is highly drought and salt tolerant, which is why it may also be called salt cedar.

There are two Athel trees on the property. The largest of the two Athel trees on the site, is designated as tree #6, see Figure 9. Athel tree #6 has two trunks, with a DBH of 18” and 38”, for a total DBH of 56”. Tree height is approximately 60’ with an average spread of 40’. One of the main scaffold branches is at a precipitous lean of about 45 degrees. Broken branches and branch dieback are clearly visible, although the tree, overall, appears to be in fair health. Good new growth, the lighter green foliage, is conspicuous as can be seen in Figure 10. Insects and diseases were not observed. In terms of health and aesthetics, tree #6 is rated a ‘D’ in aesthetics and a ‘C’ in health, for an overall grade of ‘C’.

The smaller of the Athel trees, tree #5, is shown in Figure 11. This tree has one trunk, with a DBH of 24”, a height of approximately 35’ and an average spread of 25’. The tree is judged to be in fair condition, with many broken branches, dieback of smaller branches and lots of resultant epicormic



Figure 9. The larger Athel tree, #6.



Figure 10. Good new growth, the light green foliage seen here, is evident on both ‘A’ and ‘B’ Athel trees.

shoots, resulting in a dense regrowth in that area of the canopy where the branches had been broken off. The canopy appeared to be very thin, with branch dieback evident. Even though branch dieback was observed, this tree is in fair health, with good new growth evident throughout, as seen in Figure 11. Some browning of foliage was visible, but not due to disease or insects, as the foliage is being shed by the tree, to be replaced by the new foliage.

In terms of health and aesthetics, tree #5 is rated a 'D' in aesthetics and a 'C' in health, for an overall grade of 'C'. A good pruning would help improve the aesthetics, and thereby the health, of these trees.

RED GUM (*Eucalyptus camaldulensis*)

This evergreen eucalyptus, Figure 12, is endemic to Australia, and is sometimes considered a weed in the US. It is well adapted to our climate and can reach a height of over 100 feet. The leaves are greyish green and lance shaped. This tree has the bad reputation of shedding branches without warning so that camping or picnicking near them can be dangerous.

This eucalyptus has one trunk with a DBH of 33.5", a height of approximately 60' and an average spread of 45'. The canopy looks thin and some branch dieback is evident, which may be related to past drought stress. Good new growth is noticeable, however. The tree is infested with Tortoise Beetles, (*Trachymela sloanei*) and/or (*Chrysophtharta m-fuscum*) which were introduced into California in the 1990's. Notched leaves, or semicircular holes in the leaves, are the obvious indication of the beetles presence, see Figure 13. When not feeding on the leaves they hide under the loose bark of the tree. Established and well maintained trees can tolerate the beetle, and beetle control is usually not necessary, unless the tattered leaves present a serious aesthetic problem in a high profile location. Beetle control is also difficult because they do hide under the bark.

In terms of health and aesthetics, this tree is rated a 'C' in health, and a 'D' in aesthetics, (due to the beetle damage), for an overall grade of 'C'.

ELDERBERRY (*Sambucus mexicana*)

Elderberries are large, deciduous, shrubs, sometimes small trees. They are native to California,



Figure 11. The smaller Athel tree, #5



Figure 12. Red Gum, (*Eucalyptus camaldulensis*). Tree #3.



Figure 13. Tattered leaves resulting from tortoise beetle feeding.

take full sun, and are very drought tolerant once established. Birds feed on the blue-black berries in the fall, which follow the creamy white flowers of spring and summer.

This Elderberry, Figure 14, and tree #4, is a very nice specimen. It has a single trunk at ground level, which then splits at 18" above grade into seven major trunks, at 3 to 4 inches each, for a total DBH of approximately 21". It is about 12 feet in height, with an average spread of 28 feet. It could, over time, be pruned/trained to grow into a proper tree. The interior of the tree contained many dead branches, which have died off due to a lack of light penetrating through the dense canopy. Tip dieback of the branches was not observed. There were no insects or diseases noted.



Figure 14. Elderberry. A large shrub at this point, which could grow to become a tree.

In both health and aesthetics, tree #4 is rated an 'A' in health, and an 'A' in aesthetics, for an overall grade of 'A'.

OTHER TREES

These trees, Figure 15, 16 and 17, do not meet the requirements of the Municipal Code 16.42, because of their small trunk size, or because they are dead.

At this time none of the on-site trees constitute a hazard, because currently there is no target, i.e., an object or people, under the tree that could be damaged or hurt from a falling limb. Detailed information for each on site tree is contained in Attachment A, Tree Report.



Figure 15. An unknown, dead, tree.



Figure 16. Three Texas Umbrella trees (*Melia azedarach*), all with a DBH of less than 9.5 inches.



Figure 17. A toyon (*Heteromeles arbutifolia*) and an olive (*Olea europaea*), entwined with each other, both with a DBH of less than 9.5 inches.

A commercial development is proposed to be built at the project site, see Figure 18. According to the development plans, this would seriously impact the existing trees, i.e., it would eliminate them all together. Figure 19 shows the proposed development plans overlaid onto the existing project site.

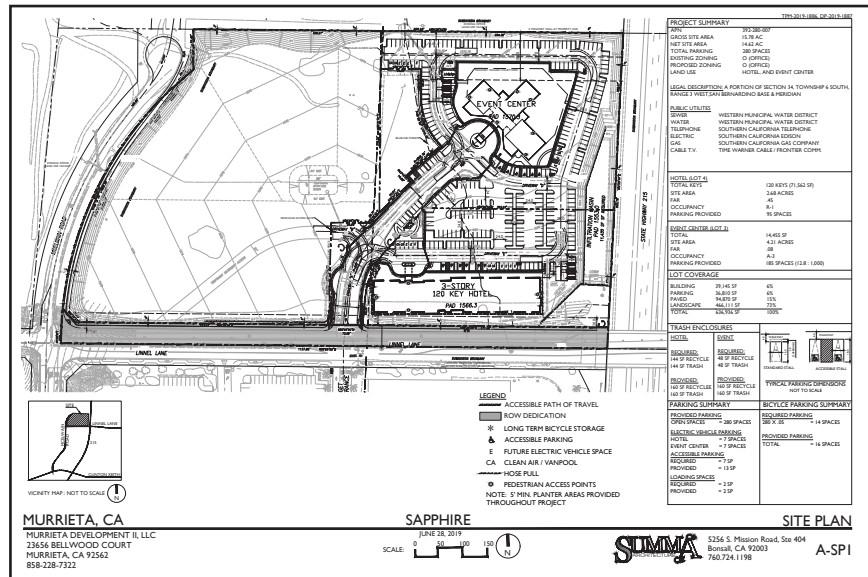


Figure 18. Proposed hotel/event center development on project site.

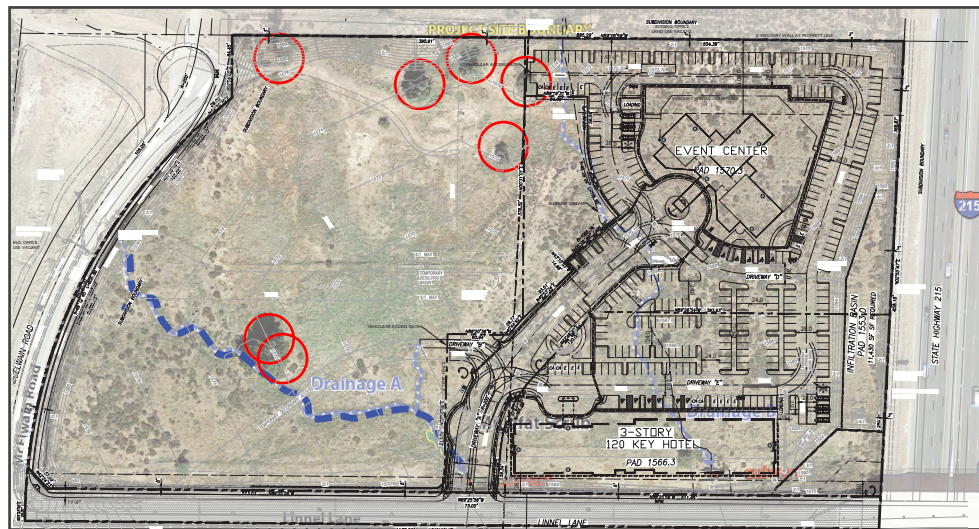


Figure 19. Proposed hotel/event center development overlaid onto the existing site, with impacted trees shown in red .

The site is considered to be in a “degraded state” while being managed for open space. All of the ecological functions of the trees are still being provided, i.e., shade, ground water filtration, wildlife habitat, nutrient cycling, wind/noise/dust abatement and carbon sequestration. The site is capable of natural regeneration of oaks and other plant species.



Implementation of this project as proposed, will result in the removal of these trees. It would result in significant environmental impacts, i.e., loss of food sources, loss of nesting, denning, burrowing, hibernating, and roosting structures, loss of habitats and refugia for sedentary species and those with special habitat requirements i.e. mosses, lichens, rocks, native vegetation and fungi.

Although this site is in a degraded state, and may perform only limited ecological functions at this point, it still has the potential for restoration or enhancement as part of the proposed development. Possibilities for impact mitigation should be considered. Restoring or improving the woodland on the site could provide benefits such as improving connectivity between other tree stands or patch size for locally important wildlife habitat.

The City of Murrieta has regulations for the protection and preservation of local trees as specified in Municipal Code 16.42. Tree removals will require a Tree Removal Permit. Mitigation measures are proposed to reduce the overall level of impacts. On-site, or off-site, areas will be designated to serve as tree receptor sites or will be designed to facilitate natural tree recruitment.

PROPOSED MITIGATION

The monetary value of the trees has been established via an appraisal process, based on the Council of Tree & Landscape Appraisers, Guide for Plant Appraisal, 9th Edition. The Trunk Formula Method is used to appraise the monetary value of trees considered too large to be replaced with nursery stock. Determination of the value of a tree is based on the cost of the largest commonly available transplantable tree and its cost of installation, plus the increase in value due to the larger size of the tree being appraised. These values are then adjusted according to the species of the tree and its physical condition and landscape location (site, contribution and placement). Appraisal work sheets are attached, see Attachment C. Individual tree appraisals are summarized in Table 1.

TABLE 1

Tree #	Botanic/Common Name	Appraised Value
1	Quercus agrifolia/Coast Live Oak	\$24,000
2	Quercus agrifolia/Coast Live Oak	\$134,200
3	Eucalyptus camaldulensis, Red Gum	\$11,800
4	Sambucus mexicana, Elderberry	\$4,490
5	Tamarix aphylla, Athel Tree	\$10,900
6	Tamarix aphylla, Athel Tree	\$58,000
	Total	\$243,390

Per the appraisal process, the six trees located on the project property were appraised for a total of \$243,390. This value should be budgeted and applied towards the purchase, installation, maintenance and monitoring of replacement trees.



All trees, except for oak trees, will be mitigated onsite. Oak trees will be mitigated offsite, within the City's ROW, as directed by the City, because they are not on the City's fire resistive tree list. Replacement planting of the ornamental trees may be accomplished on site, by including the ornamental mitigation trees into the landscaping plans of the development, in a designated mitigation planting area, or distributed throughout the development landscape.

The appraised value of the removed trees shall be applied to increasing the amount of landscaping within the proposed project or by planting minimum twenty-four - 24" inch box trees of equal value within city rights-of-way or public parks.

Based on the current estimate for the purchase and installation of a 24" Box, at \$2,400 each, this would result in the installation of approximately 101 trees.

MONITORING IMPLEMENTATION

PROPOSED MITIGATION SITE

Location

The mitigation site(s) chosen are located on-site, in the landscaped portion of the property and in certain planting areas within the slope areas of the project. A plan view of the proposed mitigation sites is shown on the Development Plan, Fig. 20. The plantings could be incorporated into the

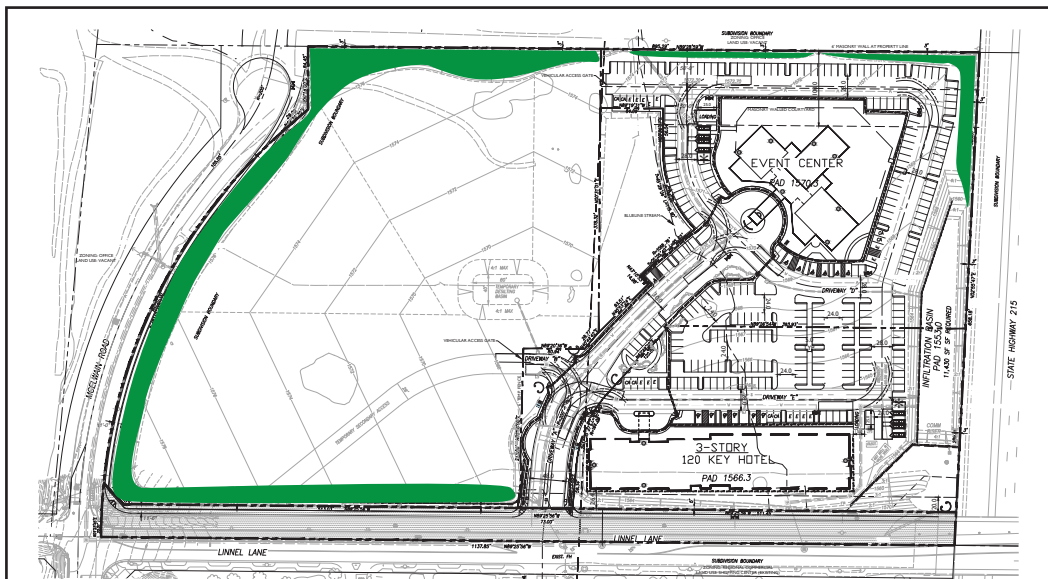


Figure 20. Proposed mitigation planting sites. ■ = potential planting sites.



planned project landscaping, or they could be mass planted in one particular area of the site. Even after grading these planting sites are still well suited for mitigation planting. The proposed mitigation sites are owned initially by the developer and ownership may be transferred to another entity in the future. Ornamental trees will be planted within City of Murrieta rights-of-way or public parks.

Mitigation Species

The project target mitigation species selected are as designated by the City. They should be native species, well suited to the climatic conditions of the site and the City environs, and due to their long term self-sustainability, are favored once they are established. On site mitigation trees proposed to be planted, are also required to be fire resistive, per the City's Fire Department directives.

Site Preparation

Trees slated for removal from the construction zone will be identified prior to grading.

Mitigation tree planting locations will be determined in the field on an individual tree-by-tree basis, as each tree planting location will have to be determined based on a suitable location among the proposed landscaping.

The mitigation site will be maintained in perpetuity by the developers, its successors or landscape specialist.

Plant Sizes and Number of Installed Plants

Mitigation tree species shall be as specified by the City of Murrieta. Container sizes, planting quantity, may vary as long as the budgeted amount, \$243,390 is applied towards the mitigation tree planting. Plant sizes, 24" Box, are specified as replacement tree size by the City of Murrieta.

Plant Sources

Mitigation trees may purchased from reputable, local, Southern California plant nurseries, as well from nurseries specializing in native trees, i.e., Tree of Life Nursery in San Juan Capistrano or Moosa Creek Nursery in Center Valley.

Tree Installation Method

Trees shall be installed per the ISA approved, planting detail, Figure 21. Install trees in groupings of 3-5 trees each, of varying sizes, in a suitable, designated, planting area within the project.

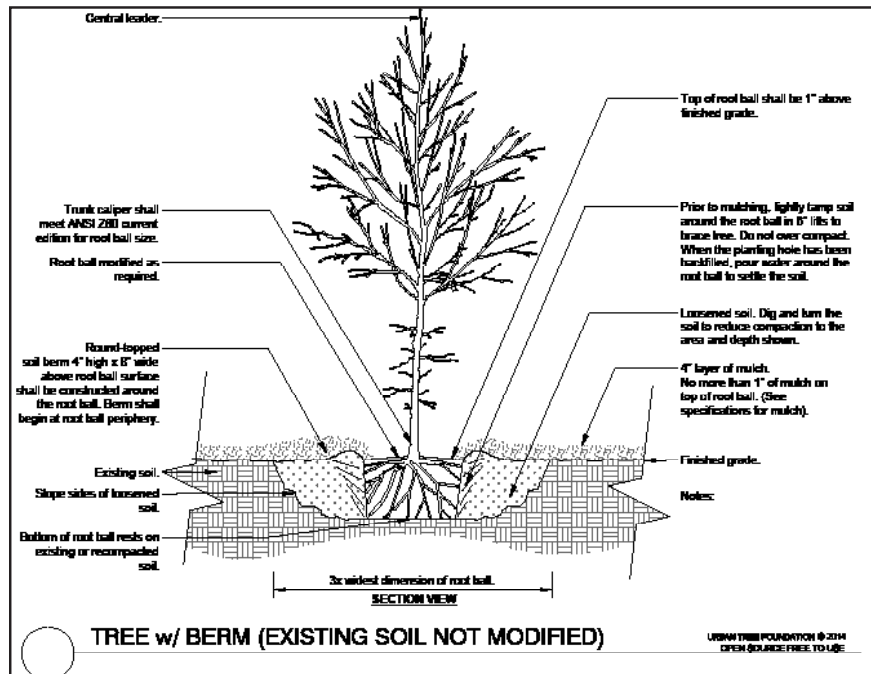


Figure 21. ISA approved Planting Detail.

Tree Mulching

Trees shall be mulched, per Figure 22, after planting, with organic mulch, acceptable to the City Fire Department.

Tree Installation Timing

Trees shall be planted at the beginning of the first rainy season after project grading operations have been completed and after the first significant rain event. The rainy season will enhance tree establishment by providing necessary water for natural plant growth to occur. If there is a drought during the rainy season, then supplemental irrigation shall be used to overcome the moisture deficit.

Water sources and Irrigation

Water source shall be domestic water. A suitable Point-of-Connection stub-out shall be established during the on-site grading operation. The irrigation-system will employ an appropriate backflow preventer, solar timer, and on-grade UV resistant irrigation pipe (brown line), with low volume bubbler heads. At no time will irrigation runoff be permitted.

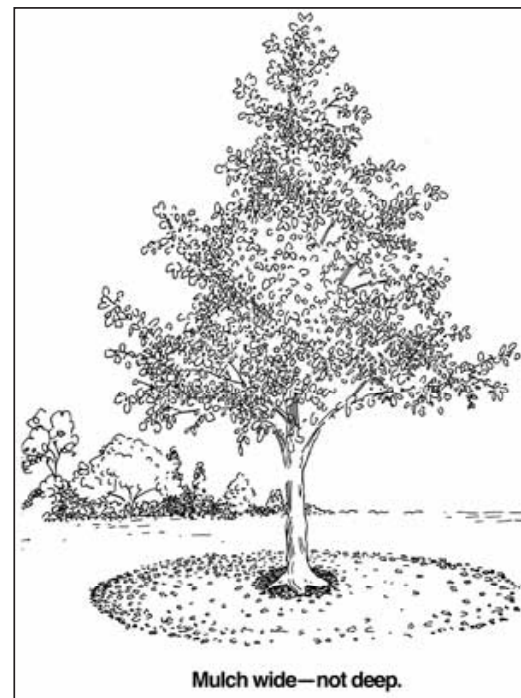


Figure 22. Mulch, using an organic material, 4"-6" deep, per Planting Detail, Figure 20.



An irrigation plan will be developed, and submitted to the City of Murrieta for approval, based on the final tree planting locations. The irrigation system shall be zoned such that plants with similar irrigation requirements are in the same zone and valve.

Monitoring

Monitoring shall begin at the start of planting and shall include planting, irrigation, establishment and maintenance.

SUCCESS CRITERIA

Performance standards shall be measurable by systematic monitoring methods. Success will be defined by the survival rate of the trees after five years of establishment and maintenance. At the end of five years after planting, the tree survival rate shall be 100%.

MONITORING

Tree Monitoring Methods

Permanent photo documentation points will be established within the project site. A minimum of one photo point per tree planting site will be established. For example, one photo point in the eastern slope area will be identified to document growth of the mitigation trees.

Photographs will be taken throughout the monitoring period, during each monitoring event. One photograph will be taken from each monitoring point, looking north. Photos will be taken with a digital camera with a moderate wide angle lens (24mm equivalent). The make and model of camera and type and focal length of lens will be noted in monitoring documentation. Photographs will be taken from five feet in height, ideally from a tripod with the height noted and a consistent date and time from year to year.

Tree Growth Monitoring

All mitigation trees will be numbered. Caliper diameter, height, average canopy spread, and structural and/or insect damage shall be recorded. Dead trees shall be replaced in kind, for another five year monitoring period.

The monitoring goal is to assess the establishment and survival of the mitigation trees and to recommend any appropriate remedial management actions as necessary.



Qualitative Scoring for Assessing the Health and Vigor of Mitigation Trees

Score	Description of Score
Excellent	No evidence of stress, minor pest or pathogen damage may be present. No chlorotic leaves, no or very minor herbivory (browse). Evidence of new growth, flowering, seed set on majority (greater than 75%) of plants observed
Good	Some evidence of stress. Pest or pathogen damage present, few chlorotic leaves (>5%), minor evidence of herbivory (browse). Evidence of new growth, flowering, seed set on majority (greater than 50%) of plants observed
Fair	Moderate evidence of stress. Pest or pathogen damage present, some chlorotic leaves (>10%), some herbivory damage (few snapped leaves, stems, wear marks, etc.). Evidence of new growth, flowering, seed set on some (less than 50%) of plants observed
Poor	High level of stress. High level of pest or pathogen damage, many chlorotic leaves (>30%), severe herbivory damage (massive forage damage, main stems/ leaves stripped, etc.). No evidence of new growth, flowering, or seed set on (more than 50%) of plants observed
Dead	No evidence of any life left in the tree. When nicking the bark with a knife, no live (green) cambium tissue is detected

Monitoring Schedule

The trees will be monitored for a five year period. Trees will be monitored twice annually, in the spring and fall, for the early detection of any tree growth related problems.

MAINTENANCE DURING MONITORING PERIOD

Processes

The mitigation trees planted at the project provide habitat for sensitive as well as more common species of birds and animals. The trees are intended to be self sustaining, once they have become established. However, natural systems are dynamic and subject to change over time. Natural processes include flood and drought, fire, wind and herbivore by deer or gophers. Man made processes include mechanical damage and vandalism.

As a result of human induced change, management will be required to maintain the mitigation planting. In the short term, management will likely be necessary to minimize growth of weeds in planting areas, adjust irrigation and perform corrective pruning of trees. The following discussion identifies approaches to longer term maintenance after the end of the construction and planting and establishment period.



Inspection Tasks and Frequencies

The following inspections will be generally performed on a bi-annual basis at the time of mitigation monitoring. Field notes will document if conditions are normal or abnormal, and the annual monitoring report will recommend remedial actions to address any significant issues, as deemed necessary. The annual monitoring reports should note that the following conditions (for example) are observed:

1. Are planting areas exhibiting excessive water or drought stress (too much or too little water as evidenced by leaf wilt, leaf drop, plant die off, etc.)?
2. Is there a distinctive pattern of plant die off (i.e., a cluster of plants within a small area)?

Remedial Tasks

Living systems require ongoing maintenance and management. An adaptive management strategy for maintaining and managing the site is recommended. Remedial actions could include one or more of the following tasks (not exclusive):

1. Weeding around planting basin to reduce competition from non-native grasses and forbs
2. Supplemental watering
3. Repair of plant basin
4. Supplemental replacement plantings (in-kind, if a particular tree is not thriving at a particular site)
5. Minor regrading around a planting site, in case of flooding over the root ball

Initiating procedures

Standards for when to implement re-planting will be if the percent survival in any monitoring year falls below the target level of 100%. The trigger that will dictate remedial actions is tree survival.

If annual performance criterion is not met, a report shall be prepared analyzing the cause of failure and, if necessary, proposing remedial action for City approval.

Replanting

Replanting would be recommended if it is deemed that no other procedure could be employed to restore the tree(s) to meet monitoring criteria. If die-off occurs and replanting is necessary monitoring for any tree will be reset to year one.

- Replanting may be deemed appropriate during the 6 month installation warranty period to replace dead plants. Any other time, trees should be replanted during the next rainy season as previously described.



Invasive Species Control

Herbivory

Six-foot high metal deer fencing attached to posts around the site should be used to protect the new plantings from deer browsing during establishment. If found to be necessary, wire mesh (chicken wire) cages may be used to reduce rodent herbivory of roots of planted material.

Predator control actions will be evaluated via monitoring and reviewed for efficacy. If rodents are severely impacting the success criteria of planted trees, it may be necessary to implement different protection measures.

Vegetation

String trimmers can be used to weed around the tree plantings as needed but only with procedures in place to prevent harm to sensitive tree trunks. Machinery should not be used at the planting site during wet conditions to prevent soil compaction. Any invasive species control, i.e., bermuda grass, will likely require repeated effort for at least several years and possibly throughout the long-term management period. Specific needs will be identified based on each year of monitoring, and documented in annual reports.

Adaptive management control methods should be utilized to control the spread of bermuda grass, the abundance and distribution of the species, and the location within the site, relative to the tree planting site. Adaptive management is emphasized wherein various strategies will be employed, depending on site-specific conditions and invasive species issues at the time of management/maintenance activity.

MONITORING REPORTS

As-builts

At the completion of site grading and planting, as-built drawings will be prepared by the developer and provided to the City of Murrieta. Drawings will show, at a minimum, the exact location, limits of each planting area and other installed items. The City of Murrieta, shall be notified that mitigation construction and planting has been completed within 72 hours of concluding these activities.

Annual Reports

Annual reports of monitoring results will be submitted to the City of Murrieta. The reports will assess attainment of yearly target criteria and progress toward final success criteria. If final success criteria are met early, then a request for early completion of permit requirements will be made. Photographs of restoration areas shall be included in annual reports, as necessary, to document site conditions.



Due Dates

As-builts will be provided within 120 days after the completion of planting activities.
The City of Murrieta shall be notified within 5 days after planting activities are complete.

The first annual report shall be delivered by December 31 of the year following the first growing season after planting, with a report provided by December 31 of each subsequent year until the end of the 5-year monitoring period.

CONTINGENCY MEASURES

Initiating Procedures

If the annual performance criterion is not met for any year, or if final criteria are not met, a report shall be prepared analyzing the cause of failure and, if necessary, propose remedial action for approval. Potential remedial actions include but are not limited to replanting, modifying management strategies or methods, or extending the monitoring period.

Contingency Funding Mechanism

The developer is responsible for funding any adaptive management or additional measures which it determines are necessary and with which the appropriate agencies concur. The developer will provide the City of Murrieta, with a financial assurance Memorandum of Understanding (MOU) as a standalone document.

COMPLETION OF MITIGATION RESPONSIBILITIES

Notification

When performance criteria have been met, the applicant will notify the City of Murrieta. Documentation will be provided within the accompanying annual report.

Agency Confirmation

Upon notification of completion the City of Murrieta, identified above, may concur based on written documentation or, at their discretion, may request a site visit to observe the completed project.

LONG TERM MANAGEMENT

Long-term management, in perpetuity, will be required of the mitigation trees. On average, trees can live be over 150 years old. Individual trees, depending on species, may live 500 years or more, although 100 to 200 years is more typical. The Long Term Management Plan, therefore, should focus on proper management of the trees. Activities that should be considered in the Long Term Manage-



ment Plan should include, but not be limited to: invasive plant management (including native as well as non-native plants), invasive predator control, erosion and sedimentation, infra

structure management, grazing, and human impacts, ie., vandalism and encroachment. The mitigation trees, maintained in good health, and should eventually produce seeds, i.e., acorns, and should therefore become self perpetuating.

Monitoring should continue, after the mitigation requirements have been met, but on an annual basis, typically in the fall.

Contingency measures, and schedules associated with these activities should also be addressed for the long term.

Funding for Long Term Management will be provided by the developer, or its successors, in perpetuity by a line item budget measure.

REFERENCES

Sawyer J.O., T. Keeler-Wolf, J.M. Evens
2009 *A Manual of California Vegetation, Second Edition*. Sacramento, California
Native Plant Society Press

Respectfully submitted:

A handwritten signature in dark ink, appearing to read "Gerhard Bombe".

Gerhard Bombe, ASLA, RLA 2112, ISA Certified Arborist WC-1888A

Attachments: A. Tree Survey Data
B. Tree Condition Rating
C. Tree Appraisals
D. Photo Log

DISCLAIMER: No root collar, crown excavation or internal examination was performed on the tree(s) to determine the presence or absence of any internal decay or rot. Diseases and micro-organisms that can cause tree decline and create potentially hazardous trees often occur underground or within the tree. They are not easily detected, unless specific examinations are performed. Likewise, no aerial inspection for cavities in the tree canopy was performed, except for that which was visible from the ground.

Arborists are tree specialists who use their education, knowledge, training, experience, and research to examine trees and woodlands. Arborists recommend measures to enhance the beauty and health of trees and forests, while attempting to reduce the risk of living near them. Clients may choose to accept or disregard the recommendations of the arborist or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi and other forces of nature. There are some inherent risks with trees that cannot be predicted with any degree of certainty, even by a skilled and experienced arborist. Arborists cannot predict acts of nature including, without limitation, storms of sufficient strength, which can cause even a healthy tree to fail. Any entity that develops land and builds structures with a tree in the vicinity should be aware and inform future residents of the risks of living with trees and this arborist's disclaimer.

Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medical care, cannot be guaranteed. In addition, construction activities are hazardous to trees and cause many short and long-term injuries, which can cause trees to die or topple either in the short term or over many years or decades.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborists services, such as property boundaries, property ownership, disputes between neighbors, and other issues. Consulting arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist by the client. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

This author has not assumed any responsibility for liability associated with the trees on or adjacent to this project site, their future demise and/or any damage, which may result from them. To live near trees is to accept some degree of risk.