

Client: Meadow Club

Arborist: Zach Vought

Project Address: 1001 Bolinas Rd., Fairfax

Inspection Dates: 2/6/20; 8/13/21



SUMMARY

A total of 10 coast redwood trees are slated for removal. Two of the ten trees are protected-size and can be removed without a permit. The remaining 8 trees are heritage trees and require a permit.

ASSIGNMENT/ BACKGROUND

Sean Tully, Director of Grounds Maintenance at Meadow Club, contacted Urban Forestry Associates to evaluate a long-range plan of removing cart paths and a number of trees. All in, the club's effort is to restore the original design and intent of the golf course and with respect to the proposed tree removal and to reduce the amount of water Meadow Club uses in view of the persistent drought conditions in Marin County and Northern California.

Meadow Club is the first golf course designed in North America by noted golf course architect Alister MacKenzie, who is among 4 or 5 best known creators of golf courses around the world. Meadow Club was designed and built in the early part of the 20th century and in so doing MacKenzie sought to reflect principles of design evident at the world-famous Old Course at St. Andrews, in Scotland. Holes had shared fairways and multiple angles of play where the encroachment of trees was not an issue. When Meadow Club was designed, the few trees on the course were relegated to out of play areas—which allowed for an open, links-style experience with unimpeded vistas. The club has many photographs from that era to support this assertion. In the 1950's and 60's many ornamental and non-native tree species were planted by well meaning, but mistaken, managers of the golf course. Having reached maturity, the trees have altered the playability and aesthetic of the course in a way that is contrary to its originally intended design. Meadow Club intends to return the course to the links-style design while reducing water use through tree removal and improved turf grass management. The course is currently running tests (coordinated with the United States Golf Association and the University of California—Riverside in preparation to convert to a low water use Bermuda grass. Meadow Club is an Audubon Cooperative Sanctuary golf course that works to enhance and protect its natural environment. It is also a business partner with One Tam, working closely with the Marin Municipal Watershed District to maintain and enhance native habitat on the mountain. One habitat on the mountain and in general that is on the decline is a meadow habitat. Benefits of a restored meadow go far beyond an improved golf experience a meadow habitat supports more biodiversity and can carry a larger population of animals.

The purpose of this report is to document the size and condition of the subject trees and is intended to be submitted as part of a County of Marin Heritage Tree Removal Permit Application. Meadow Club provided input in the background and discussion portions of this report.

OBSERVATIONS (Please see Tree Inventory on Page 5)

HOLE 16/17 Redwood Removal: See Site plan on Page 6. The (6) subject trees are coast redwood (*Sequoia sempervirens*) ranging in height from approximately 100 to 120 feet. All the trees qualify as Heritage based on the definition in the Marin County Municipal Code. The trees stand in a staggered line parallel with the cart path which separates hole number sixteen and hole seventeen (See Figure 2). The trees are spaced closely and share canopy space. The appearance of the tree canopies was normal at the time of my inspection. The top of Tree-2 (the most suppressed of the six trees) was somewhat brown. The tops of the trees appeared normal, and no obvious indications of decay, disease, or pest activity were observed in their lower trunks and or canopies.

HOLE 18 Redwood Removal: The (4) subject trees are coast redwood ranging in height from approximately

60 to 90 feet (See Figure 3). Of the four trees (2) trees qualify as Heritage based on the definition in the Marin County Municipal Code. The trees are spaced closely and share canopy space. The appearance of the tree canopies was normal at the time of my inspection and no notable structural defects were observed.

DISSCUSION

The subject trees exhibit good health, good structure, and fair to good form (See Table 1 for tree condition descriptions) and appear to be performing well onsite. The form rating was reduced slightly due to the canopy asymmetry caused by the trees being planted too closely.

Historically, the location for Meadow Club has always been a meadow with an early reference to the area as the "big meadow" in the early 1900s as it was once a working dairy farm. Meadow Club derives its name (originally Meadow Club of Tamalpais) from the property openness. In the last twenty years the golf course was partially restored to the original design by Mackenzie and with this a renewed interest in the original design. Meadow Club has fostered a meadow habitat and worked to preserve areas at throughout the course consisting of native grasses and oak trees. Meadow Club treats the Coast Live Oaks for Sudden Oak Death and manages for non-native invasive plants like broom, Douglas Firs, and Stone pines that are growing into some hardwood stands of oaks and madrone, compromising their integrity.

Meadow habitat around the world is being lost to development, farming, and climate change. A meadow habitat attracts a wide range of wildlife that includes deer, bobcats, fox, coyote, and over 130 different bird species that Meadow Club has identified in the last 25 years. Meadow Club works with the Marin Municipal Water District and One Tam to help support their ongoing stewardship efforts on Mt. Tamalpais. The club has over twenty-five blue bird boxes and three owl boxes on the course and keeps both narrow and common milkweed to provide habitat for monarchs. Meadow Club also employs a naturalist who collects native seed on our property to further enhance the environment with plants that are in keeping with the surrounded open spaces.

It is reported that playability of the course, water use, and shade are the issues of concern regarding the subject trees. I am not an expert in golf course design, so Mr. Tully could more effectively convey the impact these trees have on the playability of the course, but the trees obviously have a commanding presence (standing over 100-feet tall) and possessing dense canopies. The tree plantings reduce the vistas across the property. I understand from Mr. Tully that dense shade creates issues for turf and can contribute to turf conditions are incompatible with responsible maintenance.. Shaded areas stay wet longer and may require additional drainage. Also, coast redwood demands a substantial amount of water to thrive, so the subject trees are not an ideal species if the goal is to reduce water use. Additionally, the frequent, short duration irrigation schedules used to irrigate turf encourages surface rooting, which can present hazardous conditions to golfers and damage mowers and aerifiers.

Drought conditions are a significant issue for a golf course and Meadow Club already goes to great lengths to reduce water use. This includes installation and maintenance of drainage systems on the course, a computerized system of irrigation that is able to target only areas that require water rather than broadcast soaking. Water is a valuable commodity to the county and to the club's financial condition. Careful management is mutually beneficial. This becomes even more obvious during drought conditions. In the future this issue will only become more acute. The redwoods at Meadow Club have become accustomed to receiving more year-round water than the trees would normally experience in native areas. This, along with soil amendments intended for grass, leads to the dense canopy prevalent for all trees on the course. In addition, examining the tree impact on water use, the Club has advanced efforts to replace the current grass stand (poa annua and rye grass) with Bermuda grass that uses less water. Agronomists attached to the United State Golf Association and the University of California-Riverside are working with the Club staff to review options. The anticipated outcome is a reduction in annual irrigation need by up to 40%. This reduction with current drought conditions will put added stress on redwoods found on the course and inhibit their growth and pose some safety concerns. Shade is an issue with growing Bermuda grass and the shade from the redwoods will have a negative impact on the turf quality. Drought conditions are becoming more prevalent and the club is actively looking at new options for securing a new water source. Given our location most of these options are not

feasible and the grass conversion to Bermuda is our best option going forward for the club to provide optimum playing conditions for the future of the club.

Pursuant to Marin County Municipal Code 22.62.050, the below criteria are considered by the County when reviewing Tree Removal Permit applications. As the subject trees do not qualify for any of the exemptions described in the Marin County [Tree Removal Permit Fact Sheet](#), responses have been provided to the below criteria to support approval of the tree removal permit:

In considering a Tree Removal Permit application, the Director may only grant approval or conditional approval based on a finding that removal of the tree(s) is necessary for the reasonable use and enjoyment of land under current zoning regulations and Countywide Plan and Community Plan (if applicable) policies and programs, taking into consideration the following criteria:

- A. Whether the preservation of the tree would unreasonably interfere with the development of land;

Based on the current goals for the golf course, the trees interfere with the reasonable use and enjoyment of the golf course by inhibiting the intended playing style (links), water demand of the species, limited views, and shade production. When the golf course converts to drought tolerant Bermuda grass, shade cast by the subject trees will be problematic as the species is not tolerant of shade.

- B. The number, species, size and location of trees remaining in the immediate area of the subject property;

All 6 trees between holes 16 and 17 are heritage trees and in excess of the 94" circumference in inches (108,119,144,160,176, and188). There are three other trees that are not protected and are also intended to be removed when Meadow Club removes the cart path. Two of the trees are liquid ambers and the third tree is a Silver maple.

Of the four trees on the 18th hole, two would be removed under the annual two trees allowed as they are protected trees. The other two trees (Tree-7 and Tree-10) are heritage trees.

There are 289 trees on the 159-acre property. The club's management practices for the property include fuel reduction through the removal of fire prone fir trees, stone pines, and it promotes establishment of native oaks. For example, the course has caged many oak seedlings to prevent deer browse and to promote growth. Deer browsed oaks and some other oaks have been planted/transplanted to provide a nursery for later use of these trees to be transplanted into other areas.

- C. The number of healthy trees that the subject property can support;

N/A

- D. The topography of the surrounding land and the effects of tree removal on soil stability, erosion, and increased runoff;

Removal of the subject trees will have a negligible effect on the above issues. This opinion is based on experience and education. I am not a geotechnical expert and do not claim to be one. All work done on the course is repaired with new sod to be laid and drainage added to manage water movement and runoff on the golf course.

- E. E. The value of the tree to the surrounding area with respect to visual resources, maintenance of privacy between adjoining properties, and wind screening;

According to the golf course's desire to open unobstructed vistas in the meadow, the subject trees have a negative value and their removal will have no apparent impact on surrounding property owners.

- F. F. The potential for removal of a protected or heritage tree to cause a significant adverse effect on wildlife species listed as threatened or endangered by State or Federal resource agencies in compliance with the California Environmental Quality Act (CEQA);

A wildlife biologist could better address this issue. I can however say that I observed no wildlife nests during my ground-based visual assessment of the trees.

- G. G. Whether there are alternatives that would allow for the preservation of the tree(s), such as relocating proposed improvements, use of retaining walls, use of pier and grade beam foundations, paving with a permeable substance, the use of tree care practices, etc.

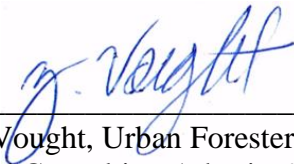
Based on the golf course's current goals there is no alternative that would achieve the clubs goals. Pruning is an option that will marginally increase sunlight and views but doing so would create an artificial/ managed look to the redwood trees that is not consistent with the aesthetic desires of the course and would not abate the water related concerns.

CONCLUSIONS

Removal of the subject trees is necessary to achieve the course's desired use of the property. Removing the subject trees will reduce water use, allow for installation of drought tolerant Bermuda grass, and achieve the desired aesthetic and functional outcomes desired by Meadow Club. If the permit is granted, tree replacement will have to be addressed; either through replanting (3:1 ratio) or in lieu of fees.

SCOPE OF WORK AND LIMITATIONS

Urban Forestry Associates has no personal or monetary interest in the outcome of this investigation. All observations regarding trees in this report were made by UFA, independently, based on our education and experience. All determinations of health condition, structural condition, or hazard potential of a tree or trees at issue are based on our best professional judgment. The health and hazard assessments in this report are limited by the visual nature of the assessment. Defects may be obscured by soil, brush, vines, aerial foliage, branches, multiple trunks or other trees. Even structurally sound, healthy trees are wind thrown during severe storms or other weather events. Consequently, a conclusion that a tree does not require corrective surgery or removal is not a guarantee of no risk, hazard, or sound health.



Zachary Vought, Urban Forester
Registered Consulting Arborist #691
ISA Board Certified Master Arborist WE-9995B
ISA Qualified Tree Risk Assessor

Tree Inventory

Tree #	Trunk Diameter (inches)	Location	Protected/Heritage
1	50	Holes 16/17	Heritage
2	36.7	Holes 16/18	Heritage
3	33.3	Holes 16/19	Heritage
4	55.2	Holes 16/20	Heritage
5	45.2	Holes 16/21	Heritage
6	58.6	Holes 16/22	Heritage
7	39.7	Hole 18	Heritage
8	26.2	Hole 18	Protected
9	22.7	Hole 18	Protected
10	37.7	Hole 18	Heritage



Site plan

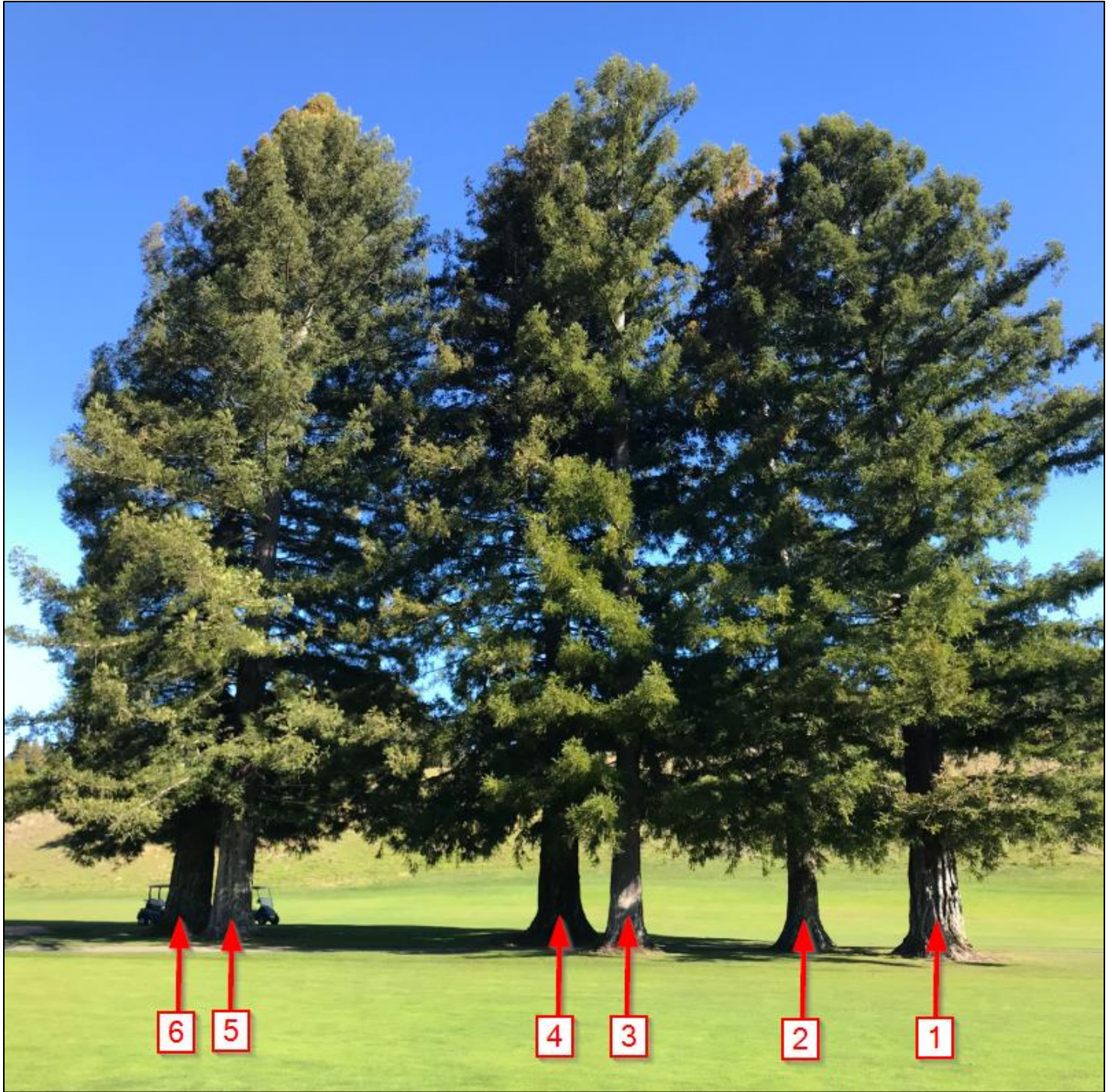


Figure 1. Trees 1-6 as viewed from the 16th fairway looking north.



Figure 2. Trees 7-10 as viewed from the 18th fairway