BIOLOGICAL RESOURCES ASSESSMENT

Lot 5, Cougar Creek Way, Arroyo Grande
San Luis Obispo County, California
Assessor's Parcel Number 044-501-033
County Case # N-DRC2022-00011

Prepared for:
Mr. and Mrs. Starkovich
c/o Sergio Ochoa, Isaman Design
566 Sombrillo
Arroyo Grande, CA 93420

Prepared by:

Cleveland Biological, LLC
Arroyo Grande, CA 93420

October 26, 2022

Table of Contents

List of Figures

Appendices

EXECUTIVE SUMMARY

This biological resources assessment (BRA) was prepared by Cleveland Biological, LLC for a proposed single-family residence located within the County of San Luis Obispo, California (proposed project; Assessor's Parcel Number 044-501-033). The proposed project involves developing a 2.5-acre site for a single-family residence with auxiliary structures. The subject property is located northeast of the City of Arroyo Grande and is surrounded by developed single-family home lots.

The purpose of this BRA is to assist the owner with technical and biological resource information to support the application for a one-level single-family residence with one small loft space, an ADU, a detached garage, and major grading for two acres of disturbance. This report evaluates the potential for the subject property to support special-status biological resources and whether these resources could be adversely affected by the proposed project. A review of background information on special-status biological resources within and at the project vicinity was used for this analysis. A tree survey, seasonally timed rare plant survey, and wildlife surveys were also conducted at the proposed project site.

Three vegetation communities were identified on the proposed project property and include coast live oak woodland; coyote brush scrub, which is co-dominated by coyote brush and black sage; and open, sandy, disturbed areas with scattered shrubs and non-native grasses. There were no hydrologic features, wetlands, or riparian habitats on the proposed project property.

A total of twenty-five trees, all coast live oaks, were identified during the tree survey. A proposed driveway was staked to determine the impacts it might have on these trees. One oak tree is expected to be removed, and 12 trees are expected to be impacted by the proposed driveway. A second tree is expected to be removed due to a proposed retaining wall. There are mitigation measures to replace half of these trees with onsite mitigation. Due to a lack of satisfactory space on the property for the other half of the mitigation trees, they will be mitigated by paying into a fund for offsite mitigation. Further measures are recommended to protect the coast live oak trees on the proposed project site.

The background review determined that 14 special-status plant species were recorded within the vicinity of the proposed project site that had the potential to occur within the proposed project property. A seasonally timed rare plant survey at the proposed project site was conducted to determine their presence or absence. None of these special-status plant species were found on the proposed project site. Mitigation measures will require the use of native, non-invasive, and drought-tolerant landscape species.

The background review determined that the proposed project site had nine special-status animals with the potential to occur at the proposed project site. These include four birds, one

insect, one mammal, and two reptiles. No aquatic species occur at the proposed project site due to the lack of aquatic resources. Of the nine special-status species, only the Cooper's hawk was observed on the proposed project site. Mitigation for the Cooper's hawk involves avoiding impacts to all nesting birds during nesting season.

The proposed project does not trigger any criteria that would meet a mandatory finding of significance under the California Environmental Quality Act because mitigation measures reduce impacts below the level of significance.

1.0 INTRODUCTION

Cleveland Biological, LLC conducted a biological resources assessment (BRA) on Lot 5, Cougar Creek Way, Arroyo Grande, San Luis Obispo County, California (proposed project; APN 044-501-033). The BRA provides baseline information about biological resources that are both present or potentially present on the proposed project site for future development planning and review by the County of San Luis Obispo.

The proposed project site location is northeast of the City of Arroyo Grande (Figure 1). The proposed project site sits in a shallow valley next to a hillside in the rural area between Corbett Canyon Road and Highway 227, as shown in the aerial overview in Figure 2. The proposed project site is at the end of Cougar Creek Way near the intersection of Fox Canyon Lane and Badger Canyon Lane. Single-family dwellings surround the proposed project site on all sides.

The proposed project site region has a Mediterranean climate with mild winters and dry summers. Average annual temperatures range from approximately 53 degrees Fahrenheit (F) to 78 degrees F, and annual precipitation in the Arroyo Grande area ranges from around 21 to 24 inches, depending on location. Most of the rain occurs between November and March. Due to current drought conditions, February 2020 and 2021 have been the driest back-to-back months in 150 years. The County has received only 50% of its average rainfall (San Luis Obispo County, 2021).

1.1 Project Description

The proposed project is for a one-level single-family residence with three small loft spaces, an ADU, a detached garage, and major grading for two acres of disturbance. The proposed project will cover approximately 16% of the 2.5-acre, R-3 lot. The lot area is 108,918 square feet (sf) with a buildable area of 74,279 sf and a proposed project footprint of 11,992 sf. The proposed project footprint consists of a main dwelling that will occupy 4,995 sf, decks of 2,340 sf, a garage of 1,542 sf with storage of 237 sf, a pool of 63 sf, a pool house of 1,200 sf, pool decks of 384 sf, and a detached two-car garage of 931 sf. Construction plans are by Isaman design, Inc. (Appendix E).

1.2 Regulatory Overview

This BRA reviewed all special-status species, which are plants and animals listed, or candidates for listing, as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA); listed as Threatened or Endangered under the California Endangered Species Act (CESA); or listed in the California Natural Diversity Database (CNDDB). The CNDDB has data on "special-status taxa," which includes those listed by the CESA, the FESA, the California Rare Plant Rank (CRPR), the CDFW Species of Special Concern (SSCs), Species of Greatest Conservation Need under the State Wildlife Action Plan, rare according to experts, and identified by other agencies or organizations as taxa of concern.

Figure 1. Site Location

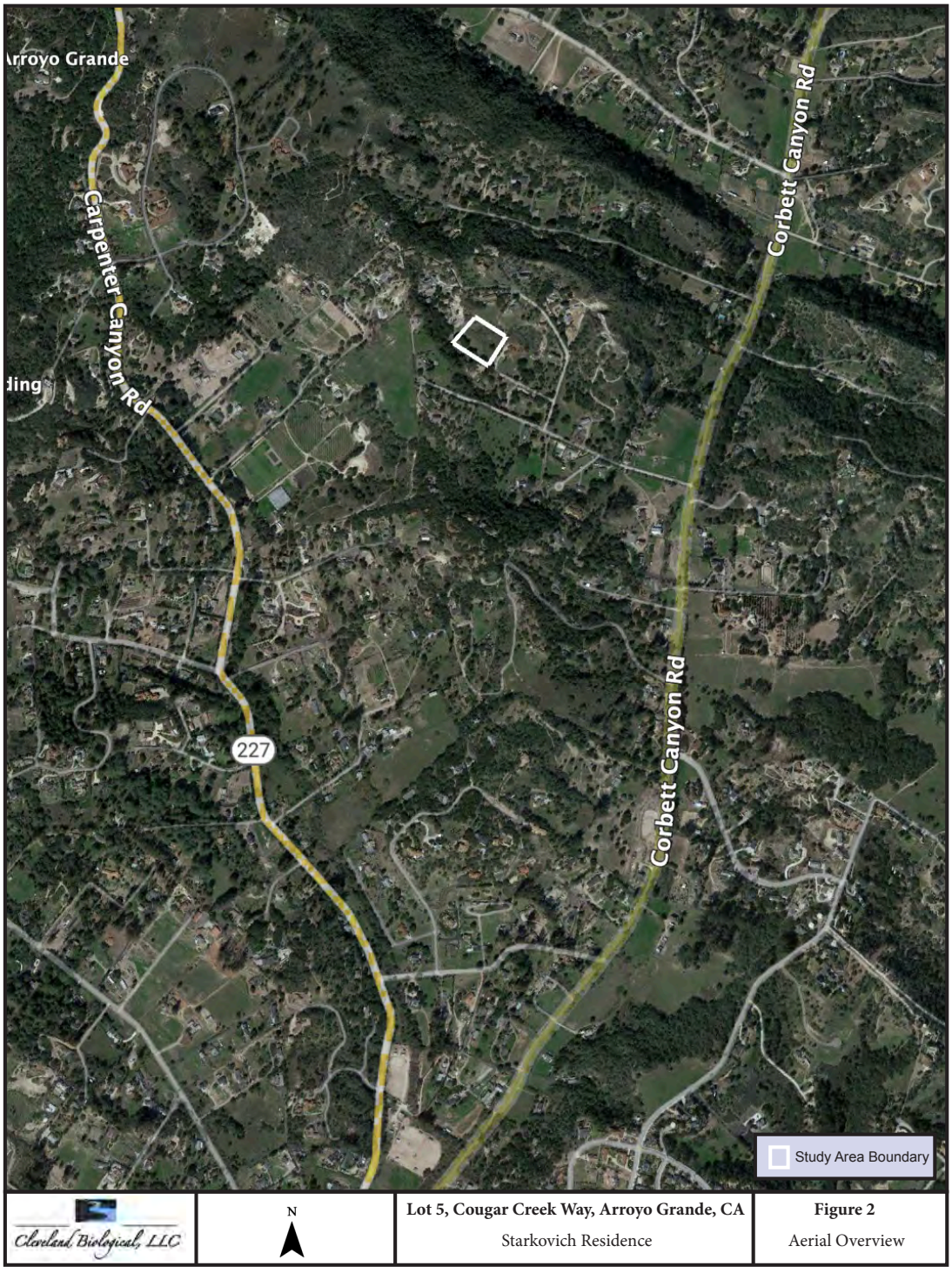


Figure 2. Aerial Overview

2.0 METHODS

This BRA report includes a background review and field surveys for special-status species, including Pismo clarkia (*Clarkia speciosa ssp. Immaculata*), and a tree inventory.

2.1 Background Review

Background review sources for this BRA include the CNDDB, USFW's Information for Planning and Consultation, USGS National Geologic Database, USDA Natural Resources Conservation Service, Consortium of California Herbaria (CCH), Calflora, Jepson Flora Project, California Native Plant Society (CNPS), aerial images from Google Earth, County of San Luis Obispo Property Information Search, and construction plans.

2.2 Field Surveys

Biologists Cindy Cleveland, Paul Cleveland, and Botanist Steve Junak completed all fieldwork for this biological resources assessment. For the surveys, the biologists and botanist traversed the entire property on foot with particular attention to special-status plants, plant communities, habitats, animal tracks, animal burrows, bird nests, soil types, drainage features, and rock outcroppings. The initial May 13, 2022 survey focused on the Pismo clarkia (*Clarkia speciosa ssp. Immaculata*). Subsequent survey days are in the following table that lists dates, survey type, and surveyors.

Date	Survey Type	Surveyors
May 13, 2022	Reconnaissance survey, preliminary vegetation (Pismo clarkia) & wildlife surveys	C. Cleveland, P. Cleveland
May 15, 2022	Aerial photography	P. Cleveland
May 20, 2022	Botanical inventory, vegetation community mapping, tree inventory	C. Cleveland, P. Cleveland, S. Junak
May 29, 2022	Wildlife inventory	C. Cleveland, P. Cleveland
June 9 & 10, 2022	Field cameras, wildlife inventory	P. Cleveland
July 7, 2022	Northern legless lizard survey	C. Cleveland, P. Cleveland
September 20, 2022	Driveway oak tree survey	P. Cleveland

2.3 Tree Inventory

All trees at the proposed project site were measured if they were three inches or greater at approximately 4.5 feet above grade, or diameter at breast height (DBH). The inventoried trees were also numbered on an aerial photo (Figure 5) and photographed (Appendix C). Each inventoried tree was evaluated for vigor, the presence of damage by insect pests, pathogens, or trimming, and was compared to the typical archetype of the same species using these guidelines:

Trunk diameter – The trunk diameter was measured at approximately 4.5 feet above grade using a forester's steel diameter-equivalent tape measure. Each trunk was measured if a tree had multiple trunks greater than three inches at the same height.

Damage – Damage from pathogens or insect pests, natural causes such as wildlife interaction, or human activity was noted.

Vigor rating – Based on the amount of new growth, leaf color, bark conditions, dead wood, evidence of wilt, excessive branch or leaf necrosis, thinning of crown, presence of exudate, etc. A subjective ranking was assigned to quantify the overall physical condition of each tree based on the ratings described below:

- High: A healthy and vigorously growing tree characteristic of its species and reasonably free of any visible signs of stress, disease, or pest infestation.
- Moderate: A healthy and vigorous tree with minor visible signs of stress, disease, or pest infestation. Some dead wood, broken branches, or yellowing leaves may be present.
- Low: A tree exhibiting signs of dieback, necrosis, stress, disease, or insect damage at levels above what is typically expected for the species. Symptoms could also include sparse leaf growth, predominately yellow leaves, dead or rotted wood lower the trunk, broken limbs, exposed roots, and parasite growth.
- Dead: A tree that has no foliage and exhibited no sign of life or vigor.

Oak trees that might be impacted by a proposed driveway were surveyed after a civil engineer placed stakes along the center line of the proposed route. Measurements were made six feet to either side of the stakes (assuming a 12-foot wide driveway) to determine any impact on the critical root zone of each tree.

2.4 Floristic Inventory

Steve Junak, Cindy Cleveland, and Paul Cleveland conducted botanical surveys using accepted protocols developed by the USFWS (U.S. Fish and Wildlife Service, 2000), CDFW (California Department of Fish and Wildlife, 2000), and CNPS (California Native Plant Society, 2001), which involved: 1) survey personnel traversed all suitable habitat within the entire project area on foot by walking meandering transects to ensure thorough coverage of the area; 2) surveys were

timely in the spring season to document the site's flora; and 3) surveys were floristic in nature, and all plant species observed were recorded and identified to a sufficient level to determine rarity. Plant taxonomy followed nomenclature included in the Jepson Manual, second edition (Jepson, 2020). Robert Hoover's The Vascular Plants of San Luis Obispo County, California (1970) was also used to identify onsite plants. Species not readily identifiable in the field were brought to the office for further analysis.

2.5 Wildlife Assessment

Field surveys at the proposed project site included walking the site to look for signs of wildlife, their habitats, tracks, and scat. Known occurrence data from the background review coupled with site observations were used to make presence-absence determinations for special-status species' potential to occur onsite. The evaluation of special-status species was based on field observations combined with an understanding of the species' biology. Field cameras were installed overnight to detect any nocturnal movements. Permission was obtained under a Scientific Collecting Permit to survey for the Northern California legless lizard – a method that involved raking the top few inches of loose topsoil with three passes. Protocol-level surveys to determine the presence or absence of the animal species that may occur within the project area were not conducted.

3.0 RESULTS

Appendix A provides a list of plants and animals observed at the proposed site during surveys. Appendix B has photographs to characterize the proposed project's onsite conditions. Appendix C has tree inventory health assessment and photographs from the proposed project site. Appendix D is a list of special-status biological resources present or potentially onsite at the proposed project site. Appendix E is the proposed project Site Plans. Figure 1 is the proposed project site location. Figure 2 is an aerial overview of the proposed project site. Figure 3 is a soils map of the proposed project site. Figure 4 is a habitat map showing the plant communities at the proposed project site. Figure 5 shows the locations of trees mapped during the tree inventory at the proposed project site. Figure 6 is a CNDDB map showing species near the proposed project site.

A nine-quadrant CNDDB search identified potential plant and animal species at or near the proposed project site. Figure 6 shows the proposed project site in the Arroyo Grande NE quadrant. The surrounding quadrants used for this BRA include Pismo Beach, Tar Spring Ridge, Oceano, Nipomo, San Luis Obispo, Lopez Mtn, and Santa Margarita Lake. The ninth quadrant was in the ocean.

3.1 Existing Conditions

The 2.5-acre proposed project site is situated in a rural area northeast of the City of Arroyo Grande. It is surrounded on all four sides by lots and developments similar to the proposed project. The proposed project property is characterized by a healthy grove of coast live oak woodlands on the west, coyote bush scrub on the east, and open, sandy disturbed areas in the center. The average elevation of the proposed project site is 475 feet above mean sea level.

3.2 Hydrologic Features, Wetlands, and Riparian Habitats

The background review and field surveys found no hydrologic features, wetlands, riparian habitats, seasonal drainages, or vernal pools on the proposed project site.

3.3 Soils

The Natural Resources Conservation Service soil map (Figure 3) indicates that the entire proposed project site is alluvial residual soil, Corralitos sand, with 2 to 5 percent slopes. A soils engineering report from December 1, 2021, indicates that the Corralitos sand with a 2 to 5 percent slope overlays a sandstone formation fifteen feet below (Geosolutions, 2021).

3.4 Habitat Types

The CNDDB lists six sensitive vegetation communities that exist within the nine quadrants surrounding the proposed project site: Central Dune Scrub, Central Foredunes, Central Maritime Chaparral, Coastal and Valley Freshwater Marsh, Northern Interior Cypress Forest, and Serpentine Bunchgrass. None of these sensitive vegetation communities occur at the proposed project site.

Google Earth's historical photographs of the proposed project site show a morphologic change in the scrub community. In the earliest photo taken in July 1994, the scrub community is confined to the northeast property boundary, while in September 2010, the coyote bush and black sage begins to grow towards the center of the property. Over the next five years, there were fluctuations in the size and presence of the scrub community, indicating either grazing or mowing until 2015, when the current boundaries become established.

Vegetation communities at the proposed project site include 31% coast live oak (*Quercus agrifolia*) woodland; 46% coyote brush scrub, which is co-dominated by coyote brush (*Baccharis pilularis*) and black sage (*Salvia mellifera*); and 23% open, sandy, disturbed areas with scattered shrubs and non-native grasses (Figure 4). Representative photographs of each habitat type are in Appendix B.

3.4.1 Coast Live Oak Woodland

The surveys at the proposed project site found coast live oak woodlands that were healthy and had a thick layer of leaf litter under them with a layer of understory plants that were sparse and consisted primarily of non-native grasses. The coast live oaks stand would be classified under the *Quercus agrifolia* Woodland Alliance, *Quercus agrifolia*-grass Association (Sawyer, Keeler-Wolf, & Evens, 2009).

3.4.2 Coyote Bush Scrub

The surveys at the proposed project site found patches of coyote brush scrub that were dominated by coyote brush (*Baccharis pilularis*) and black sage (*Salvia mellifera*). Bush monkeyflower (*Mimulus aurantiacus*) were conspicuously scattered in the coyote bush scrub plant community as well. These patches would be classified as *Baccharis pilularis* Shrubland Alliance, *Baccharis pilularis-Salvia mellifera* Association (Sawyer, Keeler-Wolf, & Evens, 2009).

3.4.3 Open Sandy Disturbed Areas

The surveys at the proposed project site found open, sandy, disturbed areas that were sparsely covered with a mix of perennial native shrubs, including bush lupine (*Lupinus arboreus*), California croton (*Croton californicus*), coyote brush (*Baccharis pilularis*), and deerweed (*Acmispon glaber* var. *glaber*). Scattered between the native shrubs were a variety of annual and perennial non-native grasses (including *Avena fatua*, *Bromus* spp., *Brachypodium distachyon*, *Ehrharta calycina*, *Festuca perenne*, *Hordeum murinum*, and *Stipa tenuissima*) and non-native forbs (including *Carduus pycnocephalus*, *Erodium botrys*, and *Malva parviflora*). The disturbed, transitional plant association was not classified.

3.5 Tree Inventory

The surveys at the proposed project site inventoried a total of twenty-five coast live oak trees. (See Figure 5 for a map). Appendix C provides information on health assessment and photographs. Appendix C also has possible impacts from a prosed driveway, including, a description of the impacts, the distance of the tree trunk from the proposed driveway, and the number of required mitigation trees. Of the inventoried coast live oak trees, four had signs of trimming, and 21 were healthy and vigorously growing with a robust layer of undisturbed leaf litter. Several of the coast live oak trees had a canopy reclining on the ground, which provided shade and moisture retention to the tree, and one oak tree had a nest that was not active.

3.6 Special-status Biological Resources

The plant surveys at the proposed project site found 28 native and 22 non-native species (Appendix A). There were no observed special-status species.

The surveys at the proposed project site found 16 animal species. The only observed special-status species was Cooper's hawk.

3.6.1 Special-status Plants

The CNDDB contains records of 101 special-status plant species that are known to occur within the nine quadrants surrounding the proposed project site. The special-status plants are listed in Appendix D. Many of the recorded species have specialized habitat requirements such as coastal bluffs, vernal pools, or grasslands that do not occur on or near the proposed project site. Other plants have specialized habitats that only occur outside of the proposed project site range, such as at higher elevations. Figure 6 shows special-status plant species that have been found near the property.

The background review determined that the proposed project site had the potential for 14 special-status plant species to occur in habitats similar to those on the proposed project site or were listed as nearby sightings. The following plants were given some potential to occur at the proposed project site and are further described below:

Black-flowered figwort (*Scrophularia atrata*)
Brewer's calandrinia (*Calandrinia breweri*)
California spineflower (*Mucronea californica*)
Hoover's bent grass (*Agrostis hooveri*)
Kellogg's horkelia (*Horkelia cuneata var. sericea*)
Mesa horkelia (*Horkelia cuneata var. puberula*)
Pismo clarkia (*Clarkia speciosa ssp. Immaculata*)
Saints' daisy (*Erigeron sanctarum*)
San Luis Obispo wallflower (*Erysimum capitatum var. lompocense*)
Sand almond (*Prunus fasciculata var. punctata*)
Sand mesa manzanita (*Arctostaphylos rudis*)
Santa Barbara bedstraw (*Galium cliftonsmithii*)
Southern curly-leaved monardella (*Monardella sinuata ssp. sinuate*)
Straight-awned spineflower (*Chorizanthe rectispina*)

Black-flowered figwort is a perennial herb that occurs in closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, and riparian scrub habitats, typically on sandy or diatomaceous shale soils. It ranges from 10 to 500 meters in elevation. Black-flowered figwort blooms in April through July. Potential habitat is present onsite for this species in sandy areas adjacent to scrub, but it was not observed during surveys.

Brewer's calandrinia is an annual herb that occurs in burned areas and disturbed sites in coastal scrub and chaparral on sandy or loamy soils It ranges from 10 to 1220 meters in elevation. Brewer's calandrinia blooms from March to June. Potential habitat is present onsite in disturbed sandy areas, but it was not observed during surveys.

California spineflower is an annual herb that occurs in open, sandy areas in coastal dunes, coastal scrub, chaparral, oak woodland, and valley and foothill grassland communities. It ranges from 0 to 1400 meters in elevation. California spineflower blooms from March to July. Potential habitat is present onsite for this species in sandy areas, but it was not observed during surveys.

Hoover's bent grass is a perennial herb that typically occurs in sandy soils derived from sandstone or siliceous shale, in open chaparral, oak woodland, and valley and foothill grassland habitats. It ranges from 60 and 600 meters in elevation. Hoover's bent grass blooms from April to August. Potential habitat is present onsite in oak woodland understory with sandy soil, but it was not observed during surveys.

Kellogg's horkelia is a perennial herb found in coastal dunes, coastal scrub, maritime chaparral, and closed-cone coniferous forests. It typically occurs in open sites on gravelly or sandy soils. It ranges from 10 to 200 meters in elevation. Kellogg's horkelia blooms from April to September. Potential habitat is present onsite for this species in sandy areas adjacent to scrub, but it was not observed during surveys.

Mesa horkelia is a perennial herb usually found in sandy or gravelly sites in coastal scrub, maritime chaparral, and cismontane woodland communities. It ranges from 70 to 810 meters in elevation. Mesa horkelia blooms from February to July. Potential habitat is present onsite for this species in sandy areas adjacent to scrub, but it was not observed during surveys.

Pismo clarkia is an annual herb that occurs on sandy soils in chaparral (along edges or in openings), cismontane woodland, and valley and foothill grassland communities. It is endemic to San Luis Obispo County. It ranges from 25 to 185 meters in elevation. Pismo clarkia blooms from May to July. Potential habitat is present onsite for this species in sandy areas adjacent to scrub. While present at reference locations and blooming during the time period of the survey, it was not observed during surveys.

Saints' daisy is a perennial herb found in coastal scrub, chaparral, and oak woodland communities, often in areas with sandy soil. It is restricted to San Luis Obispo and Santa Barbara counties. It ranges from 75 to 350 meters in elevation. Saints' daisy blooms from March to July. Potential habitat is present onsite in oak woodland understory with sandy soil, but it was not observed during surveys.

San Luis Obispo wallflower is a perennial herb that occurs on sandy soils in coastal scrub and maritime chaparral. The vast majority of populations are found in northern Santa Barbara County. It ranges from 60 to 500 meters in elevation. San Luis Obispo wallflower blooms from February to May. Potential habitat is present onsite for this species in open sandy areas, but it was not observed during surveys.

Sand almond is a woody, colonial shrub found in chaparral and oak woodland communities with sandy soils It mostly occurs on the south side of Morro Bay and on Nipomo Mesa in San Luis Obispo County and in northern Santa Barbara County It ranges from 20 to 200 meters in elevation. Sand almond blooms from March to April. Potential habitat is present onsite for this species in open sandy areas, but it was not observed during surveys.

Sand mesa manzanita is a shrub that occurs in chaparral with sandy soils, especially on Nipomo Mesa in San Luis Obispo County and in the San Antonio Terrace/Burton Mesa area in Santa Barbara County. It ranges from 50-300 m in elevation. Sand mesa manzanita blooms from November to February. Potential habitat is present onsite for this species in open sandy areas, but it was not observed during surveys.

Santa Barbara bedstraw is a perennial herb that occurs in chaparral and oak woodland communities. It ranges from 200 to 1220 meters in elevation. Santa Barbara bedstraw blooms from April to July. Potential habitat is present onsite in oak woodland understory with sandy soil, but it was not observed during surveys. A sterile, perennial Galium was observed in the understory of the oaks onsite, but that individual had much narrower leaves than this species.

Southern curly-leaved monardella is an annual herb found on sandy soils in coastal dunes, coastal scrub, chaparral, and oak woodlands. It ranges from 0 to 300 meters in elevation. Southern curly-leaved monardella blooms from April to September. Potential habitat is present onsite for this species in open areas with sandy soil, but it was not observed during surveys.

Straight-awned spineflower is an annual herb that occurs in chaparral, oak woodland, and coastal scrub habitats, and has even been found in vineyards and other frequently disturbed areas. It is typically found in granite sand or disintegrating shale. It ranges from 200 to 1035 meters in elevation. Straight-awned spineflower blooms from May to July. Potential habitat is present onsite for this species in open areas with sandy soil, but it was not observed during surveys.

No special-status plants were observed during field surveys. The focused rare plant surveys were conducted for the entire proposed project site in May, which is the blooming period of special-status plants identified with the potential to occur on the proposed project site. The focused rare plant surveys conducted for this investigation were considered comprehensive and covered all bloom periods of special-status plant species that could occur in the study area. No further botanical surveys are recommended at this time. Appendix D analyzes each species for habitat, location, and blooming period.

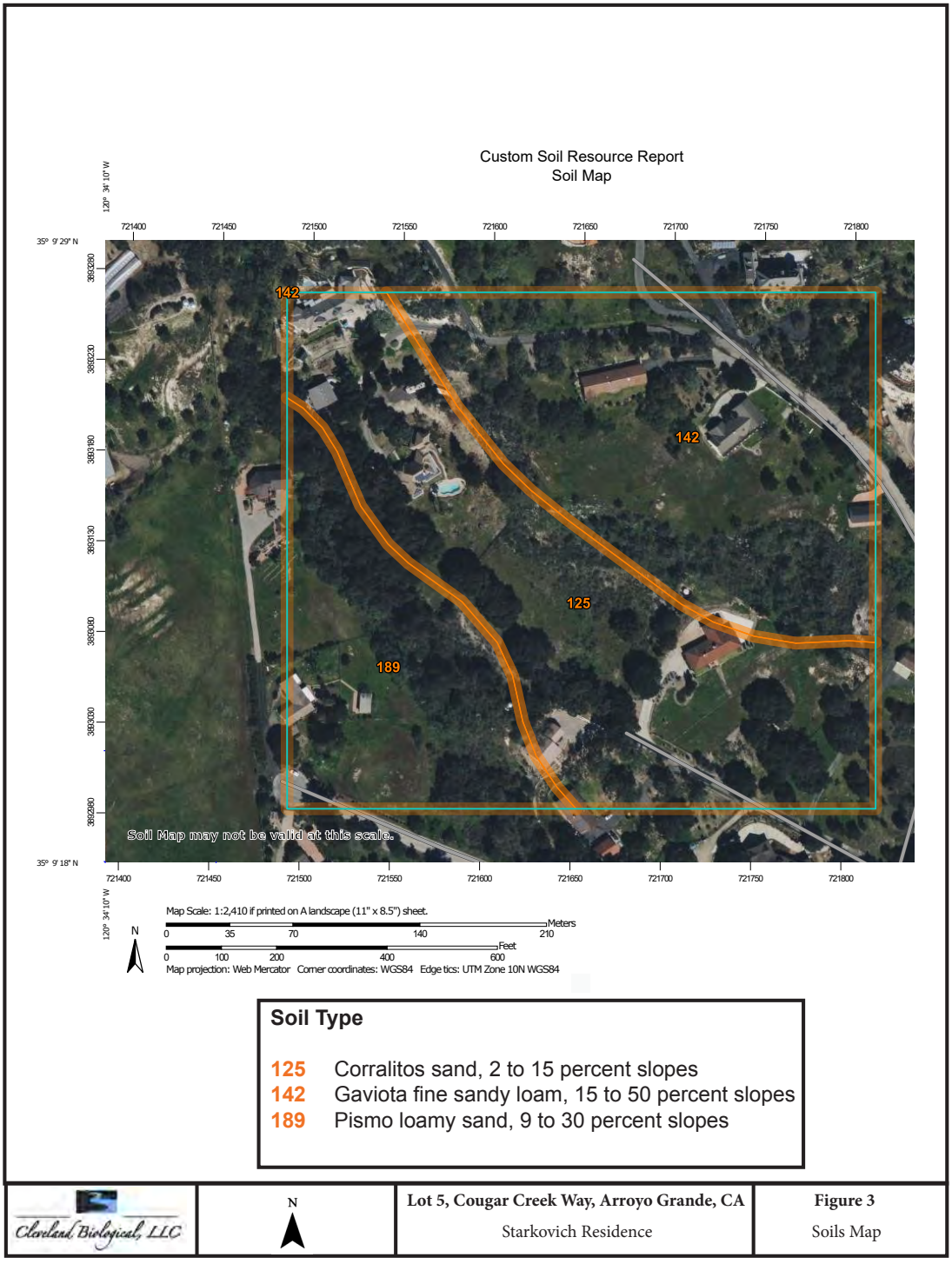


Figure 3. Soils Map

Figure 4. Habitat Map

Figure 5. Tree Map

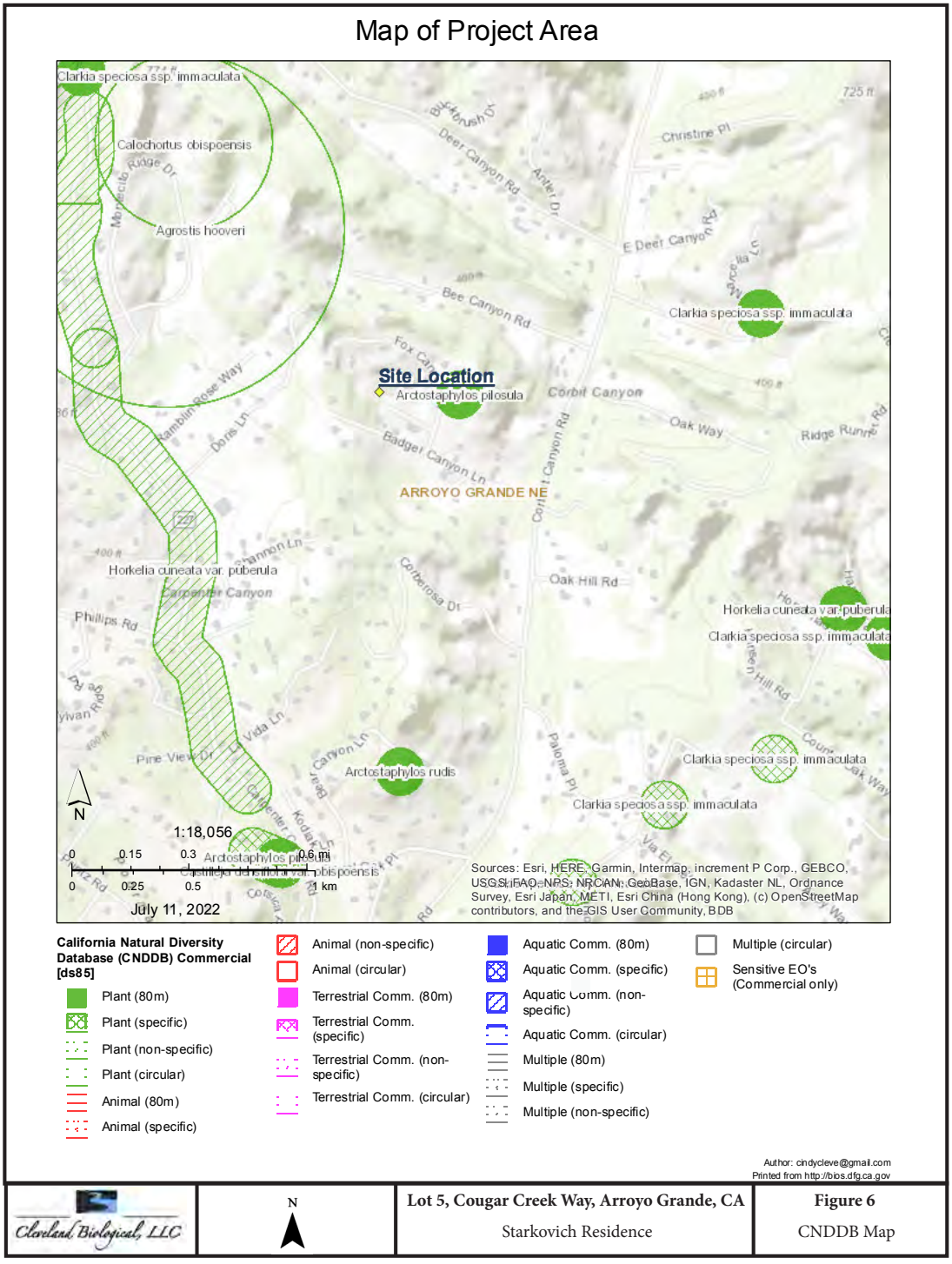


Figure 6. CNDDB Map

3.6.2 Special-status Animals

The CNDDB contained records of 45 special-status animal species known to occur within the nine quadrants surrounding the proposed project site. The habitats for the 45 special-status species were analyzed and compared with onsite habitats (Appendix D). Many of the animal species have specialized habitat requirements that do not occur on the proposed project site, such as aquatic features, mixed tree forests, higher elevations, vernal pools, or friable sandy soils.

The background review determined that there was potential for nine of the special-status animal species to occur on the proposed project site based on habitat suitability analysis coupled with field observations. The following species were given some potential to occur on the proposed project site based on habitat requirements and nearby findings. They are further described below:

Cooper's hawk (*Accipiter cooperii*; watch list)
Golden eagle (*Aquila chrysaetos*; watch list and CDFW Fully Protected)
White-tailed kite (*Elanus leucurus*; CDFW Fully Protected)
Grasshopper sparrow (*Ammodramus savannarum*, species of special concern)
Monarch butterfly (*Danaus plexippus*, federal candidate)
American badger (*Taxidea taxus*; species of special concern)
Northern California legless lizard (*Anniella pulchra*, species of special concern)
Coast horned lizard (*Phrynosoma blainvillii*, species of special concern)

The Cooper's hawk is on the CDFW Watch List and was observed on the proposed project site during two of the field surveys. The Cooper's hawk was observed flying overhead and perching in trees numbered 2, 14, and 25 (Figure 5). The Cooper's hawk is known to hunt around human structures and nest in tall trees (The Cornell Lab of Ornithology, 2020b).

The Golden eagle and white-tailed kite are CDFW Fully Protected species for nesting sites. These raptors are more likely to nest in larger expanses of oak woodlands (The Cornell Lab of Ornithology, 2020b). Neither species was observed during field surveys at the proposed project site.

The grasshopper sparrow is a CDFW Species of Special Concern that occurs almost exclusively in grassland habitats (The Cornell Lab of Ornithology, 2020b). There are limited grasses on the proposed project site, making it unlikely habitat for this sparrow. There were no observations of the grasshopper sparrow on the proposed project site.

The Monarch butterfly is a federal candidate species that occurs in microhabitats in wind-protected eucalyptus, Monterey pine, and cypress trees, which are not near or present on the proposed project site. No Monarch butterflies were observed during field surveys.

The Monterey dusky-footed woodrat is a CDFW Species of Special Concern that occurs almost exclusively in the Coast Ranges from Monterey Bay to Los Osos/Atascadero. The Monterey dusky-footed woodrat requires woodlands with dense understories. This habitat is not present on the proposed project site, and no Monterey dusky-footed woodrats were observed during field surveys.

The American badger is a CDFW Species of Special Concern that inhabits friable soils and open, uncultivated ground for denning. While there is potentially suitable habitat on the proposed project site, no observations of the American badger or its burrows were made during field surveys.

The northern California legless is a CDFW Species of Special Concern that occurs in a variety of habitats if there is soil moisture and cover, including beach dunes, chaparral, pine forest, oak woodland, riparian forest and scrub, coastal scrub, and landscaped areas near residences (California Herps, 2020). This species is fossorial and buries into loose soils, leaf litter, or is associated with cover objects that provide moisture (i.e., rocks, boards, and logs). They forage just beneath the surface of loose soil or in leaf litter during the morning or evening and may be active above the surface at dusk or at night (California Herps, 2020). Their peak activity near the surface is from February through May (Yasuda, 2012).

A survey for the northern California legless lizard took place on July 7, 2022. Seven suspected areas were investigated at the proposed project site. These included sandy areas near native plants and areas of leaf litter under oak trees. At each site, three passes were made to remove cover vegetation and two layers of sand. On the third pass, the sand was found to be either too hard or absent of any legless lizard species. The moisture level at all sites was zero percent when measured with a General soil moisture meter. No Northern California legless lizards were found during the survey at the proposed project site.

The coast horned lizard is a CDFW Species of Special Concern that inhabits grasslands, sandy washes, coastal scrub, chaparral, coniferous forest, and woodlands with patches of open areas for sunning and bushes for cover. They prey on native species of ants and other small invertebrates. The proposed project site has suitable habitat and the presence of native Harvester ants, although no observations of the Coast horned lizard were made during field surveys.

3.6 Habitat Connectivity

The proposed project site is surrounded on all four sides by existing properties with single-family homes. The developed properties limit habitat connectivity due to structures, roads, anthropogenic vegetation communities, and human disturbances.

4.0 IMPACT ANALYSIS AND RECOMMENDED MITIGATION

This impact assessment and the recommended mitigation measures will support the California Environmental Quality Act (CEQA) review process conducted by the lead agency, the County of San Luis Obispo.

4.1 Sufficiency of Biological Data

The field surveys for this BRA were conducted by qualified biologists and botanists and were of sufficient detail to analyze potential project impacts. The surveys occurred during the appropriate bloom periods for special-status plant species. The surveys were sufficient for the purpose of determining special-status plant and animal species expected to occur at the proposed project site.

4.2 Direct and Indirect Effects

The field surveys yielded the discovery of one special-status animal and no special-status plants. The proposed project site does not support any special-status vegetation communities, wetlands, or ESHAs. The proposed project site does provide some suitable habitat for several special-status plant and animal species described in the biological resource assessment, none of which were observed, except for Cooper's hawk.

The proposed project will result in a direct impact to the native Coyote Bush Scrub vegetation community from grading, construction of structures, and landscaping. Mitigation measure BIO-1 is recommended to avoid, minimize, and compensate for impacts to the native Coyote Bush Scrub vegetation community.

There are potential indirect impacts on the oak woodland from general construction activities. Mitigation measure BIO-3 is recommended to avoid, minimize, and compensate for these impacts on the native oak tree woodland community.

The proposed project driveway would require native oak tree removal, trimming, and encroachment into the critical root zones, which are typically 1.5 times the distance from the dripline to the trunk.1 As proposed, at least 2 oak trees with a DBH greater than 8-inches will be removed. These trees are #16 and #24 on Figure 5. In addition, at least 12 trees with a DBH greater than 8-inches will be impacted through encroachment and trimming for a driveway. These include trees #3 through #12, #14, and #15. There are also potential indirect impacts on the oak woodland from construction activities. Mitigation measure BIO-4 is recommended to avoid, minimize, and compensate for these impacts on the native oak tree woodland community.

Other temporary indirect impacts at the proposed project site include noise, vibration, light, and dust during construction activities.

4.2.1 Adverse Effects on Candidate, Sensitive or Special-status Species

The Cooper's hawk and other birds my nest in oak trees. Potential impacts to nesting birds will be avoided with the recommended mitigation measure BIO-2.

4.2.2 Adverse Effects on Riparian Habitat or Sensitive Natural Communities

There are no riparian habitats or sensitive natural communities on the property.

4.3 Recommended Mitigation Measures

This section provides a summary of project impacts on biological resources with recommended mitigation measures to avoid, reduce, or compensate for these impacts.

Impact BIO-1:
The proposed project will grub and clear existing vegetation and grade the area. This will result in direct impacts to the native Coyote Bush Scrub vegetation community.

Mitigation Measure BIO-1:
Landscape Plans. The Landscape Plan shall use native, non-invasive, and drought tolerant species. These plants will be selected by the Landscape Contractor from the San Luis Obispo County – Approved Plant List.

Impact BIO-2:
The proposed project could affect special-status birds during nesting season.

Mitigation Measure BIO-2:
Nesting Birds. To avoid impacts to nesting birds, all ground preparation and vegetation removal activities shall take place outside the typical nesting bird season (September 1 to January 31), if possible. If construction activities are needed during nesting bird season (February 1 to August 31), a qualified biologist shall conduct pre-construction surveys for active bird nests within 300 feet of the work area. If active nests are located, construction activities shall be conducted outside an exclusion zone (i.e. 50 to 300 feet depending on species) until the nest is no longer considered active.

Impact BIO-3:
The proposed project will involve construction activities adjacent to a native coast live oak woodland. The following measures shall be implemented during and after construction.

Mitigation Measure BIO-3:
Tree Protection Fencing (TPF). Prior to the start of construction, protective fencing shall be installed by the Contractor to avoid impacts to the trees and their roots. The TPF should consist

of blaze orange fencing supported by metal "T bar" posts. The fencing should be installed at or outside of the tree drip lines. The TPF should be maintained during the entire development process. Grading and construction activity should be minimized within the TPF area.

Tree Protection During Construction. Heavy machinery operated by the Contractor shall take care to minimize the disruption of all tree roots. Grading and filling or compaction should be avoided around the trees. Grading can cut the shallow "feeder" roots, which may reduce the tree's ability to take up water and nutrients from the soil. Any exposed roots should be cut, so they stay 1-2 inches below the soil line and are not exposed to the air. Filling and compaction can reduce oxygen uptake as well as disrupt the activities of soil organisms that decompose organic materials, fix nitrogen, and release nutrients. Heavy equipment, construction materials, and debris should not be stored near the TPF. Any refueling should not occur near the TPF (Holland, 2010).

Tree Trimming. All pruning of the coast live oak trees shall be performed by a contractor familiar and compliant with International Society of Arboriculture pruning guidelines.

Landscaping and Maintenance near trees. All drainages shall avoid causing water to accumulate near the trees. No watering systems shall be installed near the trees that will provide water to the trees during the summer as this can cause root rot.

Impact BIO-4:
The proposed project driveway will remove two oak trees and impact twelve through trimming and encroachment into the critical root zones. This will require 32 replacement trees.

Mitigation Measure BIO-4:
Driveway Substrate. A porous material would be preferable to concrete or asphalt. The design should use materials that allow water permeability and gas exchange, such as brick with sand joints, open bricks, bark, gravel, cobbles, or redwood planks.

Tree Removal or Impact. Coast live oak trees removed or damaged shall be replaced by the Contractor at a 4:1 ratio (as directed by the County). Coast live oak trees that will be trimmed or encroached into the critical root zones, which are typically 1.5 times the distance from the dripline to the trunk, shall be replaced by the Contractor at a 2:1 ratio (as directed by the County). Any heavy pruning of oak trees should occur during July and August.

Onsite Mitigation. Sixteen trees shall be replaced onsite as part of the Landscape Plan. These trees shall be spaced between 15 – 20 ft on-center. The replacement tree size shall be one to five-gallon deep pots. All replacement trees shall be maintained and monitored for a minimum of seven years to ensure successful establishment. If replacement trees do not successfully establish or die, then additional trees will be planted and monitored accordingly to meet this requirement. An as-built planting plan shall be prepared that is used to track the replacement

trees, and annual reports prepared by a qualified individual shall be submitted to the County by December 31st of each year following planting.

Offsite Mitigation
Sixteen trees shall be replaced by paying an in-lieu mitigation fee to the Oak Woodlands Conservation Program. The proposed project site does not allow for satisfactory tree spacing for all thirty-two mitigation trees to be planted onsite. Oak trees also need to be on their own watering system and away from other landscape watering systems.

Working with the County, the applicant will pay an estimated fee of $1,008.00 for each tree removed and $504.00 for each tree impacted. These prices are based on an invoice from Stalwork, Inc Construction, dated October 4, 2022. The prices are also similar to a Biological Resource Assessment from 2019, when County approved $970 for removed trees and $485 for impacted trees (Merk 2019).

5.0 CONCLUSIONS

The proposed project is for a single-family residence with auxiliary structures. The proposed project site consists of a mixture of native and non-native vegetation within three vegetation communities. Potential impacts to any resources that could occur are fully mitigated with Mitigation Measures BIO-1, 2, 3 and 4. This analysis determined that the proposed project meets none of the criteria that trigger mandatory findings of significance under CEQA.

6.0 REFERENCES

Calflora. 2020. Information on Wild California Plants for Conservation, Education, and Appreciation. Berkeley, California. Accessed via http://www.calflora.org/ in May 2022.

California Department of Fish and Wildlife (CDFW). 2020a. California Natural Diversity Database (CNDDB). Commercial version dated March 6, 2020. Accessed via: https://www.wildlife.ca.gov/Data/CNDDB in May 2022.

California Department of Fish and Wildlife (CDFW). 2020b. Vegetation Classification and Mapping Program (VegCAMP). Accessed via: https://www.wildlife.ca.gov/Data/VegCAMP in May 2022.

California Herps. 2020. A Guide to the Amphibians and Reptiles of California. Accessed via: http://www.californiaherps.com in July 2022.

California Native Plant Society (CNPS). 2020a. Inventory of Rare and Endangered Plants of California. Online edition V8-03 0.39. Accessed via: http://www.rareplants.cnps.org in May 2022.

Consortium of California Herbaria (CCH), Data Provided by the Participants of the Consortium of California Herbaria, https://ucjeps.berkeley.edu/consortium/participants.html.

The Cornell Lab of Ornithology. 2020a. eBird. Accessed via: https://ebird.org in July 2022.

The Cornell Lab of Ornithology. 2020b. All About Birds. Accessed via: https://www.allaboutbirds.org in July 2022.

Development Around Oak Trees. County of San Luis Obispo. Accessed via: https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Environmental-Forms-and-Documents.aspx in July 2022.

Geosolutions, Inc. 2021. Soils engineering report for 1085 Fox Canyon Lane. Unpublished report.

Holland, V.L. 2010. Botanical Study (APN: 047-134-020), Arroyo Grande, San Luis Obispo County. Biological Sciences Department, Cal Poly, San Luis Obispo.

Hoover, R.F. 1970. The Vascular Plants of San Luis Obispo County, California. University of California Press, Berkeley and Los Angeles, California. 350 pp.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California, 1 November 1994. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California. 255 pp.

Jepson Flora Project (editors). 2020. Jepson eFlora. The Jepson Herbarium, University of California, Berkeley. Accessed via: http://ucjeps.berkeley.edu/eflora/ in July 2022.

Merk, Kevin. 2019. Unpublished Biological Resources Assessment for Bustillo-Ramos Residence Project (Apn #044-311-041)San Luis Obispo County, California (Pmtg2018-00014).

Nafis, G. 2000-2020 California Herps - A Guide to the Amphibians and Reptiles of California. Available at: http://www.californiaherps.com/ (accessed July 15, 2022).

Natural Resources Conservation Service (NRCS). 2020. Web Soil Survey. National Cooperative Soil Survey, U.S. Department of Agriculture. Accessed via: http://websoilsurvey.nrcs.usda.gov/ in June 2022.

San Luis Obispo County. Proclamation of local emergency due to extreme drought conditions causing peril to the safety of persons and property within the county. July 13, 2021. Accessed via: https://agenda.slocounty.ca.gov/iip/sanluisobispo/file/getfile/134500.

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California. 1300 pp.

Thompson, R.C., A.N. Wright, and H.B. Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. University of California Press, Oakland, California.

United States Fish and Wildlife Service (USFWS). 2000 (January). Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants.

USFWS. 2022. IPaC: Information for Planning and Consultation Retrieved May 1, 2022, from https://ipac.ecosphere.fws.gov/.

Yasuda, C. 2012 (May). California Legless Lizard, Anniella pulchra. Species Account. U.S. Forest Service.

Appendix A

List of Plants and Animals Observed Onsite During Proposed Project Site Surveys

Appendix A - List of Plants and Animals Observed Onsite During Proposed Project Site Survey

Scientific Name	Common Name
Plants	
Acmispon americanus var. americanus	Spanish-clover
Acmispon glaber var. glaber	Deerweed
Acmispon strigosus	Bishop's lotus
Artemisia californica	Coastal sagebrush
*Avena fatua**	Wild oats
Baccharis pilularis	Coyote brush
*Brachypodium distachyon**	False brome
Bromus carinatus var. carinatus	California brome
*Bromus diandrus**	Ripgut brome
*Bromus hordeaceus**	Smooth chess
*Bromus rubens**	Red brome
Calystegia macrostegia subsp. cyclostegia	Morning-glory
Camissonia sp.	Sun cups
Camissonia strigulosa	Sun cups
*Carduus pycnocephalus**	Italian thistle
*Carpobrotus edulis**	Freeway iceplant
Corethrogyne filaginifolia	Cudweed-aster
*Cortaderia jubata**	Jubata grass
Croton californicus	California croton
Croton setigerus	Turkey-mullein
*Ehrharta calycina**	Veldt grass
Erigeron canadensis	Horseweed
*Erodium botrys**	Broadleaf filaree
*Euphorbia peplus**	Petty spurge
*Festuca perenne**	English ryegrass
Galium sp.	Bedstraw
*Geranium sp.**	
Heterotheca grandiflora	Telegraph weed
*Hirschfeldia incana**	Short-podded mustard
*Hordeum murinum**	Foxtail
*Hypochaeris glabra**	Smooth cat's-ear
Logfia filaginoides	California cottonrose

Scientific Name	Common Name
Lupinus arboreus	Bush lupine
Lupinus truncatus	Truncate lupine
*Lysimachia arvensis**	Scarlet pimpernel
*Malva parviflora**	Cheeseweed
Mimulus aurantiacus	Bush monkeyflower
Navarretia sp.	
Oxalis pilosa	Wood-sorrel
Pinus sp.	Pine
Pseudognaphalium californicum	Green everlasting
Pterostegia drymarioides	Fairy mist
Quercus agrifolia	Coast live oak
*Rumex acetosella**	Sheep sorrel
Salvia mellifera	Black sage
*Silene gallica**	Windmill pink
*Sisymbrium officinale**	Hedge mustard
*Stipa tenuissima**	Mexican feathergrass
Toxicodendron diversilobum	Poison-oak
Trifolium ciliolatum	Tree clover
Animals	
Accipiter cooperii +	Cooper's hawk
Aphelocoma californica	California scrub jay
Bubo virginianus	Great-horned owl
Buteo jamaicensis	Red-tailed hawk
Carduelis psaltria	Lesser goldfinch
Carpodacus mexicanus	House finch
Cathartes aura	Turkey vulture
Corvus brachyrhynchos	American crow
Icterus cucullatus	Hooded oriole
Mimus polyglottos	Northern mockingbird
Otospermophilus beecheyi	California ground squirrel
Patagioenas fasciata	Band-tailed pigeon
Pipilo maculatus	Spotted towhee
Sayornis nigricans	Black phoebe
Sceloporus occidentalis	Western fence lizard
Sylvilagus audubonii	Audubon’s cottontail

+ Special-status species
*Non-native species

Appendix B

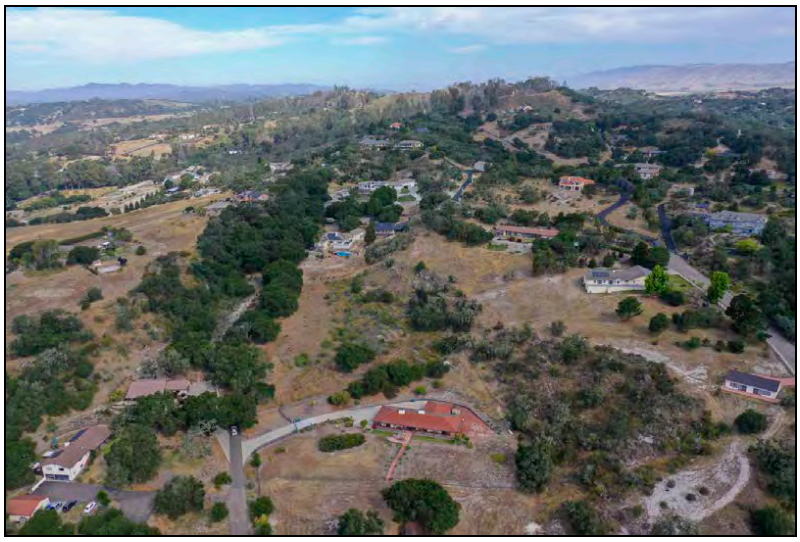
Photographs to Characterize Proposed Project Onsite Conditions

On Site Conditions - Looking north from center of property.

On Site Conditions - Looking east from center of property.

On Site Conditions - Looking south from center of property.

On Site Conditions - Looking west from center of property.



On Site Conditions - Surrounding property aerial.

On Site Conditions - Property to the west.

On Site Conditions - Property to the east.

On Site Conditions - Property to the south.

Habitat Type example of Open Sandy Disturbed Areas in center of property.

Habitat Type example of Open Sandy Disturbed Areas in center of property.

Habitat Type example of Coyote Bush Scrub.

Habitat Type example of Coyote Bush Scrub.

Habitat Type example of Coast Live Oak Woodland.

Habitat Type example of Coast Live Oak Woodland.

Habitat Type example of Open Sandy Disturbed Areas south of oak trees.

Habitat Type example of Open Sandy Disturbed Areas south of oak trees.

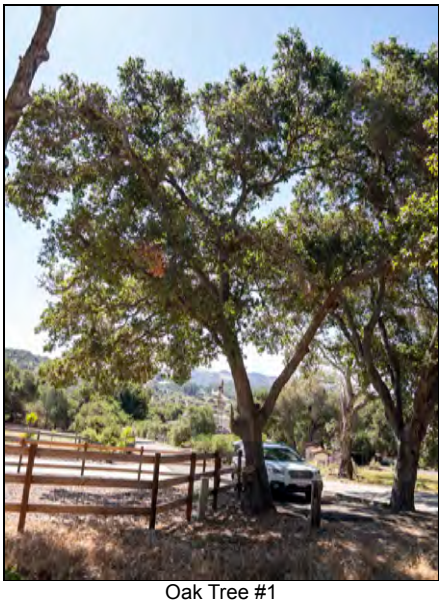
Appendix C

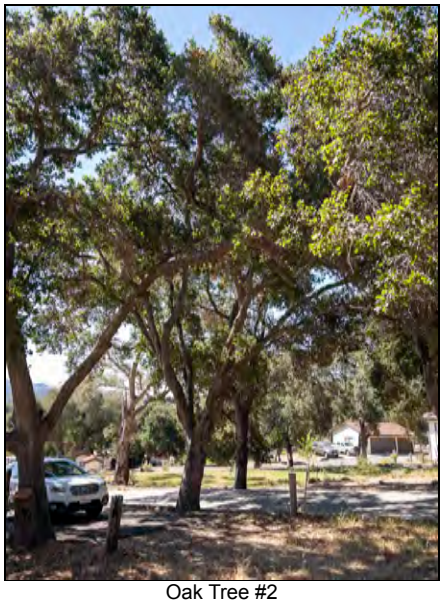
Tree Inventory Health Assessment and Photographs from the Proposed Project Site

Tree #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	Notes/Observations	Impacts from Driveway	Uncovered Radius around Trunk (ie. Distance from driveway edge) in feet	Mitigation # Trees
1	Quercus agrifolia	Coast Live Oak	M	21.3	Heavily trimmed	No impact, county road	0	0
2	Quercus agrifolia	Coast Live Oak	M	23.6	Heavily trimmed, on property line	No impact, county road	0	0
3	Quercus agrifolia	Coast Live Oak	M	12.7, 18.8	Signs of past trimming	3 ft under dripline	14	2
4	Quercus agrifolia	Coast Live Oak	M	19.1	Signs of past trimming	6 ft under dripline	7	2
5	Quercus agrifolia	Coast Live Oak	H	33.8		6 ft under dripline	10	2
6	Quercus agrifolia	Coast Live Oak	H	29.3		6 ft under dripline	8	2
7	Quercus agrifolia	Coast Live Oak	H	38.5	Next to propety line	6 ft under dripline	3	2
8	Quercus agrifolia	Coast Live Oak	H	28.7		6 ft under dripline	8	2
9	Quercus agrifolia	Coast Live Oak	H	17.2	Canopy reclines on ground	6 ft under dripline	6	2
10	Quercus agrifolia	Coast Live Oak	H	15.0	Canopy reclines on ground	6 ft under dripline	8	2
11	Quercus agrifolia	Coast Live Oak	H	41.1		6 ft under dripline	19	2
12	Quercus agrifolia	Coast Live Oak	H	15.0		6 ft under dripline	14	2

Tree #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	Notes/Observations	Impacts from Driveway	Uncovered Radius around Trunk (ie. Distance from driveway edge) in feet	Mitigation # Trees
13	Quercus agrifolia	Coast Live Oak	H	22.6		No impact	na	0
14	Quercus agrifolia	Coast Live Oak	H	39.8	Canopy reclines on ground	6 ft under dripline	9	2
15	Quercus agrifolia	Coast Live Oak	H	26.4	Canopy reclines on ground	12 ft under dripline	9	2
16	Quercus agrifolia	Coast Live Oak	H	25.2	Canopy reclines on ground	Remove	na	4
17	Quercus agrifolia	Coast Live Oak	H	23.6	Canopy reclines on ground	No impact	na	0
18	Quercus agrifolia	Coast Live Oak	H	27.7	Non-active nest on July 7	No impact	na	0
19	Quercus agrifolia	Coast Live Oak	H	41.7		No impact	na	0
20	Quercus agrifolia	Coast Live Oak	H	13.7		No impact	na	0
21	Quercus agrifolia	Coast Live Oak	H	3.5		Remove for retaining wall < 8' DBH	na	0
22	Quercus agrifolia	Coast Live Oak	H	6.1		Remove for retaining wall < 8' DBH	na	0
23	Quercus agrifolia	Coast Live Oak	H	5.7		Remove for retaining wall < 8' DBH	na	0

Tree #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	Notes/Observations	Impacts from Driveway	Uncovered Radius around Trunk (ie. Distance from driveway edge) in feet	Mitigation # Trees
24	Quercus agrifolia	Coast Live Oak	H	8.3		Remove for retaining wall	na	4
25	Quercus agrifolia	Coast Live Oak	H	29.6		No impact	na	0
High: A healthy and vigorously growing tree characteristic of its species and reasonably free of any visible signs of stress, disease, or pest infestation. **Moderate**: A healthy and vigorous tree with minor visible signs of stress, disease, and/or pest infestation. Some dead wood, broken branches, or yellowing leaves may be present. **Low**: A tree exhibiting signs of dieback, necrosis, stress, disease, or insect damage at levels above what is typically expected for the species. Symptoms could also include sparse leaf growth, predominately yellow leaves, dead or rotted wood in lower trunk, broken limbs, exposed roots, and parasite growth. **Dead**: Tree had no foliage and exhibited no sign of life or vigor.								32


Oak Tree #1


Oak Tree #2


Oak Tree #3


Oak Tree #4

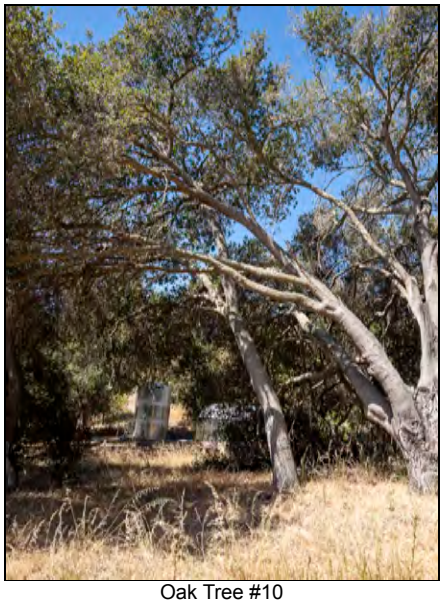

Oak Tree #5


Oak Tree #6


Oak Tree #7


Oak Tree #8


Oak Tree #9


Oak Tree #10


Oak Tree #11


Oak Tree #12


Oak Tree #13


Oak Tree #14


Oak Tree #15


Oak Tree #16

Oak Tree #17

Oak Tree #18

Oak Trees #19 & 20

Oak Tree #21


Oak Tree #22


Oak Tree #23


Oak Tree #24


Oak Tree #25

Appendix D

Special-Status Biological Resources
Present or Potentially Occurring On the Proposed Project Site

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Plants				
Adobe sanicle	*Sanicula maritima*	--/Rare/1B.1	Perennial herb; typically found on clay and serpentine soils in chaparral, coastal prairie, meadows and seeps, or valley and foothill grassland communities near the coast; ranges from 30 to 240 meters in elevation; blooms from April to May.	Project site is located outside of the known range of this species; not observed during surveys and not expected to occur onsite.
Adobe yampah	*Perideridia pringlei*	--/--/4.3	Perennial herb; grassy slopes; typically on clay soils and on serpentine outcrops; ranges from 300 to 1800 meters in elevation; blooms from April to June.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
Aparejo grass	*Muhlenbergia utilis*	--/--/2B.2	Perennial grass; found in coastal scrub, chaparral, oak woodland, meadows and seeps, and marshes and swamps communities; usually in moist sandy soil, but can occur in alkaline situations and on serpentinite outcrops; ranges from 250 to 1000 meters in elevation; blooms from March to October.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Beach spectaclepod	*Dithyrea maritima*	--/T/1B.1	Rhizomatous perennial herb; found in deep, unstabilized sandy soils, usually near the coast, in coastal dunes and coastal scrub habitats; ranges from 3 to 50 meters in elevation; blooms from March to May.	Project site is too far from the immediate coast for this species to occur. Species is only known to occur on sand dunes along the coast. Not observed during surveys and not expected to occur onsite.
Betty's dudleya	*Dudleya abramsii ssp. bettinae*	--/--/1B.2	Perennial succulent; found in chaparral, coastal scrub, and valley and foothill grasslands, usually on serpentine outcrops or shallow rocky soils; endemic to San Luis Obispo County and only known from about 10 occurrences; ranges in elevation from 20 to 180 meters; blooms from May to July.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Bishop manzanita	*Arctostaphylos obispoensis*	--/--/4.3	Shrub to small tree; typically in openings in chaparral, closed-cone pine forest, and cismontane woodland communities; mostly on rocky soils and on outcrops of	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			serpentinite; ranges from 150 to 1005 meters in elevation; blooms from February to June.	
Black-flowered figwort	*Scrophularia atrata*	--/--/1B.2	Perennial herb; found in closed-cone pine forest, chaparral, coastal dunes, coastal scrub, and riparian scrub habitats; often on sandy substrates or soils derived from diatomaceous shale; ranges from 10 to 500 meters in elevation; blooms from April to July.	**Potential habitat (sandy areas adjacent to scrub) present onsite. Not observed during surveys.**
Blochman's dudleya	*Dudleya blochmaniae ssp. blochmaniae*	--/--/1B.1	Perennial herb; occurs in coastal bluff scrub, coastal scrub, chaparral, and valley and foothill grassland, typically on very shallow clay soil areas where other vegetation is sparse and stunted, often in areas of serpentinite; ranges from 5 to 450 meters in elevation; blooms from April to June.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Blochman's leafy daisy	*Erigeron blochmaniae*	--/--/1B.2	Perennial herb; occurs in coastal dunes and coastal scrub communities; ranges from 3 to 45 meters in elevation; blooms from June to August.	This species is mostly restricted to coastal dunes, typically close to the coastline. Not observed during surveys and not expected to occur onsite.
Blochman's ragwort	*Senecio blochmaniae*	--/--/4.2	Subshrub; occurs in coastal sand dunes, on sandy floodplains, and on sandy terraces; ranges from 0-140 m in elevation; blooms from May to October.	This species is mostly restricted to coastal dunes and sandy terraces, mostly close to the coastline. Not observed during surveys and not expected to occur onsite.
Brewer's calandrinia	*Calandrinia breweri*	--/--/4.2	Annual herb; occurs in burned areas and disturbed sites in coastal scrub and chaparral; can occur on sandy or loamy soils; ranges from 10 to 1220 m in elevation; blooms from March to June.	**Potential habitat (disturbed sandy areas) present onsite. Not observed during surveys.**

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Brewer's spineflower	*Chorizanthe breweri*	--/--/1B.3	Annual herb; found in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub habitats on serpentine derived soils and rock outcrops, mostly in rocky and gravelly areas; ranges from 45 to 800 m in elevation; blooms from April to August.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
California saw-grass	*Cladium californicum*	--/--/2B.2	Perennial herb; typically found in alkaline, freshwater marshes, meadows, seeps, and swamps; ranges from 60 to 1600 m in elevation; blooms from June to September.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
California spineflower	*Mucronea californica*	--/--/4.2	Annual herb; occurs in open, sandy areas in coastal dunes, coastal scrub, chaparral, oak woodland, and valley and foothill grassland communities; ranges from 0 to 1400 m in elevation; blooms from March to July.	**Potential habitat (open sandy areas) present onsite. Not observed during surveys.**

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Cambria morning-glory	*Calystegia subacaulis ssp. episcopalis*	--/--/4.2	Perennial herb; found in chaparral, cismontane woodland, and sparse to dense grassland covering sloped or flat areas in clay-rich soils; restricted to outer South Coast ranges in San Luis Obispo and Santa Barbara counties; ranges from 60-500 meters in elevation; blooms from April to May.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	--/--/1B.1	Annual herb; occurs on alkaline clay soils in valley and foothill grassland; ranges from 1 to 455 meters in elevation; blooms from March to April.	Project site is outside of the known range of this species. No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
Carlotta Hall's lace fern	*Aspidotis carlotta-halliae*	--/--/4.2	Perennial fern; found on serpentine slopes, crevices, and outcrops; ranges from 100-1400 m in elevation; fertile much of the year.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Chaparral ragwort	*Senecio aphanactis*	--/--/2B.2	Annual herb; occurs in coastal scrub, chaparral, and oak woodland communities; sometimes found on drying alkaline flats; ranges from 15 to 800 meters in elevation; blooms from January to April.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
Chorro Creek bog thistle	*Cirsium fontinale var. obispoense*	E/E/1B.2	Perennial herb; occurs in moist spots in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland communities; typically in serpentine substrate areas; endemic to San Luis Obispo County; ranges from 35 to 385 meters in elevation; blooms from February to September.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Club-haired mariposa-lily	*Calochortus clavatus var. clavatus*	--/--/4.3	Perennial herb; occurs in coastal scrub, chaparral, oak woodland, and valley and foothill grassland communities; often in rocky areas with clay soils derived from serpentine rocks; ranges from 30 to 1300 m in elevation;	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			blooms from May to June.	
Coast woolly-heads	*Nemacaulis denudata var. denudata*	--/--/1B.2	Annual herb; found in coastal sand dunes in open spaces of the coastal strand; known to occur in the Montana de Oro area and near Oso Flaco Lake; ranges from 0-100 m in elevation; blooms from April to September.	No suitable habitat present onsite for this taxon. The open sandy areas found onsite are too far inland. This taxon is typically found near the coast. Not observed during surveys, and not expected to occur onsite.
Coastal goosefoot	*Chenopodium littoreum*	--/--/1B.2	Annual herb; typically occurs on sandy flats in coastal dunes and near salt marshes; known from the Black Lake area, Morro Bay estuary, and Guadalupe Dunes; ranges from 30 to 100 meters in elevation; blooms from June to October.	No suitable habitat present onsite for this species. The open sandy areas found onsite are too far inland. This taxon is typically found near the coast. Not observed during surveys, and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Congdon's tarplant	*Centromadia parryi ssp. congdonii*	--/--/1B.1	Annual herb; typically found on flats with hard clay soil and moist alkaline conditions in marshes, swamps, vernal pools, and valley and foothill grassland habitats; ranges from 0 to 230 meters in elevation; blooms from May to October.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Crisp monardella	*Monardella undulata ssp. crispa*	--/--/1B.2	Perennial herb; occurs on sandy soils in coastal dunes and coastal scrub near the coast; restricted to San Luis Obispo and Santa Barbara counties; ranges from 10 to 120 meters in elevation; blooms from April to August.	No suitable habitat present onsite for this taxon. The open sandy areas found onsite are too far inland. This taxon is typically found near the coast. Not observed during surveys and is not expected to occur onsite.
Cuesta Pass checkerbloom	*Sidalcea hickmanii ssp. anomala*	--/Rare/1B.2	Perennial herb; found on serpentine soils in closed-cone coniferous forest and chaparral; known from a few occurrences on Cuesta Ridge and from one occurrence at Camp Roberts Military Reservation;	Project site is outside the known range for this taxon. Not observed during surveys and is not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			endemic to San Luis Obispo County; ranges from 600 to 800 meters in elevation; blooms from May to June.	
Cuesta Ridge thistle	*Cirsium occidentale var. lucianum*	--/--/1B.2	Perennial herb; occurs in disturbed area and on rocky slopes in openings in chaparral; soils derived from serpentinite substrates; endemic to the southern Santa Lucia Mountains of San Luis Obispo County; ranges from 500 to 750 meters in elevation; blooms from April to June.	Project site is outside the known range for this taxon. Not observed during surveys and not expected to occur onsite.
Douglas' fiddleneck	*Amsinckia douglasiana*	--/--/4.2	Annual herb; occurs in oak woodland and valley and foothill grassland communities; typically found on unstable shaly sedimentary slopes, especially Monterey shale substrates; ranges from 150 to 1600 m in elevation; blooms from March to June.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Douglas' spineflower	*Chorizanthe douglasii*	--/--/4.3	Annual herb; found in coastal scrub, chaparral, oak woodland, lower montane coniferous forests, and valley and foothill grassland communities; often on gravelly or sandy soils, usually in areas of sandstone or granite; ranges from 200 to 1600 m in elevation; blooms from April to July.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Dune larkspur	*Delphinium parryi ssp. blochmaniae*	--/--/1B.2	Perennial herb; maritime chaparral and sandy dune habitats as far inland as Nipomo Mesa and stabilized dunes south of Arroyo Grande; ranges from 0 to 200 meters in elevation; blooms from April to May.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Dunedelion	*Malacothrix incana*	--/--/4.3	Perennial herb or subshrub; typically found in unstabilized coastal dunes; occurs at elevations less than 300 m; blooms all year.	Project site is outside the known range for this species, which is typically found near the coast. Not observed during surveys and is not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Dwarf soaproot	*Chlorogalum pomeridianum var. minus*	--/--/1B.2	Perennial herb; typically found on serpentine soils in chaparral and valley and foothill grassland habitats, ranges from 305 to 1000 meters in elevation; blooms from May to August.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Eastwood's larkspur	*Delphinium parryi ssp. eastwoodiae*	--/--/1B.2	Perennial herb; coastal chaparral and grassland; typically on serpentine based soils (clays) and outcrops in the general San Luis Obispo area; ranges from 100 to 500 m in elevation; blooms from March to May.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Fuzzy prickly-phlox	*Linanthus californicus ssp. tomentosus*	--/--/4.2	Perennial shrub; stabilized sand dunes as far inland as Nipomo Mesa; mostly at elevations below 100 m; blooms from January to July.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Gambel's water cress	*Nasturtium gambelii*	E/T/1B.1	Rhizomatous perennial herb; freshwater and brackish marshes, swamps, at the margins of lakes and along streams, in or just above the water level; ranges from 5 to 350 meters in	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			elevation; blooms from May to August.	
Hardham's evening-primrose	*Camissoniopsis hardhamiae*	--/--/1B.2	Annual herb; known to occur in chaparral and foothill woodland habitats; only one recorded occurrence in the region from sandy openings in oak woodland in Los Osos; blooms from March to May.	Project site is outside the known range for this species. Not observed during surveys and is not expected to occur onsite.
Hoffmann's sanicle	*Sanicula hoffmannii*	--/--/4.3	Perennial herb; coastal chaparral, oak woodland, closed-cone pine woodland; grows at elevations below 500 m; blooms from March to May.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
Hooked popcornflower	*Plagiobothrys uncinatus*	--/--/1B.2	Annual herb; chaparral, cismontane woodland, valley and foothill grassland, and coastal bluff scrub in sandy soils; ranges from 300 to 600 m in elevation; typically a fire-follower; blooms from April to May.	Project site is outside the known range for this species. Not observed during surveys and is not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Hoover's bent grass	*Agrostis hooveri*	--/--/1B.2	Perennial herb; typically in sandy soils derived from sandstone or siliceous shale; open chaparral, oak woodland, and valley and foothill grassland habitats; ranges from 60 and 600 m in elevation; blooms from April to August.	**Potential habitat (oak woodland understory with sandy soil) present onsite. Not observed during surveys.**
Hoover's button-celery	*Eryngium aristulatum var. hooveri*	--/--/1B.1	Biennial or perennial herb; found in vernal pools, seasonally wet grasslands, and roadside ditches; ranges from 3 to 45 meters in elevation; blooms in July.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Howell's onion	*Allium howellii var. howellii*	--/--/4.3	Perennial herb; found in valley and foothill grassland, often on clay soils, sometimes near serpentine outcrops; ranges from 50 to 2200 m in elevation; blooms from March to April.	No suitable habitat present onsite for this taxon. Not observed during surveys, and not expected to occur onsite.
Indian Knob mountainbalm	*Eriodictyon altissimum*	E/E/1B.1	Shrub; found in coastal scrub, maritime chaparral, and oak woodland, usually on sandstone; often found in open disturbed areas; currently known from only six occurrences in the Irish Hills and	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			on Indian Knob; endemic to San Luis Obispo County; ranges from 80 to 270 m in elevation; blooms from March to June.	
Irish Hills spineflower	*Chorizanthe aphanantha*	--/--/1B.1	Annual herb; occurs in openings and along edges of shrublands, in coastal scrub and chaparral; restricted to serpentine; currently known from only three occurrences; endemic to San Luis Obispo County; ranges from 100-370 m in elevation; blooms from April to June.	Project site is outside the known range for this species. Not observed during surveys and is not expected to occur onsite.
Island mountain-mahogany	*Cercocarpus betuloides var. blancheae*	--/--/4.3	Shrub or small tree; found in chaparral and closed-cone coniferous forest; ranges from 30 to 600 m in elevation; blooms from February to May.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Jones' bush-mallow	*Malacothamnus jonesii*	--/--/4.3	Shrub; occurs in dry hills in open chaparral and cismontane woodland; typically on disintegrated shale near Paso Robles; ranges from 160 to 1075 m in	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			elevation; blooms from April to October.	
Jones' layia	*Layia jonesii*	--/--/1B.2	Annual; usually found on clay soils and serpentine outcrops in chaparral or valley and foothill grassland; endemic to San Luis Obispo County; ranges from 5 to 400 m in elevation; blooms from March to May.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Kellogg's horkelia	*Horkelia cuneata var. sericea*	--/--/1B.1	Perennial herb; found in coastal dunes, coastal scrub, maritime chaparral, and closed-cone coniferous forests; typically in open sites on gravelly or sandy soils; ranges from 10 to 200 m in elevation; blooms from April to September.	**Potential habitat (sandy soil next to scrub) occurs onsite. Not observed during the surveys.**
La Graciosa thistle	*Cirsium scariosum var. loncholepis*	E/T/1B.1	Perennial herb; tyoically occurs in mesic sandy sites in coastal dune, coastal scrub, brackish marshes, riparian scrub, valley and foothill grassland, and cismontane woodland; endemic to San Luis Obispo	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			and Santa Barbara counties; ranges from 5 to 220 m in elevation; blooms from May to August.	
La Panza mariposa-lily	*Calochortus simulans*	--/--/1B.3	Perennial herb; found in chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland; typically on sandy or granitic soils and sometimes on serpentine; ranges from 325 to 1150 meters in elevation; blooms from April to June.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Large-flowered leptosiphon	*Leptosiphon grandiflorus*	--/--/4.2	Annual herb; found in coastal bluff scrub, coastal dunes, coastal scrub, coastal prairie, cismontane woodland, closed-cone coniferous forest, and valley and foothill grassland; typically found on open, grassy flats and generally occurs on sandy soil; ranges from 5 to 1220 m in elevation; blooms from April to August.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Lompoc ceanothus	*Ceanothus cuneatus var. fascicularis*	--/--/4.2	Shrub; typically found in maritime chaparral on sandy substrates; restricted to San Luis Obispo and Santa Barbara counties; ranges from 5 to 400 m in elevation; blooms from February to April.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Marsh sandwort	*Arenaria paludicola*	E/E/1B.1	Perennial herb; occurs in freshwater marshes and swamps, bogs and fens, and in some coastal scrub sites (in sandy openings); ranges from 3 to 170 meters in elevation; blooms from May to August.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Mesa horkelia	*Horkelia cuneata var. puberula*	--/--/1B.1	Perennial herb; usually found in sandy or gravelly sites in coastal scrub, maritime chaparral, and cismontane woodland communities; ranges from 70 to 810 m in elevation; blooms from February to July.	**Potential habitat (sandy soil next to scrub) occurs onsite. Not observed during the surveys.**
Michael's rein orchid	*Piperia michaelii*	--/--/4.2	Perennial herb; found in dry sites in coastal bluff scrub, coastal scrub, chaparral, cismontane woodland, closed-cone coniferous forest, and lower montane coniferous	Project site is located outside of the known range of this species. Not observed during surveys and not

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			forest; ranges from 5 to 915 m in elevation; blooms from April to August.	expected to occur onsite.
Miles' milk-vetch	*Astragalus didymocarpus var. milesianus*	--/--/1B.2	Annual herb; typically found on clay soils in coastal scrub; ranges from 20 to 90 m in elevation; blooms from March to June.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Monkey-flower savory	*Clinopodium mimuloides*	--/--/4.2	Perennial herb; found in moist places and on streambanks in chaparral and North Coast coniferous forest communities; ranges from 300 to 1800 m in elevation; blooms from June to October.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Monterey cypress	*Hesperocyparis macrocarpa*	--/--/1B.2	Tree; found in closed-cone coniferous forests; known from only two natural occurrences in the Monterey area; populations in San Luis Obispo County have been planted or are naturalized; ranges from 10-50 m in elevation.	Project site is located outside of the known range of this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Most beautiful jewelflower	*Streptanthus albidus ssp. peramoenus*	--/--/1B.2	Annual herb; found on serpentine soils in chaparral, valley and foothill grassland, and cismontane woodland; ranges from 95 to 1000 m in elevation; blooms from April to September.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Mouse-gray dudleya	*Dudleya abramsii ssp. murina*	--/--/1B.3	Perennial succulent herb; found in chaparral, cismontane woodland, and valley and foothill grassland, usually on serpentine rock outcrops; endemic to San Luis Obispo County; ranges from 90 to 525 m in elevation; blooms from May to June.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Nipomo Mesa ceanothus	*Ceanothus impressus var. nipomensis*	--/--/1B.2	Shrub; found mostly on sandy substrates in maritime chaparral; doubtfully distinct from var. *impressus* of Santa Barbara County; ranges from 30 to 245 m in elevation; blooms from February to April.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Nipomo Mesa lupine	*Lupinus nipomensis*	E/E/1B.1	Annual herb; found in coastal dunes and on sandy flats surrounded by coastal scrub; known from only three occurrences on the Nipomo Mesa; endemic to San Luis Obispo County; ranges from 10-50 m in elevation; blooms from December to May.	Project site is located outside of the known range of this species. Not observed during surveys and not expected to occur onsite.
Ocean bluff milk-vetch	*Astragalus nuttallii var. nuttallii*	--/--/4.2	Perennial herb; found in coastal dunes and coastal bluff scrub communities; ranges from 3 to 120 m in elevation; blooms from January to November.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Ojai fritillary	*Fritillaria ojaiensis*	--/--/1B.2	Perennial herb; occurs in chaparral, broad-leaved upland forest, cismontane woodland, and lower montane coniferous forest communities; typically on rocky soils; ranges from 225-1000 meters in elevation; blooms from February to May.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Oso manzanita	*Arctostaphylos osoensis*	--/--/1B.2	Shrub; occurs on dacite outcrops in chaparral and cismontane woodland; known only from two occurrences in the mountains north of the Los Osos Valley; endemic to San Luis Obispo County; ranges from 95 to 500 m in elevation; blooms from December to March.	Project site is located outside the known range of this species. Not observed during surveys and not expected to occur onsite.
Palmer's monardella	*Monardella palmeri*	--/--/1B.2	Perennial herb; occurs on serpentine soils in chaparral and cismontane woodland communities; restricted to Monterey and San Luis Obispo counties; ranges from 200 to 800 m in elevation; blooms from June to August.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Palmer's spineflower	*Chorizanthe palmeri*	--/--/4.2	Annual herb; typically found on serpentine-based rocky, clay soils in open chaparral, cismontane woodland, and valley and foothill grassland; ranges from 55 to 945 m in elevation; blooms from April to August.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Paniculate tarplant	*Deinandra paniculata*	--/--/4.2	Annual herb; found in open coastal scrub, vernal pools, and valley and foothill grassland; often in sandy soils and usually in vernally mesic sites; ranges from 25 to 940 m in elevation; blooms from April to November.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Pecho manzanita	*Arctostaphylos pechoensis*	--/--/1B.2	Shrub; typically found on siliceous shale in closed-cone coniferous forest, chaparral, and coastal scrub habitats; known only from the Pecho Hills area; endemic to San Luis Obispo County; ranges 125 to 850 m in elevation; blooms from November to March.	Project site is located outside of the known range of this species. Not observed during surveys and not expected to occur onsite.
Pismo clarkia	*Clarkia speciosa ssp. immaculata*	E/Rare/1B.1	Annual herb; occurs on sandy soils in chaparral (along edges or in openings), cismontane woodland, and valley and foothill grassland communities; endemic to San Luis Obispo County; ranges from 25 to 185 m in elevation; blooms from May to July.	**Potential habitat (sandy soil next to scrub) occurs onsite. Not observed during the surveys.**

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Potbellied spineflower	*Chorizanthe ventricosa*	--/--/4.3	Annual herb; found in oak woodland and valley and foothill grassland communities; typically on soils derived from serpentine substrates; ranges from 65 to 1235 m in elevation; blooms from May to September.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Red sand-verbena	*Abronia maritima*	--/--/4.2	Perennial herb; found in coastal dunes, mostly at elevations below 100 m; blooms from February to October.	Project site is outside of the known range of this species, which occurs along the immediate coastline. Not observed during surveys and not expected to occur onsite.
Robbins' nemacladus	*Nemacladus secundiflorus var. robbinsii*	--/--/1B.2	Annual herb; typically found on dry, gravelly slopes, and openings in chaparral and valley and foothill grassland; ranges from 350 to 1700 m in elevation; blooms from April to June.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Saints' daisy	*Erigeron sanctarum*	--/--/4.2	Perennial herb; found in coastal scrub, chaparral, and oak woodland communities, often in areas with sandy soil; restricted to San Luis Obispo and Santa Barbara counties; ranges from 75 to 350 m in elevation; blooms from March to July.	**Potential habitat (oak woodland understory with sandy soil) occurs onsite. Not observed during the surveys.**
Saline clover	*Trifolium hydrophilum*	--/--/1B.2	Annual herb; found in sites with mesic and/or alkaline conditions in marshes and swamps, valley and foothill grasslands, and vernal pools; ranges from 0 to 300 m in elevation; blooms from April to June.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
San Benito poppy	*Eschscholzia hypecoides*	--/--/4.3	Annual herb; found in grassy areas in woodland and chaparral communities; ranges from 200 to 1600 m in elevation; blooms from March to June.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
San Bernardino aster	*Symphyotrichum defoliatum*	--/--/1B.2	Perennial herb; occurs in a variety of mesic habitats, often near ditches, springs, and streams; occurrence in San Luis Obispo County needs	No suitable habitat present onsite for this species. Not observed during surveys and not

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			to be confirmed; ranges from 2 to 2040 m in elevation; blooms from July to November.	expected to occur onsite.
San Francisco gumplant	*Grindelia hirsutula var. maritima*	--/--/3.2	Perennial herb; occurs in coastal bluff scrub, coastal scrub, and valley and foothill grassland communities, usually on sandy or serpentinite substrates; ranges from 15 to 400 m in elevation; blooms from June to September.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
San Gabriel ragwort	*Senecio astephanus*	--/--/4.3	Perennial herb; typically found on steep rocky slopes in chaparral, coastal scrub, and oak woodland communities; ranges from 400 to 1500 m in elevation; blooms from April to June.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
San Luis mariposa-lily	*Calochortus obispoensis*	--/--/1B.2	Perennial herb; occurs in open chaparral, coastal scrub, and valley and foothill grassland communities; usually on serpentine, but also found on sandstone near Arroyo Grande; endemic to San Luis	No suitable habitat (sandstone outcrops) present onsite for this species. Not observed during the surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			Obispo County and known from localized occurrences in the San Luis Obispo and Arroyo Grande region; ranges from 75 to 730 m in elevation; blooms from May to July.	
San Luis Obispo County lupine	*Lupinus ludovicianus*	--/--/1B.2	Perennial herb; occurs in open, grassy sites on sandstone or sandy soils in chaparral and oak woodland; endemic to San Luis Obispo County; ranges from 50 to 525 m in elevation; blooms from April to July.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
San Luis Obispo monardella	*Monardella undulata ssp. undulata*	--/--/1B.2	Perennial herb; found on sandy soils in coastal dune and coastal scrub communities; restricted to San Luis Obispo and Santa Barbara counties; ranges from 10 to 200 m in elevation; blooms from May to September.	Project site is located outside the known range of this taxon. Not observed during surveys and not expected to occur onsite.
San Luis Obispo owl's-clover	*Castilleja densiflora var. obispoensis*	--/--/1B.2	Annual herb; occurs in meadows, seeps, and valley and foothill grassland communities in coastal area; ranges from 10 to 400 m in	Project site is located outside the known range of this taxon. Not observed during surveys and not

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			elevation; blooms from March to June.	expected to occur onsite.
San Luis Obispo sedge	*Carex obispoensis*	--/--/1B.2	Perennial herb; found in closed-cone pine forests, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland communities (usually near seeps and springs); mostly on serpentine soils; ranges from 10 to 750 m in elevation; blooms from March to June.	Project site is located outside the known range of this species. Not observed during surveys and not expected to occur onsite.
San Luis Obispo wallflower	*Erysimum capitatum var. lompocense*	--/--/4.2	Perennial herb; occurs on sandy soils in coastal scrub and maritime chaparral; the vast majority of populations are found in northern Santa Barbara County; ranges from 60 to 500 m in elevation; blooms from February to May.	**Potential habitat (open sandy areas) occurs onsite. Not observed during surveys.**
Sand almond	*Prunus fasciculata var. punctata*	--/--/4.3	Woody, colonial shrub; found in chaparral and oak woodland communities with sandy soils; found on south side of Morro	**Potential habitat (open sandy areas) occurs onsite. Not observed during the surveys.**

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			Bay and on Nipomo Mesa in San Luis Obispo County and in northern Santa Barbara County; ranges from 20 to 200 m in elevation; blooms from March to April.	
Sand mesa manzanita	*Arctostaphylos rudis*	--/--/1B.2	Shrub; occurs in chaparral with sandy soils, especially on Nipomo Mesa in San Luis Obispo County and in the San Antonio Terrace/Burton Mesa area in Santa Barbara County; ranges from 50-300 m in elevation; blooms from November to February.	**Potential habitat (open sandy areas) occurs onsite. Not observed during the surveys.**
Santa Barbara bedstraw	*Galium cliftonsmithii*	--/--/4.3	Perennial herb; occurs in chaparral and oak woodland communities; ranges from 200 to 1220 m in elevation; blooms from April to July.	**Potential habitat (oak woodland understory) occurs onsite. Not observed during the surveys. A sterile, perennial Galium was observed in the understory of the oaks onsite, but that individual had much narrower**

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
				leaves than this species.
Santa Lucia gooseberry	*Ribes sericeum*	--/--/4.3	Shrub; found in forest openings and in coastal scrub, typically in streamside thickets; endemic to the Santa Lucia Mountains; ranges from 180 to 800 m in elevation; blooms from December to April.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Santa Lucia manzanita	*Arctostaphylos luciana*	--/--/1B.2	Shrub; found in chaparral and oak woodland on shale soils; endemic to San Luis Obispo County; ranges from 350 to 850 m in elevation; blooms from December to March.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
Santa Margarita manzanita	*Arctostaphylos pilosula*	--/--/1B.2	Shrub; occurs in broadleaved upland forest, closed-cone pine forests, oak woodland, and chaparral communities, often on shale outcrops and sometimes on	No suitable habitat present onsite for this species. Not observed during surveys, but has been seen nearby.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			sandstone; endemic to San Luis Obispo County; ranges from 75 to 1100 m in elevation; blooms from December to May.	
Slender bush-mallow	*Malacothamnus gracilis*	--/--/1B.1	Shrub; occurs in chaparral, usually on rocky sites; restricted to San Luis Obispo and Santa Barbara counties; ranges from 190 to 575 m in elevation; blooms from May to October.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Small-leaved lomatium	*Lomatium parvifolium*	--/--/4.2	Perennial herb; typically found in closed-cone pine woodland on serpentine outcrops; ranges from 70 to 150 m in elevation; blooms from February to May.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.
Southern curly-leaved monardella	*Monardella sinuata ssp. sinuata*	--/--/1B.2	Annual herb; found on sandy soils in coastal dunes, coastal scrub, chaparral, and oak woodlands; ranges from 0 to 300 m in elevation; blooms from April to September.	**Potential habitat (open areas with sandy soil) occurs onsite. Not observed during surveys.**
Stinkbells	*Fritillaria agrestis*	--/--/4.2	Perennial herb; occurs on banks and depressions on clay soils, typically on serpentine outcrops; occurs at elevations	No suitable habitat present onsite for this species. Not observed during surveys

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			below 500 m; blooms from March to June.	and not expected to occur onsite.
Straight-awned spineflower	*Chorizanthe rectispina*	--/--/1B.2	Annual herb; occurs in chaparral, oak woodland, and coastal scrub habitats, and has even been found in vineyards and other frequently disturbed areas; typically found in granite sand or disintegrating shale; ranges from 200 to 1035 m in elevation; blooms from May to July.	**Potential habitat (open, disturbed areas with sandy soil) occurs onsite. Not observed during the surveys.**
Suffrutescent wallflower	*Erysimum suffrutescens*	--/--/4.2	Subshrub; found in stabilized coastal sand dunes and coastal scrub communities; occurs at elevations below 150 m; blooms from December to August.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
Surf thistle	*Cirsium rhothophilum*	--/T/1B.2	Perennial herb; coastal dune and coastal bluff scrub communities in close proximity to the ocean; ranges from 3 to 60 m in elevation; blooms from April to June.	No suitable habitat present onsite for this species. Not observed during surveys and not expected to occur onsite.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Trumpet-throated gilia	*Gilia tenuiflora ssp. amplifaucalis*	--/--/4.3	Annual herb; occurs on sandy soil of dry creeks, floodplains, slopes; ranges from 30 to 900 m in elevation; blooms from March to April.	No suitable habitat present onsite for this taxon. Not observed during surveys and not expected to occur onsite.
Umbrella larkspur	*Delphinium umbraculorum*	--/--/1B.3	Perennial herb; mesic sites in cismontane woodland and oak woodlands, typically in loose soil derived from disintregrating shale; ranges from 400 to 1,600 m in elevation; blooms from April to June.	Project site is located outside the known range of this species. Not observed during surveys and not expected to occur onsite.
Yellow-flowered eriastrum	*Eriastrum luteum*	--/--/1B.2	Annual herb; open sites with sandy or gravelly soil;occurs at elevations below 1000 m; blooms from May to June.	Project site is located outside the known range of this species. Not observed during surveys and not expected to occur onsite.
Animals - Amphibians				
California red-legged frog	*Rana draytonii*	T/--/SSC	Forages and breeds in streams with deep slow-moving pools, stock ponds, reservoirs, springs, lagoons, and marshes; usually with emergent or riparian vegetation but also found at sites lacking	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			vegetation. Uses riparian and various upland habitats in winter and for dispersal.	
California tiger salamander - central California DPS	*Ambystoma californiense* pop. 1	T/T/WL	Grassland, oak savanna, edges of mixed woodland and lower elevation coniferous forest.	No suitable habitat present. Not expected to occur.
Coast Range newt	*Taricha torosa*	--/--/SSC	Primarily terrestrial in forests, oak woodlands, chaparral, and rolling grassland. Breeds in ponds, reservoirs and pools of clear streams with rocky substrates and cascades.	No suitable habitat present. Not expected to occur.
Foothill yellow-legged frog	*Rana boylii*	--/E/SSC	Rocky streams and rivers with open sunny banks, surrounded by forests, chaparral and woodlands. Sometimes found in isolated pools, backwaters, and spring-fed pools. Reproduction is exclusively in streams and rivers. Usually found near water and diurnal.	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Lesser slender salamander	*Batrachoseps minor*	--/--/SSC	Forests composed of mixed oak, tanbark oak, sycamore and bay laurel with moist conditions. Found above 400 m elevation. Active above ground on warm, wet nights but otherwise is underground or under cover objects.	No suitable habitat present. Not expected to occur.
Western spadefoot	*Spea hammondii*	--/--/SSC	Open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No suitable habitat present. Not expected to occur.
Animals - Birds				
American peregrine falcon	*Falco peregrinus anatum*	D/D/FP	Open landscapes with cliffs (or skyscrapers) for nest sites. They can be found nesting at elevations up to about 12,000 feet, as well as along rivers and coastlines.	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Bald eagle	*Haliaeetus leucocephalus*	D/E/FP	Open areas near water where they mainly feed on fish, and may also eat birds, amphibians, reptiles, small mammals, and crabs; nests in large mature trees such as ponderosa pine or occasionally on cliffs or the ground, within 1 mile of a large water source; occurs year-round in this area.	Could fly over the site and perch or roost on large trees periodically. Not observed during surveys and is not expected to occur onsite.
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	--/E/-	Grasslands with few trees, including meadows, pastures, grassy roadsides, sedge wetlands, and cultivated fields planted with cover crops like alfalfa. Near oceans, they also inhabit tidal saltmarshes and estuaries.	No suitable habitat present. Not expected to occur.
Burrowing owl	*Athene cunicularia*	--/--/SSC	Grasslands; nests in burrows. They prefer areas with low vegetation on small hills that provide a vantage point of the surrounding areas.	Potential habitat occurs onsite, however extensive burrowing mammal activity was not observed within the project area. Could occur as

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
				a seasonal transient overwintering on and around the site, but would not be expected to breed onsite.
California black rail	*Laterallus jamaicensis coturniculus*	--/T/FP	Freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate and dense vegetation for nesting.	No suitable habitat present. Not expected to occur.
California condor	*Gymnogyps californianus*	E/E/FP	Roosts in cliffs or ledges; feeds in open areas up to 100 miles from roost.	No suitable roosting or nesting habitat onsite, but could forage in grasslands as a very rare transient. Unlikely to occur.
California horned lark	*Eremophila alpestris actia*	--/--/WL	Areas with sparse vegetation or bare ground in prairies, deserts, tundra, beaches, dunes, airports, plowed fields and heavily grazed pastures where they eat seeds	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			and insects. Nesting is on bare ground. Occurs year-round in this area.	
California least tern	*Sternula antillarum browni*	E/E/FP	Nests along coast from San Francisco Bay to northern Baja California. Nests on sandy beaches, alkali flats, landfills or paved areas.	No suitable habitat present. Not expected to occur.
California Spotted Owl	*Strix occidentalis occidentalis*	--/--/SSC	Mature forests with dense canopies. The Northern Spotted Owl requires unlogged, expansive, mature coniferous forest stands with large trees and a complex array of vegetation types, sizes and ages.	No suitable habitat present. Not expected to occur.
Cooper's hawk	*Accipiter cooperii*	--/--/WL	Wooded areas. Nests in tall trees and often hunts around human structures.	**Occurrences of this species were observed. On two site visits a single bird was seen flying across the property and landing in different oak trees on the property.**

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Ferruginous hawk	*Buteo regalis*	--/--/WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Eats mostly lagomorphs, ground squirrels and mice.	Potential habitat occurs onsite, however this species typically does not nest in California. Could occur as a seasonal transient during fall/winter months. Not observed during surveys.
Golden eagle	*Aquila chrysaetos*	--/--/FP ; WL	Nests on cliffs and rocks and forages in open country, grasslands.	**Could fly over the site and perch on large trees periodically. Unlikely to nest on the property.**
Grasshopper sparrow	*Ammodramus savannarum*	--/--/SSC	Grasslands, prairies, hayfields, and open pastures with little scrub cover and some bare ground where they prey on grasshoppers and other invertebrates. Nests on the ground at the base of clumps of grass within a large patch of tall grass. Occurs in this area during breeding season.	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Loggerhead shrike	*Lanius ludovicianus*	--/--/SSC	Nests in shrubs in coastal sage scrub and chaparral habitats or in trees that overlook grasslands; preys over semi-open habitats and feeds primarily on large insects and often skewers prey on a barb or thorn to cache for later feeding.	Potential habitat occurs onsite for foraging and nesting. Not observed during surveys.
Merlin	*Falco columbarius*	--/--/WL	Nests outside of California; forages in a variety of habitats. Uses clumps of trees or windbreaks for roosting.	Suitable foraging habitat present onsite. Not observed during surveys.
Mountain plover	*Charadrius montanus*	--/--/SSC	Elevations ranging from 2,100 to 10,663 feet. Nest in shortgrass prairie, especially where blue grama, buffalo grass, and western wheat grass are dominant.	Project site is outside the known range for this species. Not observed during surveys and is not expected to occur onsite.
Northern harrier	*Circus hudsonius*	--/--/SSC	Forages and nests in grasslands and marshes. Requires large expanses of habitat for foraging.	Could fly over the site and perch on large trees periodically. Unlikely to nest on the property. Not observed during surveys.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Osprey	*Pandion haliaetus*	--/--/WL	Expanses of shallow, fish-filled water, including rivers, lakes, reservoirs, lagoons, swamps, and marshes.	No suitable habitat present. Not expected to occur.
Prairie falcon	*Falco mexicanus*	--/--/WL	Catches pray in air and in open ground in grasslands. Nests in cliffs overlooking large areas.	No nesting habitat present, but rocky outcrops in hills outside study area could potentially support nesting activities. Potential foraging habitat present onsite. Unlikely to occur.
Purple martin	*Progne subis*	--/--/SSC	Nests in cavities of large trees in oak and riparian woodlands, and low elevation coniferous forests; rare; usually found near water.	No suitable habitat present. Not expected to occur.
Sharp-shinned hawk	*Accipiter striatus*	--/--/WL	Prefers riparian plant communities, but can be found in pine and oak woodlands on north-facing slopes.	**Potentially suitable foraging and nesting habitat in oak trees present onsite. Not observed during surveys.**
Southern California rufous-	*Aimophila ruficeps canescens*	--/--/WL	Dry, open hillsides covered with grasses, rocks, and scattered shrubs, including	No suitable habitat present. Not

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
crowned sparrow			coastal sagebrush, open chaparral, scrub oaks, pinyon pine, and other woody plants. Dense woody growth is unsuitable.	expected to occur.
Tricolored blackbird	*Agelaius tricolor*	--/T/SSC	Found near freshwater habitats where it nests in emergent freshwater or riparian vegetation. This species prefers nesting in dense thickets of cattails and tules. Due to their highly colonial nature, nesting areas must be large enough to support a colony of about 50 pairs.	No suitable habitat present. Not expected to occur.
Western snowy plover	*Charadrius nivosus nivosus*	T/--/SSC	Sandy beaches, salt pond levees or shores of large alkali lakes. Sandy, gravelly or friable soils required for nesting. Federal listing refers only to the Pacific coastal population.	No suitable habitat present. Not expected to occur.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	T/E/-	Nests and forages in dense lowland riparian vegetation during summer.	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
White-tailed kite	*Elanus leucurus*	--/--/FP	Riparian woodlands near agricultural fields; forages over open grasslands and scrub.	**Could fly over the site and perch on large trees periodically. Unlikely to nest on the property. Not observed during surveys.**
Yellow-breasted chat	*Icteria virens*	--/--/SSC	Eense shrubbery, including abandoned farm fields, clearcuts, powerline corridors, fencerows, forest edges and openings, swamps, and edges of streams and ponds. Its habitat often includes blackberry bushes.	No suitable habitat present. Not expected to occur.
Animals - Insects				
Monarch - California overwintering population	*Danaus plexippus* pop. 1	Candidate/--/-	Wind-protected tree groves of eucalyptus, Monterey pine and cypress with nectar and water sources nearby.	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
Animals - Mammals				
American badger	*Taxidea taxus*	--/--/SSC	Friable soils and open, uncultivated ground for denning. Preys on burrowing rodents such as ground squirrels.	**Potential habitat occurs onsite, however no burrows or sightings were observed during surveys.**
Monterey dusky-footed woodrat	*Neotoma macrotis luciana*	--/--/SSC	Builds large stick middens in chaparral and woodland habitats of moderate canopy and moderate to dense understory. Occurs in the Coast Ranges from Monterey Bay to Los Osos/Atascadero. Reaches its eastern extent at Camp Roberts where it contacts Neotoma fuscipes bullatior and southern extent where Neotoma macrotis macrotis occurs.	Project site is outside the known range for this species and habitat was not found onsite. Not observed during surveys and is not expected to occur onsite.
Pallid bat	*Antrozous pallidus*	--/--/SSC	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts under bridges and in some areas in old structures such as barns.	Not observed during surveys.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
San Diego desert woodrat	*Neotoma lepida intermedia*	--/--/SSC	Coastal scrub, oak woodlands with moderate to dense canopies. Abundant in and around rock outcrops and rocky cliffs and slopes with shrub and tree cover.	**Suitable habitat present in oak woodlands and coyote scrub. Not observed during surveys.**
Townsend's big-eared bat	*Corynorhinus townsendii*	--/--/SSC	Requires caves, tunnels, mines, or similar man-made structures for roosting. This bat feeds primarily on moths, but will eat a variety of soft- bodied insects.	No suitable habitat present. Not expected to occur.
Western mastiff bat	*Eumops perotis californicus*	--/--/SSC	Open, arid habitats including conifer and deciduous woodlands, coastal scrub, grassland, and chaparral. Roosts in crevices in cliffs faces high buildings, trees and tunnels.	Not observed during surveys.
Western red bat	*Lasiurus blossevillii*	--/--/SSC	Roosts in trees near open areas for foraging.	Not observed during surveys.
Animals - Reptiles				
Coast horned lizard	Phrynosoma blainvillii	--/--/SSC	Grasslands, sandy washes, coastal scrub, chaparral, coniferous forest and woodlands with patches of open areas for sunning and bushes for cover. Often with loose sandy soils for burial,	**Suitable habitat present throughout the site. Not observed during surveys.**

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			but also uses small mammal burrows. Preys on native species of ants and other small invertebrates.	
Northern California legless lizard	*Anniella pulchra*	--/--/SSC	Beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, oak woodland, and stream terraces with riparian vegetation. Fossorial species requires moist, loose soils or leaf litter with plant cover or surface objects (rocks, boards, logs, etc.). Can occur in residential areas.	**Potentially suitable habitat in sandy areas. Not observed during surveys.**
Two-striped gartersnake	*Thamnophis hammondii*	--/--/SSC	Perennial and intermittent streams bordered by dense vegetation; stock ponds bordered by dense emergent riparian vegetation.	No suitable habitat present. Not expected to occur.
Western pond turtle	*Emys marmorata*	--/--/SSC	Ponds, lakes, rivers, streams, marshes, brackish lagoons, and irrigation ditches with a mosaic of vegetation and open areas for basking. Uses upland areas for nesting and in winter, including woodland, forest, grassland,	No suitable habitat present. Not expected to occur.

Common Name	Scientific Name	Status* Fed/CA/CDFW	Habitat Requirements	Project Site Suitability
			chaparral, and grasslands.	

*E = Endangered; T = Threatened; R = Rare CL = Candidate for Listing Status; SSC = California Species of Special Concern; FP = Fully Protected; WL = Watch List; SA – Special Animal; '—' = no status; List 1B – Rare, threatened, or endangered in California and elsewhere; List 2 – Rare, threatened or endangered in California, but more common elsewhere; List 4 – Limited distribution (Watch List). Source: California Natural Diversity Database (CDFW 2015); California Native Plant Society Online Inventory of Rare Plants, accessed April and November 2015 (online at www.cnps.org); and background literature review. Bold type indicates potential to occur at proposed site.

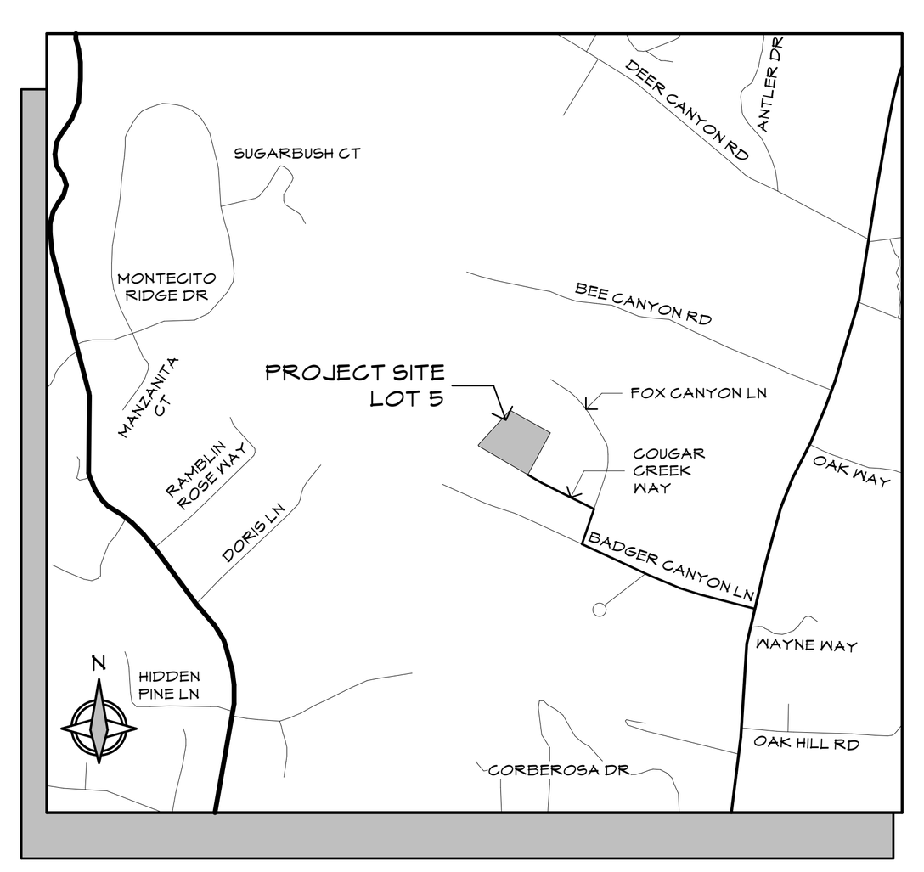
Appendix E

Site Plans

STARKOVICH RESIDENCE

ARROYO GRANDE, CA

VICINITY MAP



AGENCIES & UTILITIES

COUNTY OF SAN LUIS OBISPO:
PLANNING & BUILDING DIVISION
976 OSOS STREET, ROOM 200
SAN LUIS OBISPO, CA 93401

PHONE: (805) 781-5600
FAX: (805) 781-5603
EMAIL:

COUNTY OF SAN LUIS OBISPO
CDF / COUNTY FIRE
635 N. SANTA ROSA STREET
SAN LUIS OBISPO, CA 93405

PHONE: (805) 543-4244
FAX: (805) 543-7035
EMAIL:

COUNTY OF SAN LUIS OBISPO
PUBLIC WORKS
1050 MONTEREY ST. STE. D430
SAN LUIS OBISPO, CA 93401

PHONE: (805) 781-5011
FAX: (805) 781-5023
EMAIL:

PG & E:
406 HIGUERA STREET
SAN LUIS OBISPO, CA93401

PHONE: (800) 743-5000
FAX:
EMAIL:

PACIFIC BELL:
196 SUBURBAN ROAD
SAN LUIS OBISPO, CA 93401

PHONE: (805) 546-7003
FAX:
EMAIL:

PROJECT DIRECTORY

OWNER:
JIM & JILL STARKOVICH
566 SOMBRILLO
ARROYO GRANDE, CA 93420

PHONE: (805) 779-0977
EMAIL: jilltsc@gmail.com
EMAIL: yuba30@gmail.com

GENERAL CONTRACTOR:
J P WOODWORKS
1612 BADGER CANYON LANE
ARROYO GRANDE, CA 93420
CONTACT: JASON PETERSON

PHONE: (805) 748-2976
EMAIL:
jpwoodworks@hotmail.com

CIVIL ENGINEER:
ROMANO DESIGN
3141 ARREZO DRIVE
SAN LUIS OBISPO, CA 93401
CONTACT: TIM ROMANO

PHONE: (805) 550-5910
EMAIL: tim@romanodesign.us

TITLE 24 / THIRD PARTY VERIF:
CARSTAIRS ENERGY
2238 BAYVIEW HEIGHTS DR. STE. E
LOS OSOS, CA 93402
CONTACT: TIMOTHY CARSTAIRS

PHONE: (805) 904-9048
EMAIL: timmycarstairs.yahoo.com

MECHANICAL ENGINEER:
BRUMMEL MECHANICAL ENGINEERS (BME)
444 HIGUERA STREET
SAN LUIS OBISPO, CA 93401
CONTACT: KEITH BRUMMEL

PHONE: (805) 543-6636
EMAIL: keith@bmehvac.com

ARCHITECT:
ISAMAN DESIGN, INC.
2420 BROAD STREET
SAN LUIS OBISPO, CA 93401
CONTACT: BILL ISAMAN

PHONE: (805) 544-5672
FAX: (805) 544-5642
EMAIL: bill@isamandesign.com

STRUCTURAL ENGINEER:
T&S STRUCTURAL
684 CLARION CT,
SAN LUIS OBISPO, CA 933401
CONTACT: RANDY DAVIDSON

PHONE: (805) 547-2000 EXT.
EMAIL: randy@taylorsyfan.com

SURVEYOR:
MBS LAND SURVEYS
3559 SOUTH HIGUERA STREET
SAN LUIS OBISPO, CA 93401
CONTACT: MIKE STANTON

PHONE: (805) 594-1960
CELL: (805) 440-4215
EMAIL: mike@mbslandsurveys.com

SOILS ENGINEER:
GEO SOLUTIONS
440 HIGH STREET
SAN LUIS OBISPO, CA 93401
CONTACT: KRAIG CROZIER

PHONE: (805) 543-8539
FAX:
EMAIL: info@geosolutions.net

LANDSCAPE
WES AROLA
5690 WEST MALL STREET SUITE B
ATASCADERO, CA 93422

PHONE: (831) 247-9936
EMAIL: W@WESAROLA.COM

PROJECT DATA

A.P.N.: 044-501-033

PROJECT DESCRIPTION:
PROPOSAL FOR MINOR USE PERMIT FOR MAJOR GRADING AT LOT 5, COUGAR CREEK WAY, ARROYO GRANDE, CA. MAJOR GRADING SCOPE CONSISTS OF 1.97 AC. DISTURBANCE, 7,900 CY OF EXPORT, AND 1030 LINEAR FEET OF RETAINING WALLS.

SITE STATISTICS:
PROJECT ADDRESS:
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA 93420

LOT AREA: (108,918 SF)	2.50 ACRES
BUILDABLE AREA:	74,279 SF
PROPOSED FOOTPRINT:	11,992 SF
LOT COVERAGE:	16.14 %

BUILDING STATISTICS:

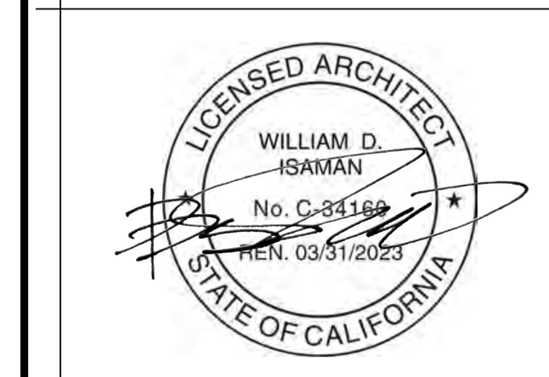
OCCUPANCY GROUP:	R-3
CONSTRUCTION TYPE:	TYPE V-B
NUMBER OF STORIES:	1
FIRE SPRINKLERS REQ'D:	YES

SOIL DISPOSAL

SPOILS IN THE AMOUNT OF 7,900 CUBIC YARDS ARE TO BE TAKEN TO COLD CANYON LANDFILL, INC. OR ANY OTHER COUNTY APPROVED DISPOSAL SITE.

SHEET INDEX

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642



ARCHITECT'S STAMP

JP WOODWORKS
CONTRACTOR

ROMANO DESIGN
CIVIL

T&S STRUCTURAL
STRUCTURAL

Brummel Mechanical Engineering, LLP
MECHANICAL

LANDSCAPE

CONSULTANT'S STAMP

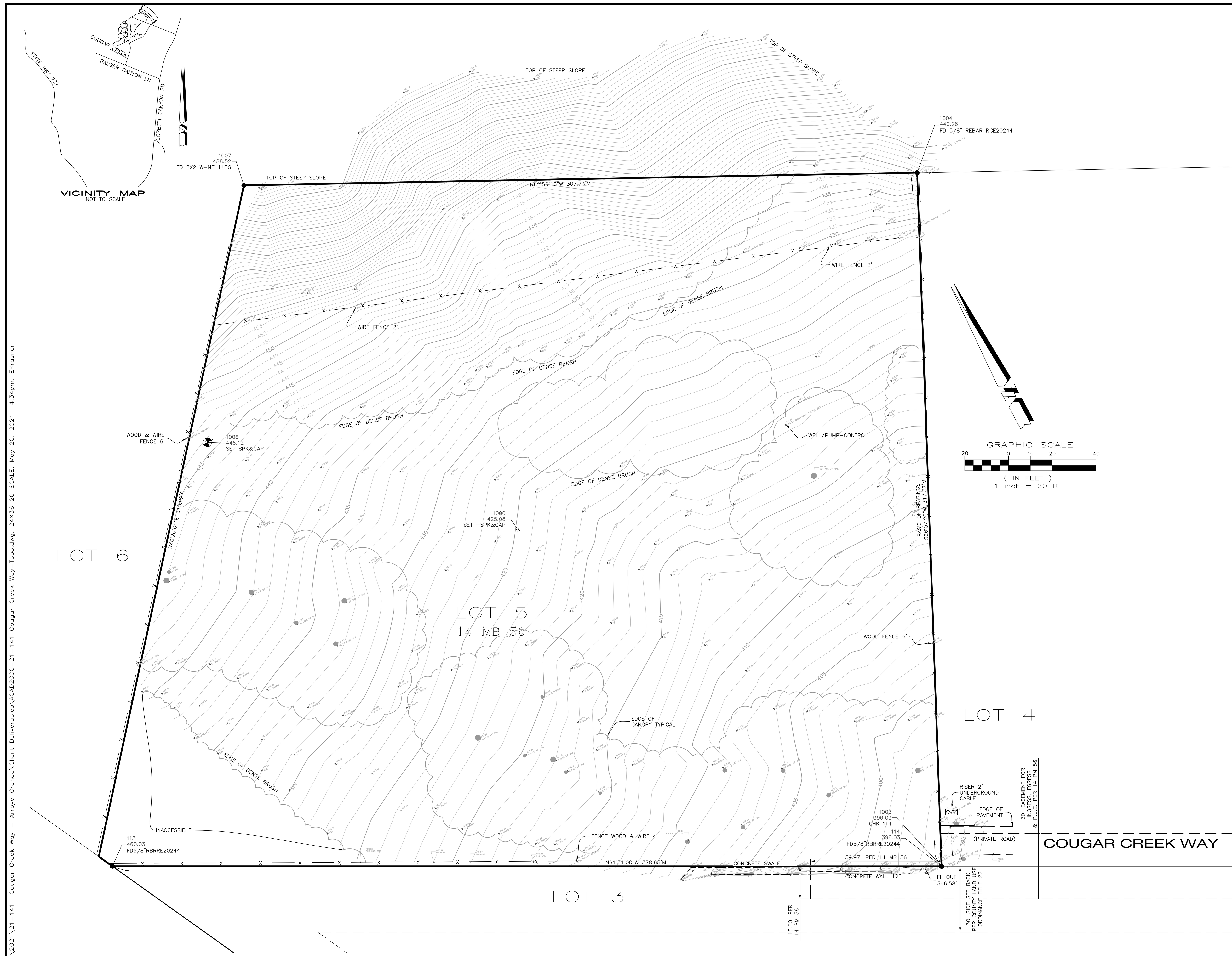
FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA
TITLE SHEET

No.	Revision	Date
1	MUP SUBMITTAL	07/26/22

Date: JULY 26, 2022

Sheet T1.0



ABBREVIATIONS

AC	ASPHALT CONCRETE	IP	IRON PIPE
AP	ANGLE POINT	GB	GRADE BREAK
BM	BENCH MARK	GM	GAS METER
BLDG	BUILDING	HP	HIGH POINT
BOW	BACK OF WALK	LT	LIGHT
CB	CATCH BASIN	MH	MANHOLE
CF	CURB FACE	PP	POWER POLE
CO	CLEAN OUT	PVC	POLYVINYL PIPE
COL	COLUMN	RB	REBAR
COR	CORNER	RCP	REINFORCED CONCRETE PIPE
CONC	CONCRETE	R10	CANOPY RADIUS
CMP	CORRUGATED METAL PIPE	SD	STORM DRAIN
CMU	CONCRETE MASONRY UNITS	SL	POINT ON SLOPE
CRN	CROWN OF STREET	SS	SEWER
DI	DROP INLET	STP	STEP
EG	EXISTING GRADE	STR	STAIRS
EP	EDGE OF PAVEMENT	TOP	TOP OF SLOPE
FD	FOUND	TOE	TOE OF SLOPE
FL	FLOW LINE	TW	TOP OF WALL
FF	FINISH FLOOR	W	WATER
FOW	FACE OF WALL	WL	WALL
HSE	HOUSE COR	WM	WATER METER
GR	GRASS	WV	WATER VALVE
GM	GAS METER		
IP	IRON PIPE		

DI−1.5FL TOP OF GRATE −1.5' FLOW LINE

SYMBOL LEGEND:

FENCE LINE
SEWER MAIN
WATER MAIN
GAS MAIN
ELEC/TELEPHONE/CABLE
OVERHEAD ELECTRIC
DROP INLET AT CURB
DROP INLET
STORM DRAIN MANHOLE
FIRE HYDRANT
WATER WELL
WATER VALVE
WATER METER
SEWER MANHOLE
SEWER CLEANOUT
BENCHMARK
RETAINING WALL
PG&E BOX
GAS METER
TELEPHONE BOX
SIGNAL BOX
CABLE T.V. BOX
ELECTRIC BOX
TELEPHONE MANHOLE
STREET LIGHT
JOINT POLE
POWER POLE
GUY WIRE

SURVEYOR'S STATEMENT:

THIS MAP REPRESENTS A FIELD SURVEY OF SURFACE FEATURES AND ELEVATIONS PERFORMED ON MAY 17, 2021.

MICHAEL B. STANTON, PLS 5702 DATE

LICENSED LAND SURVEYOR MICHAEL B. STANTON LIC. NO. 5702 STATE OF CALIFORNIA

SURVEYOR'S NOTES:

1. NO TITLE SEARCH (TITLE REPORT) WAS PROVIDED TO THE SURVEYOR. EASEMENTS WHICH MAY AFFECT THE SUBJECT PROPERTY HAVE NOT BEEN PLOTTED.

2. ONLY THE SURFACE EVIDENCE OF UNDERGROUND UTILITIES HAVE BEEN MEASURED IN THE FIELD ON THIS SURVEY. IF APPROXIMATE UNDERGROUND ALIGNMENTS ARE SHOWN, I MAKE NO WARRANTY AS TO THE ACTUAL LOCATION, TYPE OR DEPTH OF THOSE UNDERGROUND UTILITIES. CALL UNDERGROUND SERVICE ALERT (USA) AT 1−800−642−2444 TO VERIFY THE ACTUAL LOCATION OF UTILITIES PRIOR TO ANY EXCAVATION. THE SURVEYOR ALSO HAS MADE NO INVESTIGATION AS TO SUBSURFACE ENVIRONMENTAL CONDITIONS THAT WOULD AFFECT THE USE OR DEVELOPMENT OF THIS PROPERTY.

3. IT WILL BE THE ARCHITECT'S RESPONSIBILITY TO VERIFY SETBACK AND HEIGHT RESTRICTIONS WITH THE LOCAL GOVERNING AGENCY.

4. THE SIGNED AND SEALED ORIGINAL DRAWING OF THIS MAP CONSTITUTES THE FINAL WORK PRODUCT. MBS LAND SURVEYS WILL NOT BE LIABLE FOR ELECTRONIC VERSIONS OF THIS MAP PROVIDED TO OTHER PARTIES.

5. THE PROPERTY LINES SHOWN HEREON REPRESENT THE ACTUAL BOUNDARY LINES BASED ON ALL MONUMENTS FOUND IN THE FIELD.

BENCH MARK:

THE BENCH MARK FOR THIS PROJECT IS NGS BENCH MARK "T−65", PID FV0673, BEING A BRASS CAP IN CONCRETE POST, NORTH OF THE INTERSECTION OF PRINTZ ROAD AND CORBETT CANYON ROAD, 7.4 FEET NE OF THE SOUTHEAST END OF THE NORTHEAST GUARDRAIL OF CONCRETE BRIDGE NO. 49−110 OVER A CREEK, 0.6 SE OF TELEPHONE POLE ABOUT 1' LOWER THAN THE ROAD.

ELEVATION=143.90' NAVD88 DATUM.

LOCAL BENCHMARK= CONTROL POINT#1006 SET SPIKE & CAP "MBS CONTROL POINT" FLUSH IN GROUND WITH AN ELEVATION OF 446.12'

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS PROJECT IS BASED ON FOUND MONUMENTS FROM THE FOUND 5/8" REBAR "RCE20244" AT THE NORTHEAST CORNER OF LOT 5 TO THE FOUND 5/8" REBAR "RCE20244" AT THE SOUTH EAST CORNER OF LOT 5 BEARING S26°07'20"W

SITE DATA:

ADDRESS: COUGAR CREEK WAY, ARROYO GRANDE

ASSESSOR'S PARCEL NO. APN 044−501−033

TOPOGRAPHIC MAP

LOT 5 OF TRACT 1442 AS SHOWN ON MAP FILED IN BOOK 14 AT PAGE 56, IN THE COUNTY OF SAN LUIS OBISPO, CALIFORNIA

AT THE REQUEST OF JIM AND JILL STARKOVICH

MBS LAND SURVEYS
MICHAEL B. STANTON, PLS 5702
3563 SUELDO ST. UNIT Q
SAN LUIS OBISPO, CA 93401
805−594−1960

May 20, 2021 JOB #2021−141

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

ROMANO DESIGN

T&S STRUCTURAL

Brummel Mechanical Engineering, LLP

FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA
SITE SURVEY

No.	Revision	Date
1	MUP SUBMITTAL	01/28/22

Date: JULY 26, 2022

Sheet T1.1

SITE PLAN- OAK IMPACT
1/16" = 1'-0"

1

GENERAL NOTES

A - THE GENERAL CONTRACTOR IS RESPONSIBLE TO VERIFY LOT LINES PRIOR TO FOUNDATION INSPECTION, THE LOT CORNERS SHALL BE STAKED AND SETBACKS MARKED BY A LICENSED SURVEYOR.
B - REVISIONS REQUIRED BY UNFORESEEN SITE CONDITIONS SHALL BE APPROVED BY THE OWNER PRIOR TO EXECUTION.
C - PERFORM GRADING IN ACCORDANCE WITH THE REQUIREMENT OF THE LOCAL GOVERNING AGENCY'S ORDINANCE.
D - IF CLEARING OCCURS DURING RAINY SEASON, NOVEMBER 1ST THROUGH MARCH 30TH, AN EROSION CONTROL PLAN MY BE REQUIRED TO BE SUBMITTED AND APPROVED BY THE CITY ENGINEER AND SHALL INCLUDE ANY NECESSARY BONDS OR OTHER ASSURANCES.
E - MINIMUM SLOPES ADJACENT TO BUILDING: 5% FOR 10 (TEN) FEET ADJACENT TO BUILDINGS AND ALL SUBFLOOR AREAS BELOW EXTERIOR DECKS. IMPERVIOUS AREAS: 2% SLOPES
F - CONCRETE COMPRESSIVE STRENGTH SHALL BE 2,500 PSI AT 28 DAYS, PER CBC SECTIONS 1923.1 & 1923.3
G - PROVIDE PLANTING TO PROTECT DISTURBED UNPAVED SURFACES FROM EROSION. PROVIDE TEMPORARY EROSION CONTROL DURING CONSTRUCTION.
H - NO GAS PIPING SHALL BE INSTALLED IN OR ON THE GROUND, UNDER ANY BUILDING OR STRUCTURE. ALL EXPOSED GAS PIPING SHALL BE KEPT AT LEAST SIX INCHES ABOVE GRADE OR STRUCTURE, PER CPC SECTION 1210.0
J - ALL ELECTRICAL, TELECOMMUNICATION AND OTHER UTILITIES SHALL BE INSTALLED UNDERGROUND IN AN APPROVED METHOD OF CONSTRUCTION.
K - REFER TO ELECTRICAL SHEETS FOR HOSE BIBBS AND WATER 4 GAS STUB OUTS FOR EXTERIOR BBQ AREA.
L - ANY PORTION OF A FENCE OR OTHER STRUCTURE WITHIN FIVE FEET OF THE BUILDING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL OR APPROVED EXTERIOR FIRE-RETARDANT WOOD OR MATERIAL THAT MEETS THE SAME FIRE-RESISTIVE STANDARDS AS THE EXTERIOR WALLS OF THE BUILDING.

OUTDOOR WATER REQUIREMENTS

CAL GREEN MANDATORY MEASURES
4.304.1 IRRIGATION CONTROLLERS. AUTOMATIC IRRIGATION SYSTEM CONTROLLERS FOR LANDSCAPING PROVIDED BY THE BUILDER AND INSTALLED AT THE TIME OF FINAL INSPECTION SHALL COMPLY WITH THE FOLLOWING:
1. CONTROLLERS SHALL BE WEATHER- OR SOIL-MOISTURE BASED CONTROLLERS THAT AUTOMATICALLY ADJUST IRRIGATION IN RESPONSE TO CHANGES IN PLANT NEEDS AS WEATHER CONDITIONS CHANGE.
2. WEATHER-BASED CONTROLLERS WITHOUT INTEGRAL RAIN SENSORS OR COMMUNICATION SYSTEMS THAT ACCOUNT FOR LOCAL RAINFALL SHALL HAVE A SEPARATE WIRED OR WIRELESS RAIN SENSOR WHICH CONNECTS OR COMMUNICATES WITH THE CONTROLLER(S). SOIL MOISTURE-BASED CONTROLLERS ARE NOT REQUIRED TO HAVE RAIN SENSOR INPUT.
CAL GREEN TIER 1:
A4.304.1 INSTALL A LOW-WATER CONSUMPTION IRRIGATION SYSTEM WHICH MINIMIZES THE USE OF SPRAY TYPE HEADS.
A4.304.2 A RAINWATER CAPTURE, STORAGE AND RE-USE SYSTEM IS DESIGNED AND INSTALLED (OPTIONAL).
A4.304.3 A WATER BUDGET SHALL BE DEVELOPED FOR LANDSCAPE IRRIGATION (OPTIONAL).
A4.304.4 PROVIDE WATER EFFICIENT LANDSCAPE IRRIGATION DESIGN THAT REDUCES THE USE OF POTABLE WATER, DOES NOT EXCEED 65% OF ETO TIMES THE LANDSCAPE AREA

TREE MITIGATION

TREE #	DBH (IN)	IMPACTS FROM DRIVEWAY	MITIGATION # TREES
1	21.3	-NO IMPACT - OUTSIDE PROPERTY LINE OF COUGAR CREEK WY.	0
2	23.6	-NO IMPACT - OUTSIDE PROPERTY LINE OF COUGAR CREEK WY.	0
3	12.7,18.8	9 FT UNDER DRIPLINE	2
4	19.1	6 FT UNDER DRIPLINE	2
5	33.8	6 FT UNDER DRIPLINE	2
6	29.3	6 FT UNDER DRIPLINE	2
7	36.5	6 FT UNDER DRIPLINE	2
8	28.1	6 FT UNDER DRIPLINE	2
9	17.2	6 FT UNDER DRIPLINE	2
10	15.0	6 FT UNDER DRIPLINE	2
11	41.1	6 FT UNDER DRIPLINE	2
12	15.0	6 FT UNDER DRIPLINE	2
13	22.6	NO IMPACT	0
14	34.8	6 FT UNDER DRIPLINE	2
15	26.4	12 FT UNDER DRIPLINE	2
16	25.2	REMOVE	4
17	23.6	NO IMPACT	0
18	27.7	NO IMPACT	0
19	41.7	NO IMPACT	0
20	19.7	NO IMPACT	0
21	3.5	REMOVE FOR RETAINING WALL - 8" DBH NO MITIGATION IMPACT PER CODE SECTION: 23.05.062	0
22	6.1	REMOVE FOR RETAINING WALL - 8" DBH NO MITIGATION IMPACT PER CODE SECTION: 23.05.062	0
23	5.7	REMOVE FOR RETAINING WALL - 8" DBH NO MITIGATION IMPACT PER CODE SECTION: 23.05.062	0
24	8.3	REMOVE FOR RETAINING WALL	4
25	29.6	NO IMPACT	0
TOTAL MITIGATION TREES REQUIRED			32
TOTAL MITIGATION PROVIDED BASED ON BIOLOGIST RECOMMENDATION			16

NOTE: PROPOSED PROJECT USES IN LIEU OF MITIGATION FEE TO REDUCE REQUIRED OAK TREE MITIGATION BY HALF SEE BIOLOGICAL REPORT FOR MORE INFORMATION

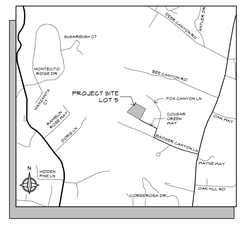
OAK MITIGATION LEGEND

NO MITIGATION NECESSARY

LESS 50% IMPACTED TREE MITIGATION - 2 NEW TREES

OVER 50% IMPACTED TREE MITIGATION - 4 NEW TREES

VICINITY MAP



ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p. 805.544.5672
f. 805.544.5642

ARCHITECT'S STAMP

CONTRACTOR

CIVIL

STRUCTURAL

MECHANICAL

LANDSCAPE

CORBEL TANK'S STAMP

FOR COUNTY STAMP

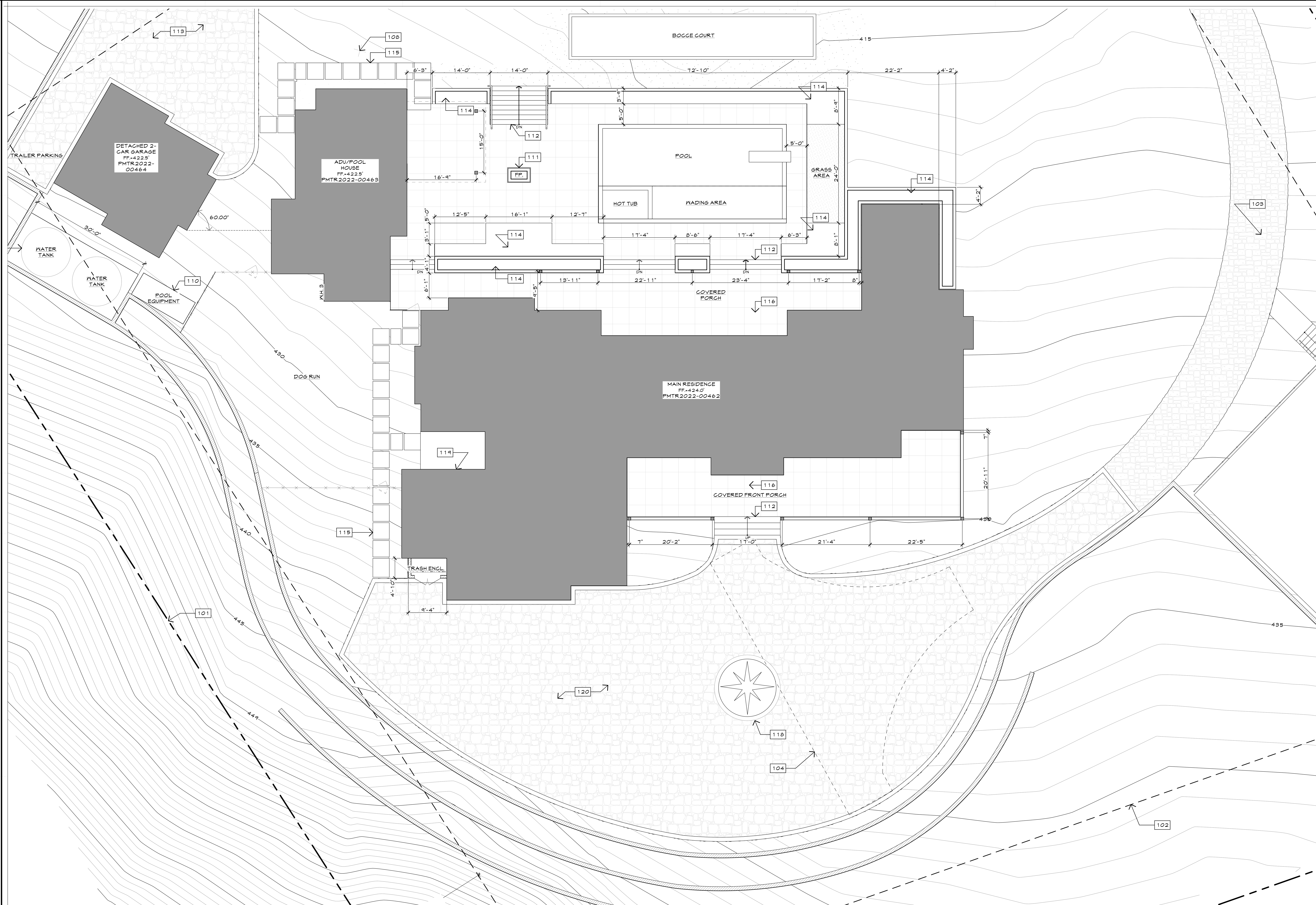
STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

SITE PLAN

No.	Revision	Date
1	MUP SUBMITTAL	07/26/22

Date: JULY 26, 2022

Sheet
A1.0



ENLARGED SITE PLAN
1/8" = 1'-0"

1

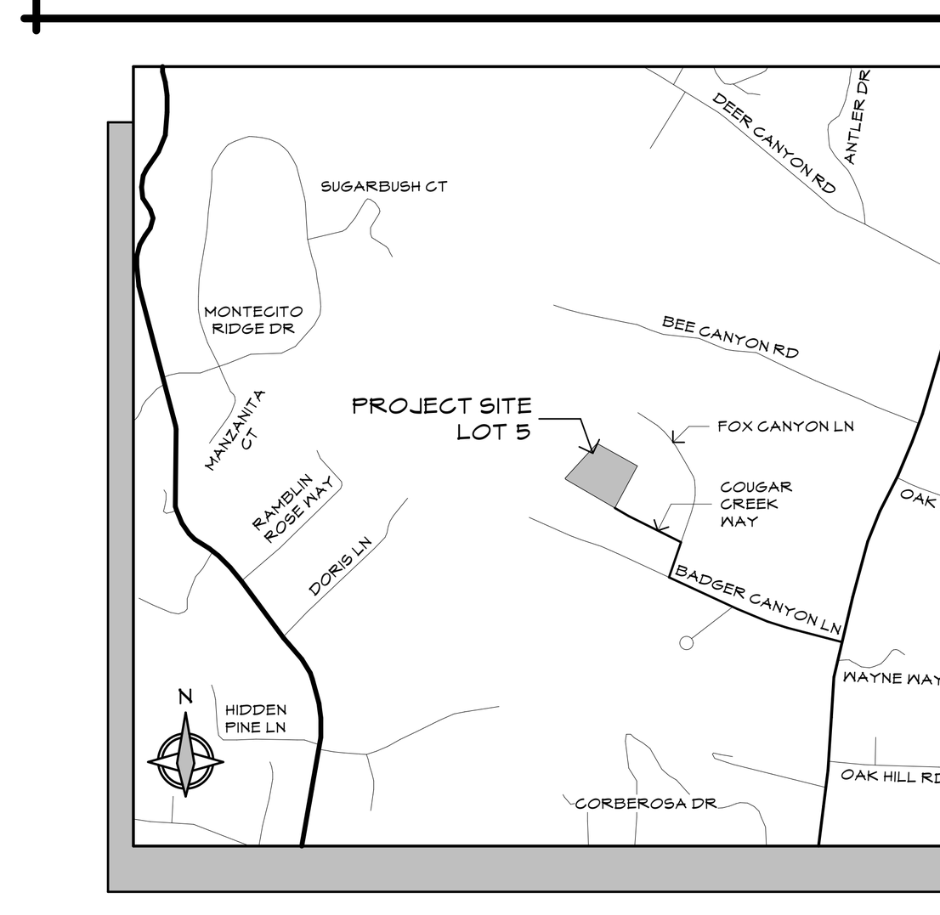
GENERAL NOTES

A - THE GENERAL CONTRACTOR IS RESPONSIBLE TO VERIFY LOT LINES, PRIOR TO FOUNDATION INSPECTION, THE LOT CORNERS SHALL BE STAKED AND SETBACKS MARKED BY A LICENSED SURVEYOR.
B - REVISIONS REQUIRED BY UNFORESEEN SITE CONDITIONS SHALL BE APPROVED BY THE OWNER PRIOR TO EXECUTION.
C - PERFORM GRADING IN ACCORDANCE WITH THE REQUIREMENT OF THE LOCAL GOVERNING AGENCY'S ORDINANCE.
D - IF CLEARING OCCURS DURING RAINY SEASON, NOVEMBER 1ST THROUGH MARCH 30TH, AN EROSION CONTROL PLAN MY BE REQUIRED TO BE SUBMITTED AND APPROVED BY THE CITY ENGINEER AND SHALL INCLUDE ANY NECESSARY BONDS OR OTHER ASSURANCES.
E - MINIMUM SLOPES ADJACENT TO BUILDING: 5% FOR 10 (TEN) FEET ADJACENT TO BUILDINGS AND ALL SUBFLOOR AREAS BELOW EXTERIOR DECKS. IMPERVIOUS AREAS: 2%. SLOPES
F - CONCRETE COMPRESSIVE STRENGTH SHALL BE 2,500 PSI AT 28 DAYS, PER CBC SECTIONS 1923.1 & 1923.3
G - PROVIDE PLANTING TO PROTECT DISTURBED UNPAVED SURFACES FROM EROSION. PROVIDE TEMPORARY EROSION CONTROL DURING CONSTRUCTION.
H - NO GAS PIPING SHALL BE INSTALLED IN OR ON THE GROUND, UNDER ANY BUILDING OR STRUCTURE. ALL EXPOSED GAS PIPING SHALL BE KEPT AT LEAST SIX INCHES ABOVE GRADE OR STRUCTURE, PER CPC SECTION 1210.0
J - ALL ELECTRICAL, TELECOMMUNICATION AND OTHER UTLITIES SHALL BE INSTALLED UNDERGROUND IN AN APPROVED METHOD OF CONSTRUCTION.
K - REFER TO ELECTRICAL SHEETS FOR HOSE BIBBS AND WATER & GAS STUB OUTS FOR EXTERIOR BBQ AREA.
L - ANY PORTION OF A FENCE OR OTHER STRUCTURE WITHIN FIVE FEET OF THE BUILDING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL OR APPROVED EXTERIOR FIRE-RETARDANT WOOD OR MATERIAL THAT MEETS THE SAME FIRE-RESISTIVE STANDARDS AS THE EXTERIOR WALLS OF THE BUILDING.

KEYNOTES

101 - PROPERTY LINE
102 - BUILDING SETBACK
103 - DRIVEWAY, PAVERS PER CIVIL
104 - HAMMERHEAD TURNAROUND
105 - CONCRETE PAD FOR WATER STORAGE TANKS
106 - FENCE EXISTING TO REMAIN
107 - STONE CLAD SITE WALL
108 - WELL PUMP CONTROL
109 - 30'-0" EASEMENT FOR INGRESS EGRESS 7 P.U.E. PER 14 PM 56
110 - POOL EQUIPMENT, CONCRETE PAD
111 - FIRE PIT
112 - SITE STAIR, SEE DETAIL 14/A9.0
113 - PAVERS, OWNER SELECTED
114 - PLATED AREA
115 - CASE IN PLACE CONCRETE PAVERS
116 - LARGE FORMAT LIMESTONE PAVERS
117 - 400 AMP MAIN ELECTRICAL PANEL MOUNTED ON BACK BOARD, SCREEN W/ LANDSCAPE
118 - CUSTOM PAVER INLAY
119 - OUTDOOR SHOWER LOCATION, SEE CIVIL SHEET C.1 FOR REFERENCE
120 - PAVER DRIVEWAY WITH 1' CONCRETE BAND

VICINITY MAP



Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p. 805.544.5672
f. 805.544.5642

ARCHITECT'S STAMP

CONTRACTOR
JP WOODWORKS

CIVIL
ROMANO DESIGN

STRUCTURAL
T&S STRUCTURAL

MECHANICAL
Brummel Mechanical Engineering, LLP

LANDSCAPE

CONSULTANTS STAMP

FOR COUNTY STAMP

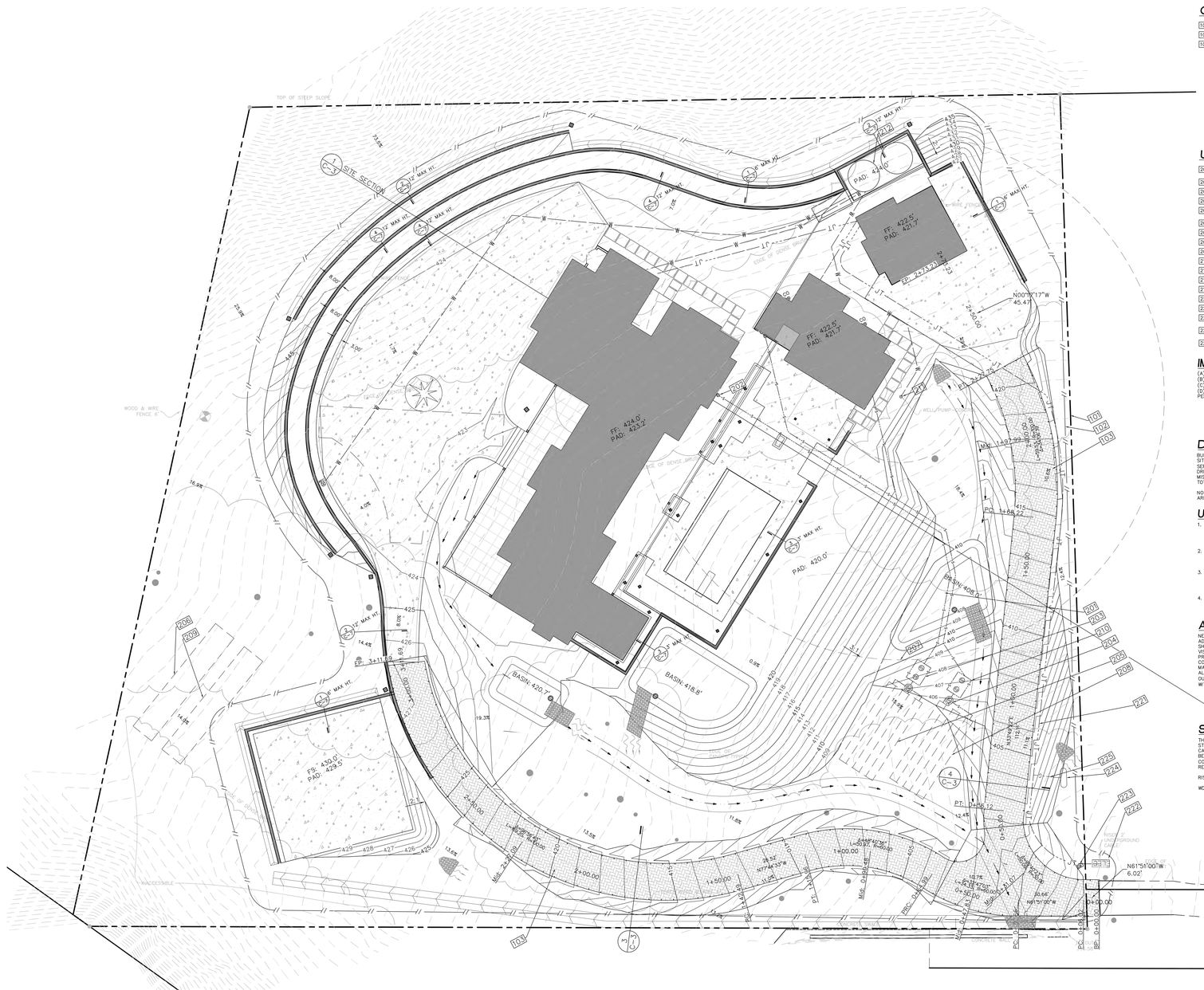
STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

ENLARGED SITE PLAN

No.	Revision	Date
1	MUP SUBMITTAL	07/26/22

Date: JULY 26, 2022

Sheet A1.1



SITE PLAN

CIVIL SITE KEYNOTES

101	PROPERTY BOUNDARY
102	LIMITS OF DISTURBANCE
103	CONCRETE PAVERS DRIVEWAY, 14' MIN. WIDTH, PER CAL FIRE STANDARDS, SEE DRIVEWAY SECTION SHEET C-3

UTILITY KEYNOTES

201	4" PVC SDR35 WASTE LINE TO SEPTIC TANK, 2% MIN. SLOPE, 18" MIN. COVER TYP.
202	CLEANOUTS WHERE WASTEWATER DRAINS EXIT STRUCTURE, TYP.
203	1500 GALLON SEPTIC TANK, SEE DETAIL SHEET C-4
204	5-OUTLET DISTRIBUTION BOX, SEE DETAIL SHEET C-4
205	LEACH FIELD, 100LF OF TRENCH (3 ROWS @ 34') SEE DETAIL SHEET C-4
206	100% LEACH FIELD EXPANSION AREA, MAIN RESIDENCE
207	LEACH FIELD 100' SETBACK FROM WELL
208	LEACH FIELD, 100LF OF TRENCH (3 ROWS @ 34')
209	100% LEACH FIELD EXPANSION AREA, ADU
210	750 GALLON SEPTIC TANK FOR ADU, SEE DETAIL SHEET C-4
211	EXISTING WELL AND PUMP
212	(2) 5,000 GALLON STEEL TANKS, PER DETAIL FP-11 SHT. C-4
213	RESIDENTIAL FIRE CONNECTION PER DETAIL FP-13 SHT. C-4
221	JOINT UTILITY TRENCH PER DETAIL SHT. C-4
222	CONNECT TO EXISTING UTILITY STUBOUTS
223	NEW 320A SERVICE METER ON BACKBOARD, CONTRACTOR TO COORDINATE LOCATION WITH UTILITY COMPANY
224	NEW 250 GALLON PROPANE TANK, CONTRACTOR TO COORDINATE LOCATION WITH GAS PURVEYOR
225	2" PE GAS SUPPLY FROM PROPANE TANK IN JOINT TRENCH

IMPERVIOUS AREAS:

(A)NEW IMPERVIOUS AREA:	35,384 S.F.
(B)REPLACED IMPERVIOUS AREA:	0 S.F.
(C)EXISTING IMPERVIOUS AREA:	0 S.F.
(D)POST-PROJECT IMPERVIOUS AREA:	35,384 S.F.
PERVIOUS AREAS RECEIVING RUNOFF:	28,000 S.F.

DISTURBED AREA SUMMARY:

BUILDING PAD GRADING:	55,000 SF
SITE UTILITY CONNECTIONS:	3,600 SF
SEPTIC/LEACH FIELD:	2,000 SF
DRIVEWAYS:	20,000 SF
MISC:	5,000 SF
TOTAL DISTURBED AREA:	85,600 SF = 1.97 AC.

NOTE: TEMPORARY STAGING, STORAGE, AND STOCKPILE AREAS ARE WITHIN THE MISC. AREA LISTED ABOVE.

UTILITY NOTES:

1. ALL UTILITY CONNECTIONS, TRENCHING, BACKFILL, GRADING AND PAVING WITHIN THE PUBLIC RIGHT OF WAY SHALL CONFORM TO THE PUBLIC IMPROVEMENT STANDARDS OF THE GOVERNING AGENCY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY ENCROACHMENT PERMITS NECESSARY TO PERFORM THE WORK WITHIN THE PUBLIC RIGHT OF WAY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING UTILITY CONNECTIONS WITH THE UTILITY COMPANIES PROVIDING SERVICES FOR THE PROJECT AS NOTED ON THE PLANS.
4. ALL UTILITY WORK SHALL COMPLY WITH THE STANDARDS AND REQUIREMENTS OF THE CORRESPONDING UTILITY COMPANY.

ADDRESS IDENTIFICATION

NEW AND EXISTING BUILDINGS SHALL HAVE APPROVED ADDRESS IDENTIFICATION. THE ADDRESS IDENTIFICATION SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUNDS AND BE REFLECTIVE MATERIAL. ADDRESS NUMBERS SHALL BE ARABIC OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE A MINIMUM OF 6" TALL WITH A STROKE WIDTH OF 1/2".

STORMWATER POLLUTION PREVENTION:

THE PROJECT DISTURBANCE EXCEEDS ONE ACRE AND IS REQUIRED TO HAVE A STORM WATER POLLUTION PREVENTION PLAN IN CONFORMANCE WITH THE CALIFORNIA CONSTRUCTION GENERAL PERMIT OF THE NPDES. THE SWPPP SHALL BE KEPT ON PROJECT SITE AND SHALL BE AVAILABLE AT ALL TIMES DURING CONSTRUCTION. A QUALIFIED STORMWATER PRACTITIONER (QSP) SHALL BE RETAINED TO IMPLEMENT THE SWPPP.

RISK LEVEL: 2

WDID#: 3 40C398615

VICINITY MAP

N.T.S.

SITE DESCRIPTION:

APN: 044-501-033
LEGAL DESC: LOT 5, TRACT 1442 (14-MB-56)
LOT SIZE: 2.5 AC.
STORMWATER MANAGEMENT AREA: OUTSIDE MS4, SWCP/PCR'S NOT REQUIRED

CIVIL SCOPE OF WORK:

THE FOLLOWING IS A GENERAL DESCRIPTION OF CIVIL IMPROVEMENTS CONTAINED ON THESE PLANS. SEE COVER SHEET FOR PROJECT SCOPE OF WORK STATEMENT.

GRADING SCOPE (SEE GRADING PERMIT PLANS PMTG2022-00039)
PRIMARY RESIDENCE PAD, ACCESSORY STRUCTURE PADS, DRIVEWAYS
- ESTIMATED VOLUMES:
  - CUT: 9,700 C.Y.
  - FILL: 1,800 C.Y.
  - NET: 7,900 C.Y. EXPORT
- MAX CUT DEPTH: 30'
- MAX FILL DEPTH: 10'
- RETAINING WALLS: 1,030 LINEAR FEET, 12' MAX RETAINED HEIGHT

DRAINAGE SCOPE (SEE GRADING PERMIT PLANS PMTG2022-00039)
MINOR DRAINAGE AROUND NEW RESIDENCE INCLUDING SUBSURFACE ROOF DRAINS, SWALES, AND DISSIPATORS. (3) SURFACE DETENTION BASINS TOTALING 2,675 CF CAPACITY.

SCOPE OF UTILTIES (CONNECT TO EXISTING STUBBED TO SITE)
1. ELECTRICITY (PG&E)
2. PROPANE
3. TELEPHONE (ATT)
4. CABLE (CHARTER)
5. PRIVATE WELL
6. PRIVATE SEPTIC (OWTS)

SCOPE OF PUBLIC IMPROVEMENTS
NONE

EROSION CONTROL SCOPE
SEE EROSION CONTROL PLAN

EXPORT SOILS:

SOILS IN THE AMOUNT OF 7,900 CUBIC YARDS ARE TO BE EXPORTED TO COLD CANYON LANDFILL, INC., LOCATED AT 2268 CARPENTER CANYON ROAD, SAN LUIS OBISPO, CA 93401.

SEPARATE PERMITS:

A SEPARATE MAJOR GRADING PERMIT (PMTG2022-00039) IS REQUIRED FOR THIS PROJECT.

ITEMS SHOWN ON THESE PLANS THAT ARE WITHIN THE SCOPE OF MAJOR GRADING IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND SHALL BE CONSTRUCTED BY SEPARATE PERMIT.

PRE-CONSTRUCTION MEETING:

A PRE-CONSTRUCTION MEETING IS REQUIRED WITH THE INSPECTOR TO GO OVER SPECIAL INSPECTIONS REPORTING REQUIREMENTS, EROSION & SEDIMENTATION CONTROL, AND SWPPP. CALL MICHELLE FREEMAN, (805)781-5707.

GENERAL NOTES:

1. THIS SET OF PLANS TO BE ON JOB SITE AT ALL TIMES DURING CONSTRUCTION. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED PLANS. NO CHANGES OR REVISIONS TO THE APPROVED PLANS OR SPECIFICATIONS SHALL BE PERMITTED UNLESS SUBMITTED TO AND APPROVED BY THE BUILDING OFFICIAL. THE ISSUANCE OF A PERMIT SHALL NOT PREVENT THE BUILDING OFFICIAL FROM REQUIRING THE CORRECTION OF ERRORS OR OMISSIONS FROM THE APPROVED PLANS AND SPECIFICATIONS.
2. PLANS AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE 2019 CALIFORNIA BUILDING CODE AND THE SLO COUNTY ORDINANCE, 2019 CALIFORNIA ENERGY CODE.
3. ALL CONTRACTORS AND SUB-CONTRACTORS MUST HAVE ON FILE WITH THE BUILDING DEPARTMENT, A LIST OF ALL SUCH CONTRACTORS AND SUB-CONTRACTORS WITH APPROPRIATE CURRENT BUSINESS LICENSE NUMBERS.
4. THE ISSUANCE OR GRANTING OF A PERMIT OR APPROVAL OF PLANS, SPECIFICATIONS AND COMPUTATIONS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE CODES OR OF ANY OF THIS CODE OR OTHER ORDINANCES OF THIS JURISDICTION SHALL NOT BE VALID.
5. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEERING REPORT SL12188-1 DATED DECEMBER 1, 2021 PREPARED BY GEOSOLUTIONS.

DIRECTORY:

OWNER:
JIM AND JILL STARKOVICH
566 SOMBRILLO
ARROYO GRANDE, CA 93420
805.779.0977

ARCHITECT:
ISAMAN DESIGN, INC.
2420 BROAD ST
SAN LUIS OBISPO, CA 93401
CONTACT: BILL ISAMAN
805.544.5672

CIVIL ENGINEER:
ROMANO DESIGN
TIM ROMANO
805.550.5910

SOILS ENGINEER / INSPECTIONS:
GEOSOLUTIONS
PATRICK MCNEILL
805.543.8539

GENERAL CONTRACTOR:
JP WOODWORKS
JASON PETERSEN
805.748.2976

SURVEY INFORMATION:

THE SURVEY USED AS A BASIS FOR THESE PLANS WAS PROVIDED BY MBS LAND SURVEYS DATED MAY 20, 2021.

THE BASIS OF BEARINGS FOR THIS PROJECT IS THE EAST LINE OF THE PROPERTY, BEARING SOUTH 26°07'20" WEST.

THE BENCH MARK FOR THIS PROJECT IS NGS BENCH MARK "T-65", PID FV0673, BEING A BRASS CAP IN CONCRETE POST, NORTH OF THE INTERSECTION OF PRINTZ ROAD AND CORBETT CANYON ROAD, 7.4 FEET NE OF THE SE END OF THE NE GUARDRAIL OF CONCRETE BRIDGE NO. 49-110 OVER A CREEK, 0.6 SE OF TELEPHONE POLE ABOUT 1' LOWER THAN THE ROAD. ELEVATION=143.90'.

LOCAL BENCHMARK CP#1006, ELEVATION=446.12.

PAD CERTIFICATION:

THE PROJECT SOILS ENGINEER TO PROVIDE A LETTER STATING THAT GRADING PERFORMED IS IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS AND IS SUITABLE TO SUPPORT THE INTENDED STRUCTURE.

REPORTS REQUIRED:

PRIOR TO PROJECT COMPLETION, THE ENGINEER OF RECORD SHALL PROVIDE A FINAL REPORT STATING THE WORK PERFORMED IS IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS.

ABBREVIATIONS:

THE ABBREVIATIONS USED ON THESE PLANS GENERALLY CONFORM TO THE STANDARD ABBREVIATIONS CONTAINED IN THE COUNTY OF SAN LUIS OBISPO PUBLIC IMPROVEMENT STANDARDS. IN ADDITION, THE FOLLOWING ABBREVIATIONS MAY APPEAR:

(A)	TO BE ABANDONED IN PLACE
(D)	DEMOLISH, TO BE DEMOLISHED
(E)	EXISTING
(F)	FUTURE, NOT A PART OF PROJECT SCOPE
(M)	MEASURED
(N)	NEW
(P)	PROPOSED
(R)	RECORD INFORMATION
(V)	CONTRACTOR TO VERIFY

SHEET INDEX:

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

LICENSED ARCHITECT
WILLIAM D. ISAMAN
No. C-34160
REN. 03/31/2023
STATE OF CALIFORNIA
ARCHITECT'S STAMP

JP WOODWORKS
FRAMING.FENCING.FINISH.
805.748.2976
License #877946
CONTRACTOR

ROMANO DESIGN
CIVIL

I&S STRUCTURAL
STRUCTURAL

Brummel Mechanical Engineering, LLP
MECHANICAL

WALA
LANDSCAPE

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY ROMANO
No. C67434
10/18/2022
Exp. 12/31/22
CIVIL
STATE OF CALIFORNIA
CONSULTANT'S STAMP

FOR COUNTY STAMP

STARKOVICH RESIDENCE

LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

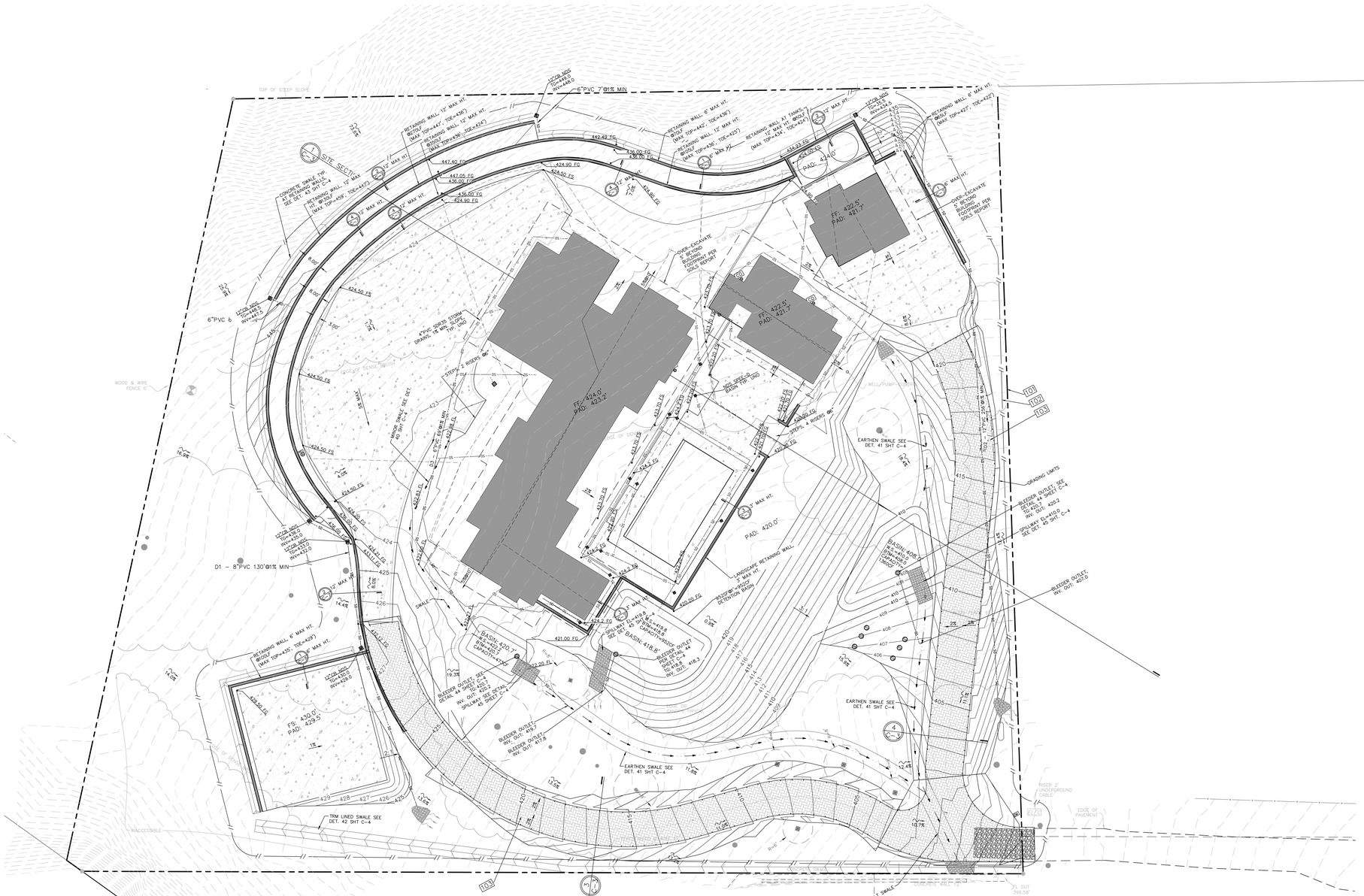
MUP CIVIL SITE PLAN

No.	Revision	Date

Date: October 18, 2022

Sheet

C-0



GRADING AND DRAINAGE PLAN

GRADING NOTES:

1. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEERING REPORT SL12188–1 DATED DECEMBER 1, 2021 AND PREPARED BY GEOSOLUTIONS.
2. ALL FILL SHALL BE RECOMPACTED TO A MINIMUM OF NINETY PERCENT COMPACTION, OR TO THE MINIMUM REQUIRED BY THE GEOTECHNICAL ENGINEER, WHICHEVER IS GREATER.
3. VEGETATION AND DUFF SHALL BE REMOVED AND STOCKPILED FROM ALL GRADING AREAS PRIOR TO CUT AND FILL GRADING. DUFF MAY BE INCORPORATED INTO FINISH GRADE MATERIALS AT LANDSCAPE AREAS ONLY.
4. SCARIFY EXISTING SOILS IN AREAS RECEIVING FILL GRADING.
5. BUILDING AREAS SHALL BE OVER–EXCAVATED AND RECOMPACTED TO A DEPTH OF TWO FEET BELOW EXISTING GRADE, 12 INCHES BELOW BOTTOM OF FOOTINGS, TO COMPETENT MATERIAL, OR TWO–THIRDS THE DEPTH OF DEEPEST FILL, TO SATISFACTION OF GEOTECHNICAL ENGINEER PER SOILS REPORT.
6. ALL EXCAVATIONS SHALL BE COMPLETELY BACKFILLED AS SOON AFTER INSPECTION AS PRACTICABLE.
7. A LAYER OF SAND OR FINE GRAVEL SHALL BE PLACED IN ALL SEWER TRENCHES TO PROVIDE A LEVELING AND LAYING BED FOR PIPE. ADEQUATE PRECAUTION SHALL BE TAKEN TO INSURE PROPER COMPACTNESS OF BACKFILL AROUND PIPING WITHOUT DAMAGE TO SUCH PIPING. TRENCHES SHALL BE BACKFILLED IN THIN LAYERS TO TWELVE (12) INCHES (.3 M) ABOVE THE TOP OF THE PIPING WITH CLEAN EARTH WHICH SHALL NOT CONTAIN STONES, BOULDERS, CINDERFILL, FROZEN EARTH, CONSTRUCTION DEBRIS OR OTHER MATERIALS WHICH WOULD DAMAGE OR BREAK THE PIPING OR CAUSE CORROSIVE ACTION. MECHANICAL DEVICES SUCH AS BULLDOZERS, GRADERS, ETC., MAY THEN BE USED TO COMPLETE BACKFILL TO GRADE. FILL SHALL BE PROPERLY COMPACTED. SUITABLE PRECAUTIONS SHALL BE TAKEN TO INSURE PERMANENT STABILITY FOR PIPE LAID IN FILLED OR MADE GROUND.

PAD CERTIFICATION:

1. A SOILS OR CIVIL ENGINEER TO PROVIDE A LETTER STATING THAT GRADING PERFORMED IS IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS AND IS SUITABLE TO SUPPORT THE INTENDED STRUCTURE.

SPECIAL INSPECTIONS AND TESTS OF SOILS

(CBC TABLE 1705.6)

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		X

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

ARCHITECT'S STAMP
WILLIAM D. ISAMAN
No. C-34160
REN. 03/31/2023

CONTRACTOR
JP WOODWORKS

CIVIL
ROMANO DESIGN

STRUCTURAL
I&S STRUCTURAL

MECHANICAL
Brummel Mechanical Engineering, LLP

LANDSCAPE
WALA

CONSULTANT'S STAMP
TIMOTHY ROMANO
No. C67434
10/18/2022
Exp. 12/31/22

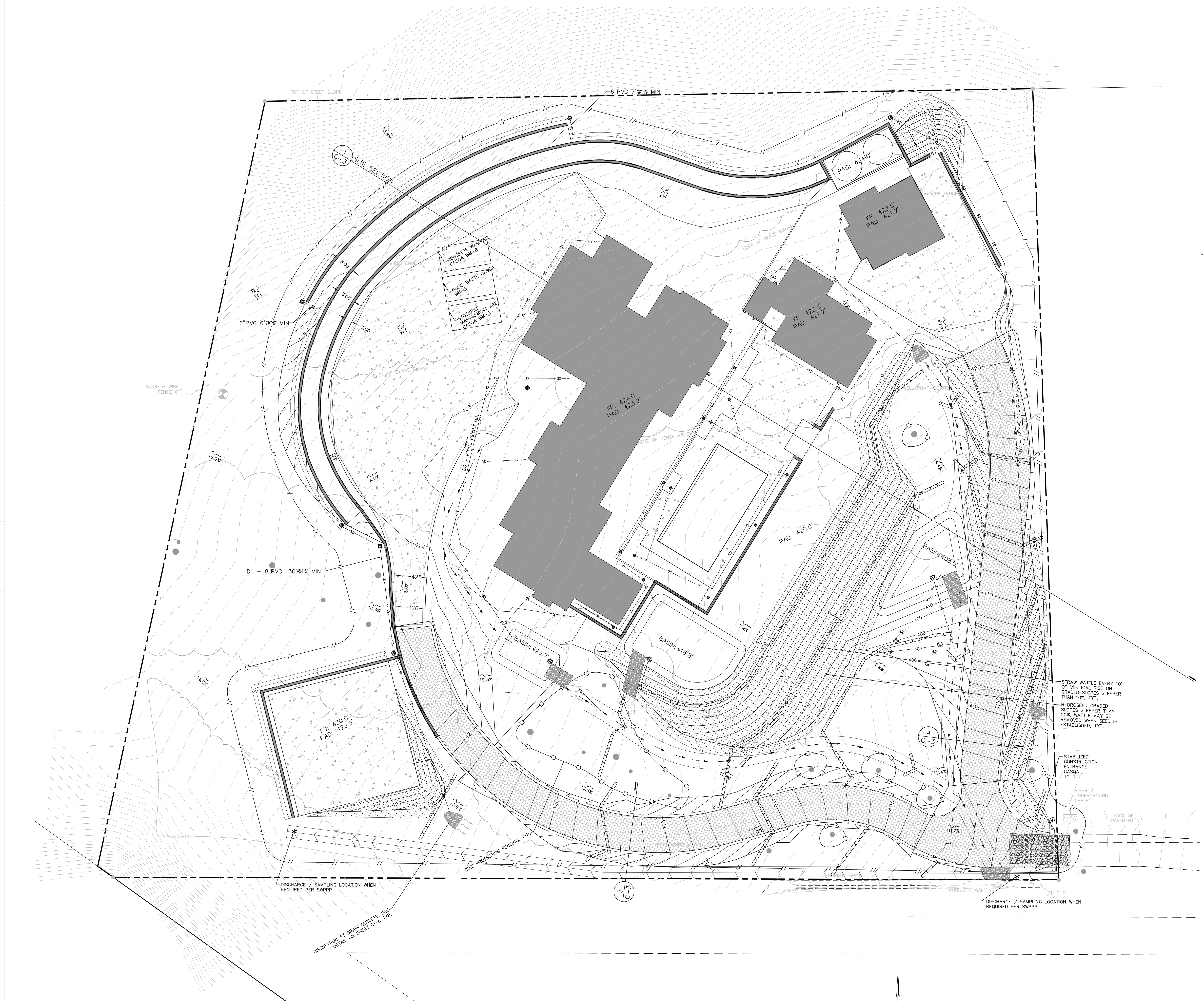
FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA
GRADING & DRAINAGE PLAN

No.	Revision	Date
1	PC#1 REVISIONS	8/11/22

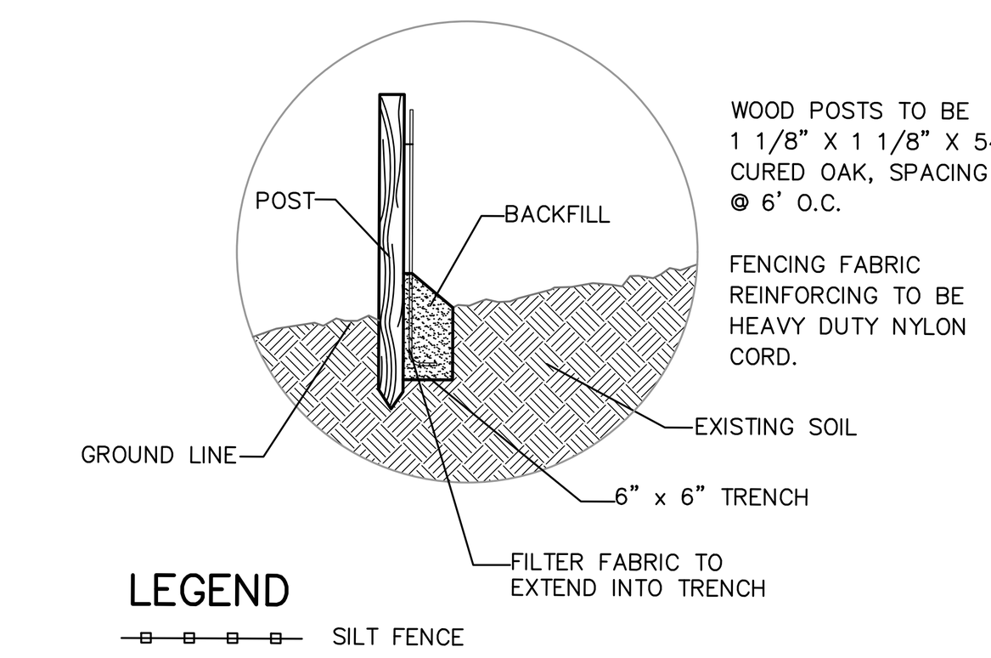
Date: October 18, 2022

Sheet
C-1



EROSION CONTROL PLAN

SCALE: 1" = 15'

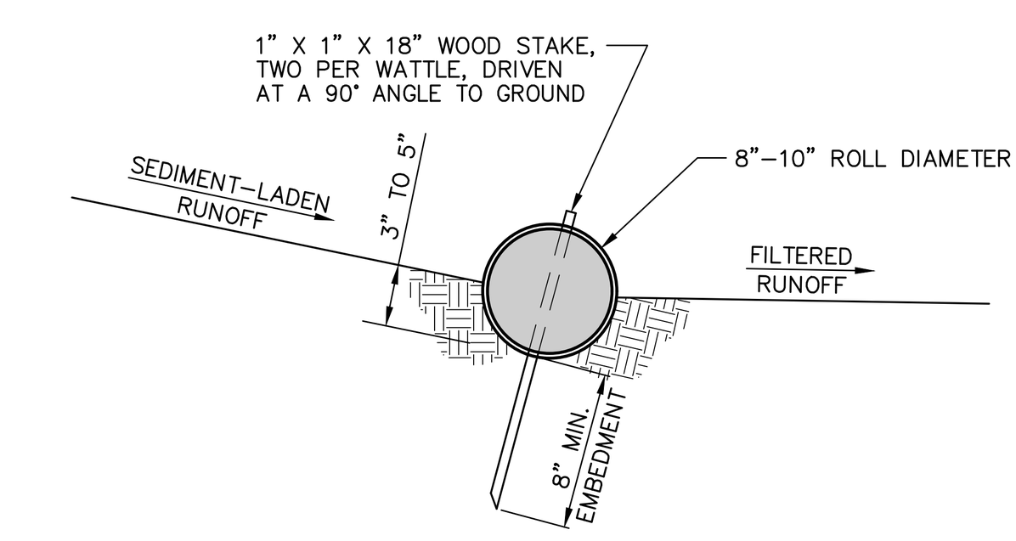


LEGEND

SILT FENCE

SILT FENCE DETAIL

N.T.S.

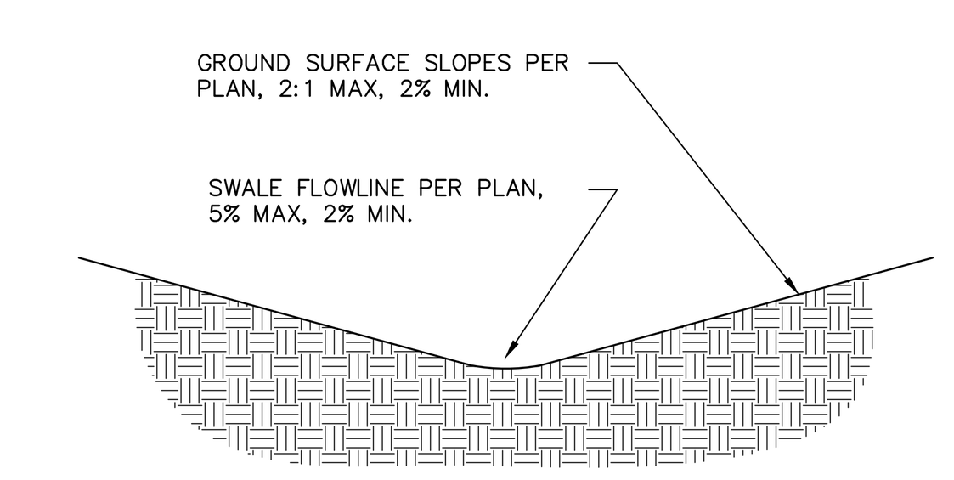


NOTES:

1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" TO 5" DEEP.
2. WATTLES MUST BE PLACED PARALLEL TO GROUND CONTOURS.
3. RUNOFF MUST NOT BE ALLOWED TO TRAVEL BENEATH OR AROUND WATTLE SEDIMENT BARRIERS.

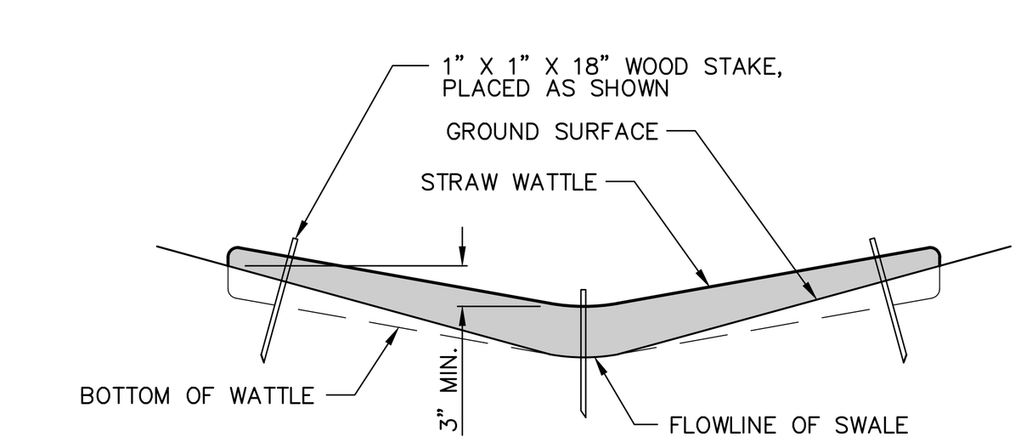
STRAW WATTLE SEDIMENT BARRIER

N.T.S.



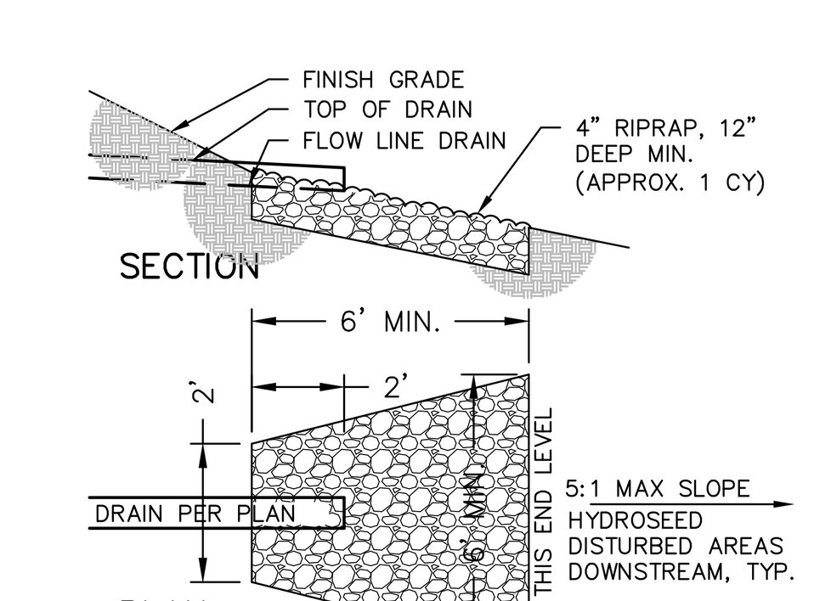
MINOR EARTHEN SWALE

N.T.S.



STRAW WATTLE CHECK DAM

N.T.S.



DISSIPATION AT DRAIN OUTLETS

N.T.S.

EROSION CONTROL NOTES

1. DURING CONSTRUCTION, THE CONTRACTOR MUST POND ALL RUNOFF TO NON–ERODIBLE LOCATIONS THROUGH THE USE OF DIKES TO PREVENT EROSION.
2. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES. NECESSARY MATERIALS SHALL BE AVAILABLE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
3. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY EROSION CONTROL MEASURES AS DIRECTED BY THE ENGINEER OR WATER POLLUTION CONTROL MANAGER (WPCM) TO CONTROL DRAINAGE WHICH HAS BEEN AFFECTED BY GRADING AND/OR TRENCHING OPERATIONS.
4. ALL PROTECTIVE DEVICES DIRECTED TO BE INSTALLED SHALL BE IN PLACE AT THE END OF EACH WORK DAY WHEN THE FIVE DAY RAIN PROBABILITY EXCEEDS 40%.
5. AFTER A RAIN STORM ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK BERMS AND DE–SILTING BASINS AND THE BASINS PUMPED DRY.
6. THE DIRECTOR OF PUBLIC WORKS, OR HIS AUTHORIZED REPRESENTATIVE MAY REQUIRE THE DEVELOPER AT ANY TIME TO INSTALL AND/OR CONSTRUCT ADDITIONAL DRAINAGE STRUCTURES AS NECESSARY TO PREVENT OR CONTROL EROSION.
7. THE EROSION CONTROL DEVICES ON THIS PLAN ARE A GENERAL CONCEPT OF WHAT MAY BE REQUIRED. EROSION CONTROL DEVICES MAY BE RELOCATED, DELETED OR ADDITIONAL ITEMS MAY BE REQUIRED DEPENDING IN THE ACTUAL SOIL CONDITIONS ENCOUNTERED. EROSION CONTROL DEVICES MAY BE PLACED AT THE DISCRETION OF THE ENGINEER OR WPCM OR THE COUNTY.
8. THE COUNTY WILL HOLD THE CONTRACTOR RESPONSIBLE FOR CLEANING ANY EROSION OR DEBRIS SPILLING ONTO A PUBLIC STREET.
9. ALL PROPOSED CONTOURS SHOWN DEPICT THE PROPOSED ROUGH GRADE AND/OR STREET FINISH GRADE. NO CUT OR FILL SLOPES SHALL BE STEEPER THAN 2 FEET HORIZONTAL TO 1 FOOT VERTICAL.
10. ALL SILT FENCING SHALL BE INSTALLED PARALLEL TO GRADING CONTOURS, TO THE EXTENT POSSIBLE.

LEGEND

- THE DISTURBED SLOPES AS SHOWN ON THIS PLAN SHALL BE HYDROSEEDED PER AN APPROVED NATIVE REVEGETATION SEED MIX PRIOR TO FINAL INSPECTION. HYDROSEEDING, SOIL BINDERS, AND STRAW MULCH SHALL BE IN CONFORMANCE WITH CASQA SECTION EC–4 TO EC–6
- TYPICAL SILT FENCE. INSTALLATION AND MAINTENANCE OF SILT FENCE SHALL BE IN CONFORMANCE WITH CASQA SECTION SE–1.
- TYPICAL FIBER ROLL AND/OR (GRAVEL BAGS). INSTALLATION AND MAINTENANCE OF THESE BMP'S SHALL BE IN CONFORMANCE WITH CASQA SECTION SE–5, AND SE–6.

CASQA BMP REFERENCES

EC–1 Scheduling
EC–10 Velocity Dissipation Devices
EC–11 Slope Drains
EC–12 Streambank Stabilization
EC–13 Polyacrylamide
EC–2 Preservation of Existing Vegetation
EC–3 Hydraulic Mulch
EC–4 Hydroseeding
EC–5 Soil Binders
EC–6 Straw Mulch
EC–7 Geotextiles and Mats
EC–8 Wood Mulching
EC–9 Earth Dikes and Drainage Swales
SE–1 Silt Fence
SE–10 Storm Drain Inlet Protection
SE–11 Chemical Treatment
SE–2 Sediment Basin
SE–3 Sediment Trap
SE–4 Check Dams
SE–5 Fiber Rolls
SE–6 Gravel Bag Berm
SE–7 Street Sweeping and Vacuuming
SE–8 Sandbag Barrier
SE–9 Straw Bale Barrier
TR–1 Stabilized Construction Entrance/Exit
TR–2 Stabilized Construction Roadway
TR–3 Entrance/Outlet Tire Wash
WE–1 Wind Erosion Control
NS–1 Water Conservation Practices
NS–10 Vehicle & Equipment Maintenance
NS–11 Pile Driving Operations
NS–12 Concrete Curing
NS–13 Concrete Finishing
NS–14 Material Over Water
NS–15 Demoltion Adjacent to Water
NS–16 Temporary Batch Plants
NS–2 Dewatering Operations
NS–3 Paving and Grinding Operations
NS–4 Temporary Stream Crossing
NS–5 Clear Water Diversion
NS–6 Illicit Connection/Discharge
NS–7 Potable Water/Irrigation
NS–8 Vehicle and Equipment Cleaning
NS–9 Vehicle and Equipment Fueling
WM–1 Material Delivery and Storage
WM–10 Liquid Waste Management
WM–2 Material Use
WM–3 Stockpile Management
WM–4 Spill Prevention and Control
WM–5 Solid Waste Management
WM–6 Hazardous Waste Management
WM–7 Contaminated Soil Mangement
WM–8 Concrete Waste Management
WM–9 Sanitary/Septic Waste Management

DUST MITIGATION MEASURES

1. REDUCE THE AMOUNT OF THE DISTURBED AREA WHERE POSSIBLE.
2. USE OF WATER TRUCKS OR SPRINKLER SYSTEMS IN SUFFICIENT QUANTITIES TO PREVENT AIRBORNE DUST FROM LEAVING THE SITE. INCREASED WATERING FREQUENCY WOULD BE REQUIRED WHENEVER WIND SPEEDS EXCEED 15 MPH. RECLAIMED (NON–POTABLE) WATER SHOULD BE USED WHENEVER POSSIBLE.
3. ALL DIRT STOCKPILE AREAS SHOULD BE SPRAYED DAILY AS NEEDED.
4. PERMANENT DUST CONTROL MEASURES IDENTIFIED IN THE APPROVED PROJECT RE–VEGETATION AND LANDSCAPE PLANS SHOULD BE IMPLEMENTED AS SOON AS POSSIBLE FOLLOWING COMPLETION OF ANY SOIL DISTURBING ACTIVITIES.
5. EXPOSED GROUND AREAS THAT ARE PLANNED TO BE REWORKED AT DATES GREATER THAN ONE MONTH AFTER INITIAL GRADING SHOULD BE SOWN WITH A FAST–GERMINATING NATIVE GRASS SEED AND WATERED UNTIL VEGETATION IS ESTABLISHED.
6. ALL DISTURBED SOIL AREAS NOT SUBJECT TO RE–VEGETATION SHOULD BE STABILIZED USING APPROVED CHEMICAL SOIL BINDER, JUTE NETTING, OR OTHER METHODS PROVIDED BY THE WPCM.
7. ALL ROADWAYS, DRIVEWAYS, SIDEWALKS, ETC, TO BE PAVED SHOULD BE COMPLETE AS SOON AS POSSIBLE. IN ADDITION, BUILDING PADS SHOULD BE LAID AS SOON AS POSSIBLE AFTER GRADING UNLESS SEEDING OR SOIL BINDERS ARE USED.
8. VEHICLE SPEED FOR ALL CONSTRUCTION VEHICLES SHALL NOT EXCEED 15 MPH ON ANY UNPAVED SURFACE AT THE CONSTRUCTION SITE.
9. ALL TRUCKS HAULING DIRT, SAND, SOIL, OR OTHER LOOSE MATERIALS ARE TO BE COVERED OR SHOULD MAINTAIN AT LEAST TWO FEET OF FREEBOARD (MINIMUM VERTICAL DISTANCE BETWEEN TOP OF LOAD AND TOP OF TRAILER) IN ACCORDANCE WITH CVC SECTION 23114.
10. INSTALL WHEEL WASHERS WHERE VEHICLES ENTER AND EXIT UNPAVED ROADS ONTO STREETS, OR WAS OFF TRUCKS AND EQUIPMENT LEAVING THE SITE.
11. SWEEP STREETS AT THE END OF EACH DAY IF VISIBLE SOIL MATERIAL IS CARRIED ONTO ADJACENT PAVED ROADS. WATER SWEEPERS WITH RECLAIMED WATER SHOULD BE USED WHERE FEASIBLE.
12. THE CONTRACTOR OR BUILDER SHALL DESIGNATE A PERSON OR PERSONS TO MONITOR THE DUST CONTROL PROGRAM AND TO ORDER INCREASED WATERING, AS NECESSARY, TO PREVENT TRANSPORT OF DUST OFF SITE.
13. ADDITIONAL WATERING TO THOSE MENTIONED ABOVE SHALL TAKE PLACE WHEN WINDS IN THE AREA EXCEED 15 MPH.

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

LICENSED ARCHITECT · WILLIAM D. ISAMAN · No. C-34160 · REN. 03/31/2023 · STATE OF CALIFORNIA — ARCHITECT'S STAMP

JP WOODWORKS — CONTRACTOR

ROMANO DESIGN — CIVIL

T&S STRUCTURAL — STRUCTURAL

Brummel Mechanical Engineering, LLP — MECHANICAL

LANDSCAPE

REGISTERED PROFESSIONAL ENGINEER · TIMOTHY ROMANO · No. C67434 · 10/18/2022 · Exp. 12/31/22 · CIVIL · STATE OF CALIFORNIA — CONSULTANT'S STAMP

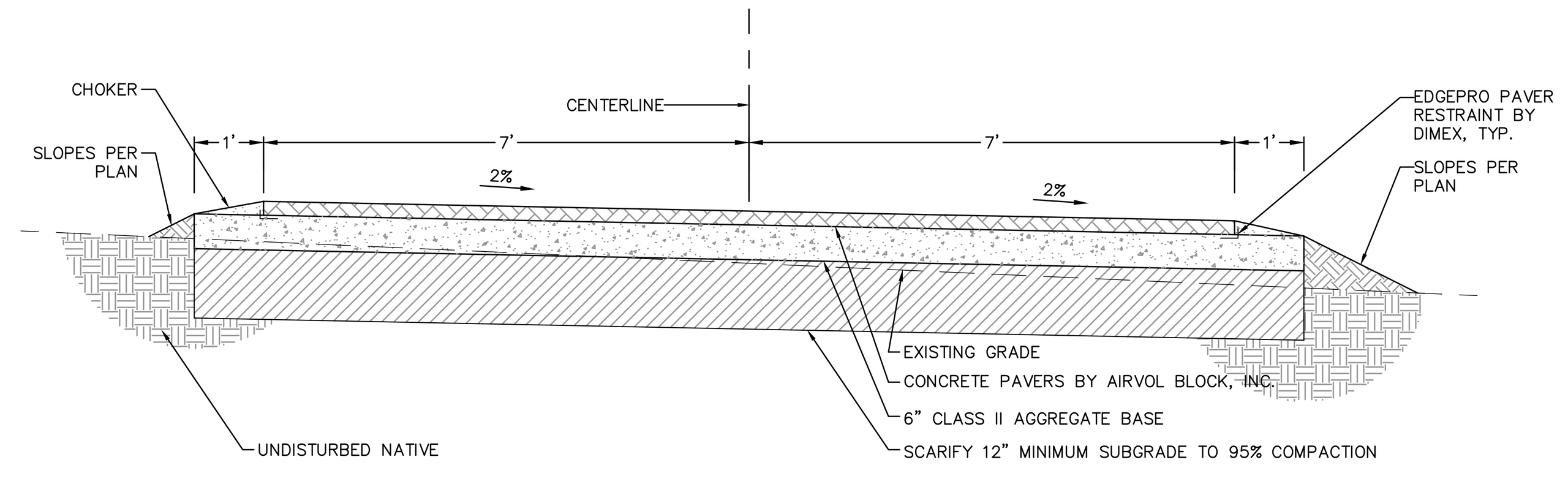
FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA
EROSION CONTROL PLAN

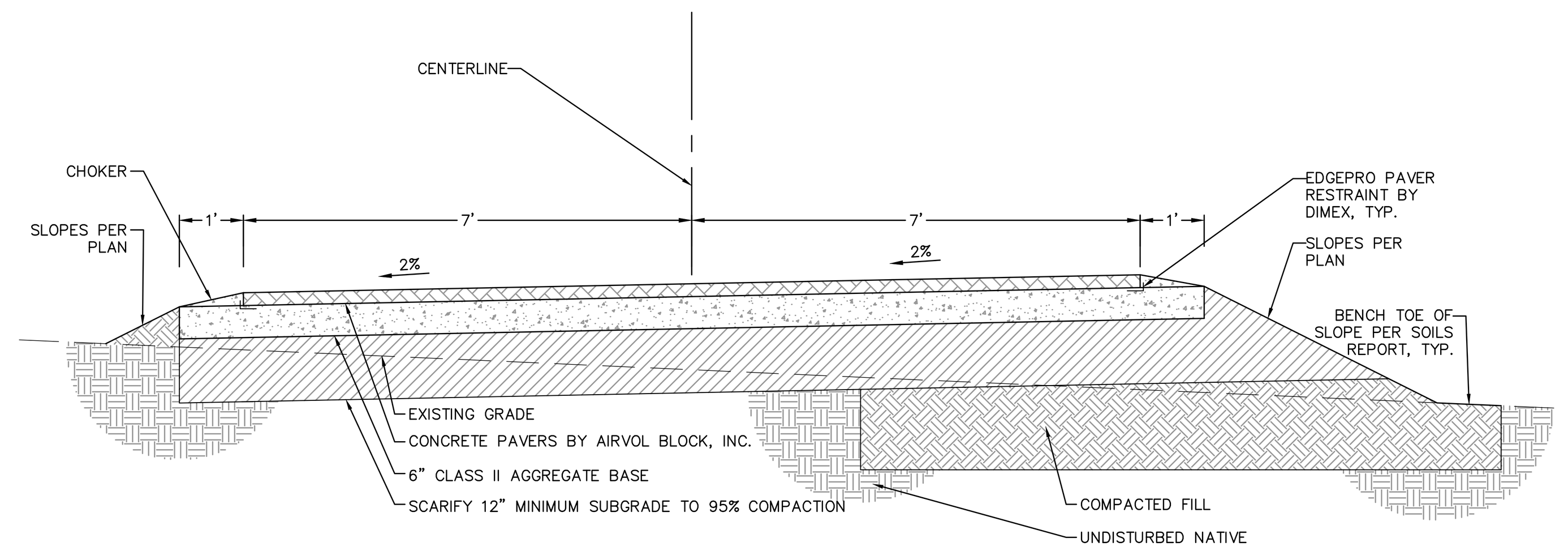
No.	Revision	Date
1	PC#1 REVISIONS	8/11/22

Date: October 18, 2022

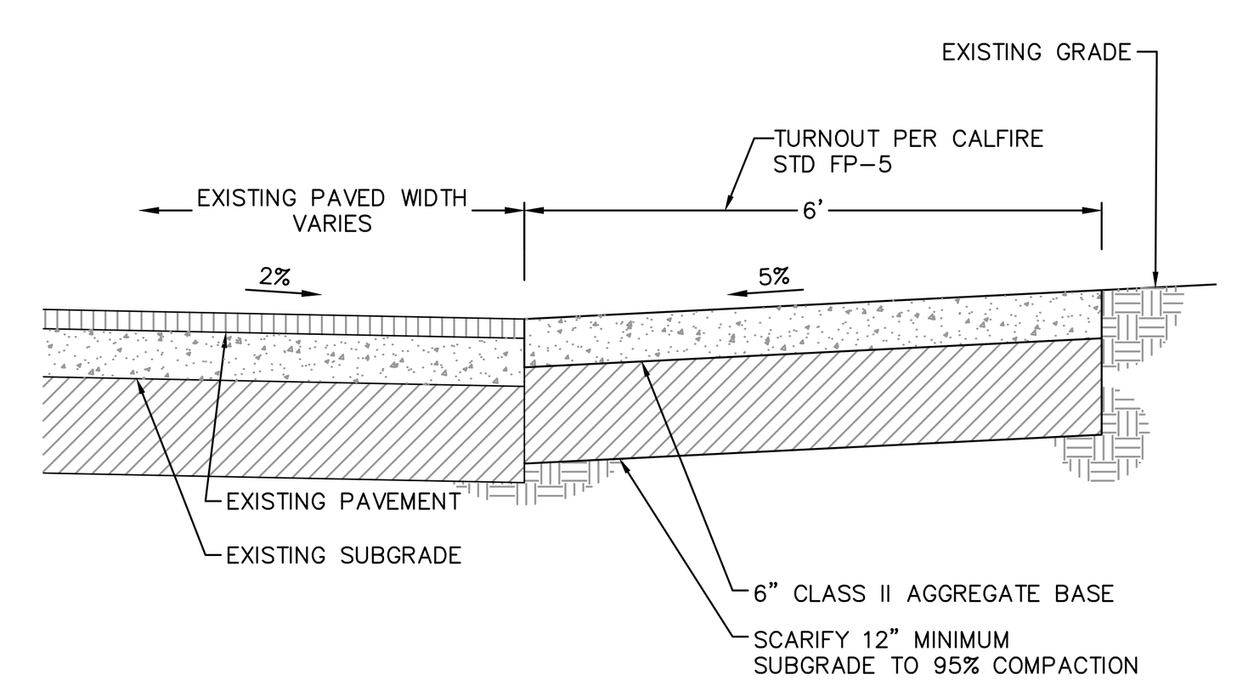
Sheet C-2



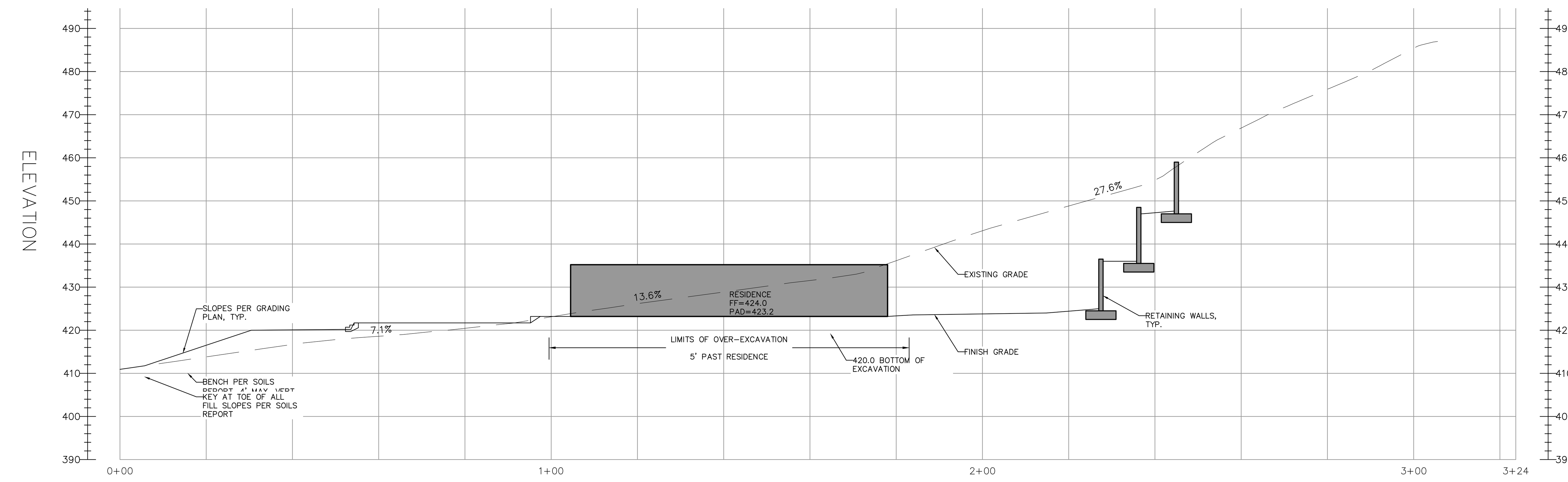
3 C-3 MAIN DRIVEWAY SECTION



4 C-3 ADU DRIVEWAY SECTION

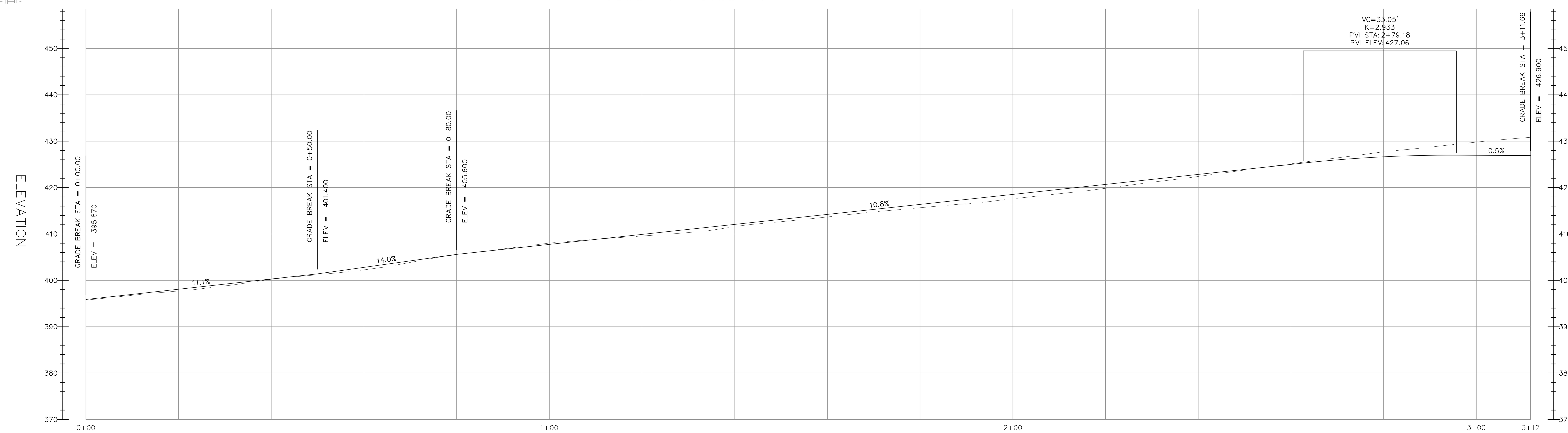


5 C-3 TURNOUT SECTION AT COUGAR CREEK

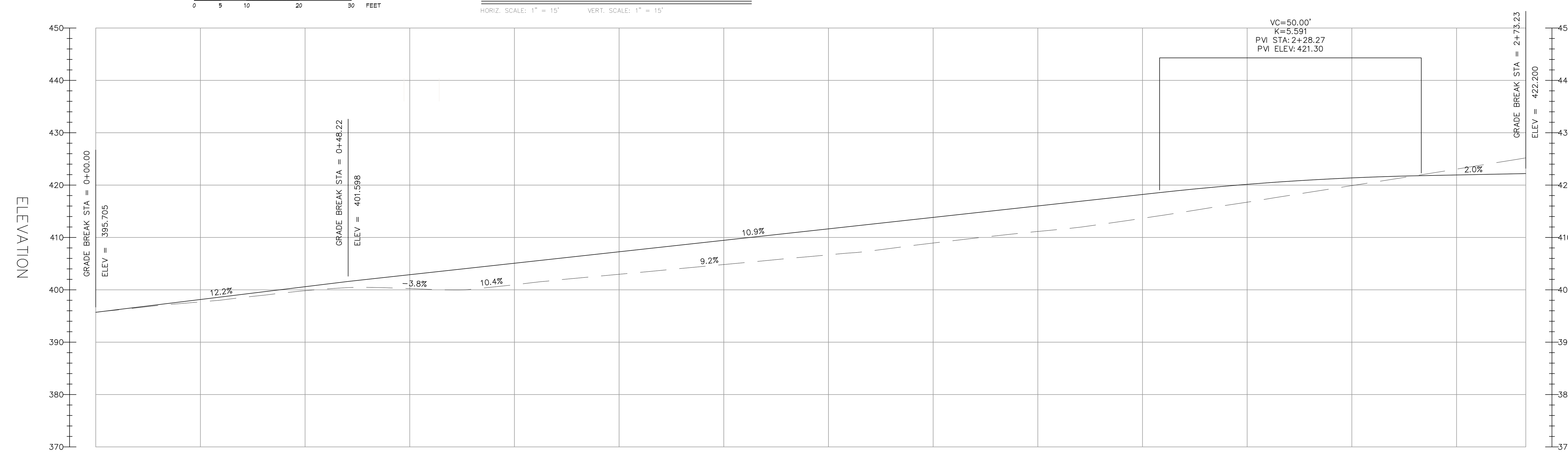


SITE SECTION

STATION



MAIN DRIVEWAY



ADU DRIVEWAY

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p. 805.544.5672
f. 805.544.5642

LICENSED ARCHITECT WILLIAM D. ISAMAN No. C-34160 REN. 03/31/2023 STATE OF CALIFORNIA

ARCHITECT'S STAMP

CONTRACTOR

ROMANO DESIGN

CIVIL

STRUCTURAL

Brummel Mechanical Engineering, LLP

MECHANICAL

LANDSCAPE

REGISTERED PROFESSIONAL ENGINEER No. C67434 Exp. 12/31/22 CIVIL STATE OF CALIFORNIA

CONSULTANT'S STAMP

FOR COUNTY STAMP

STARKOVICH RESIDENCE

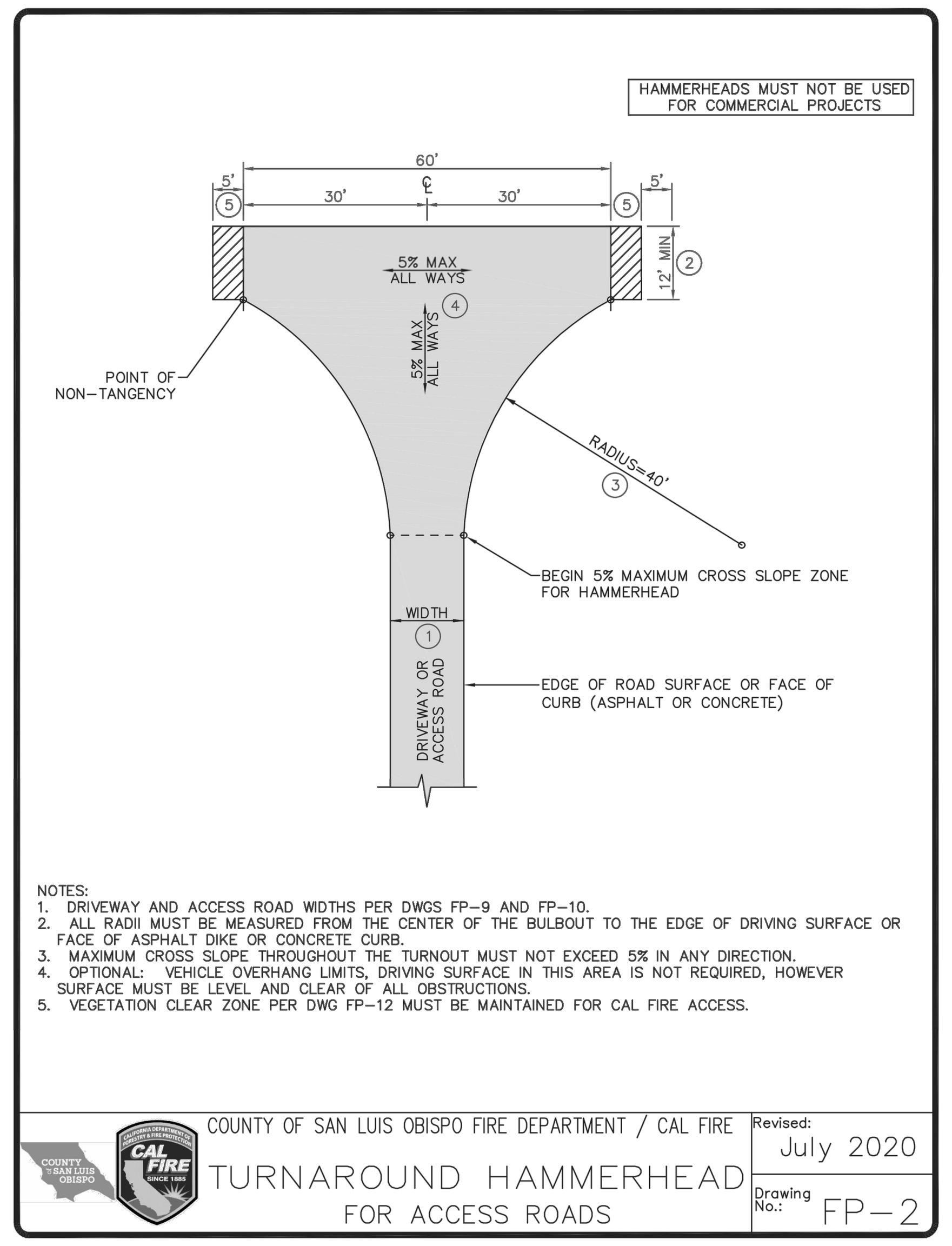
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

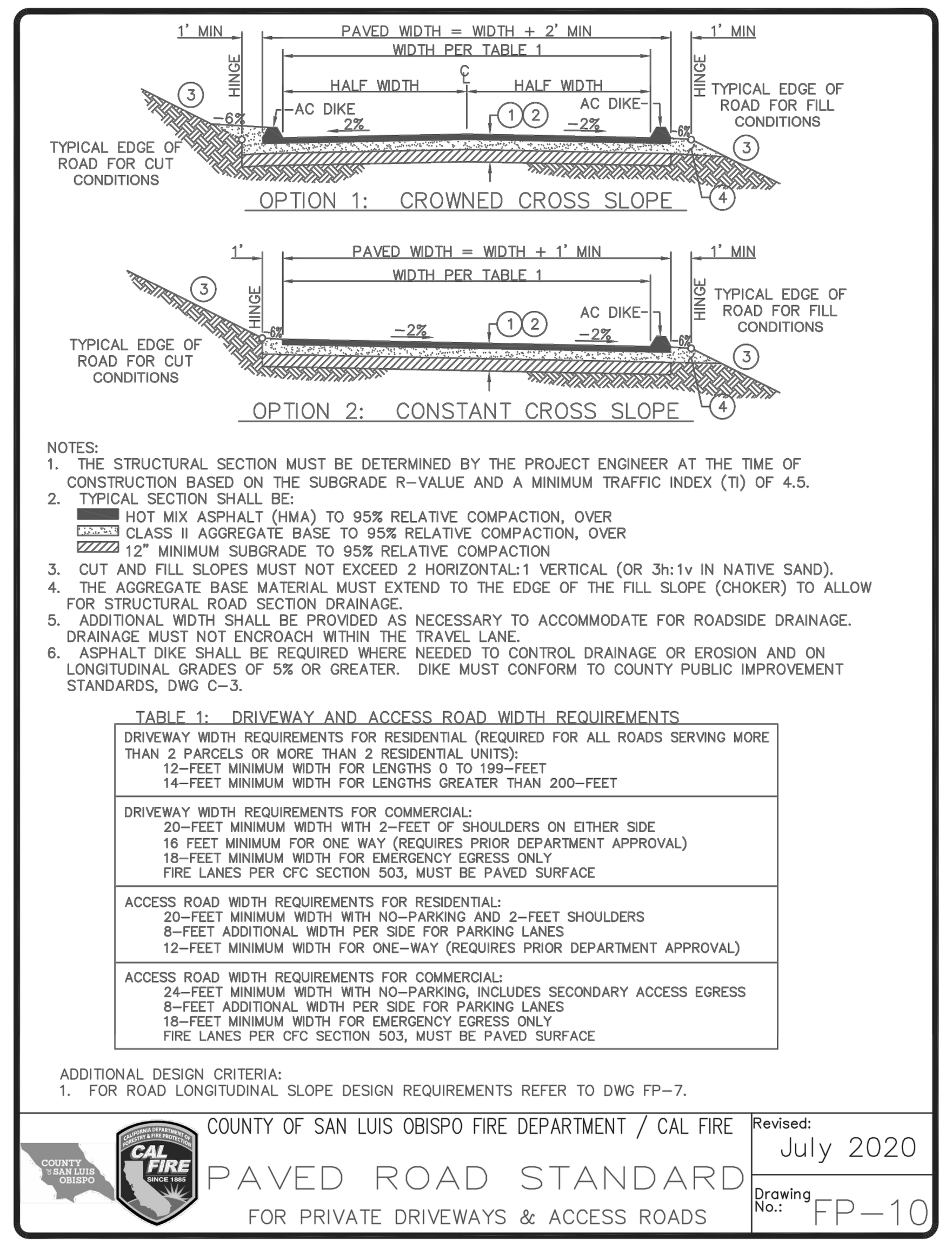
SECTIONS AND PROFILES

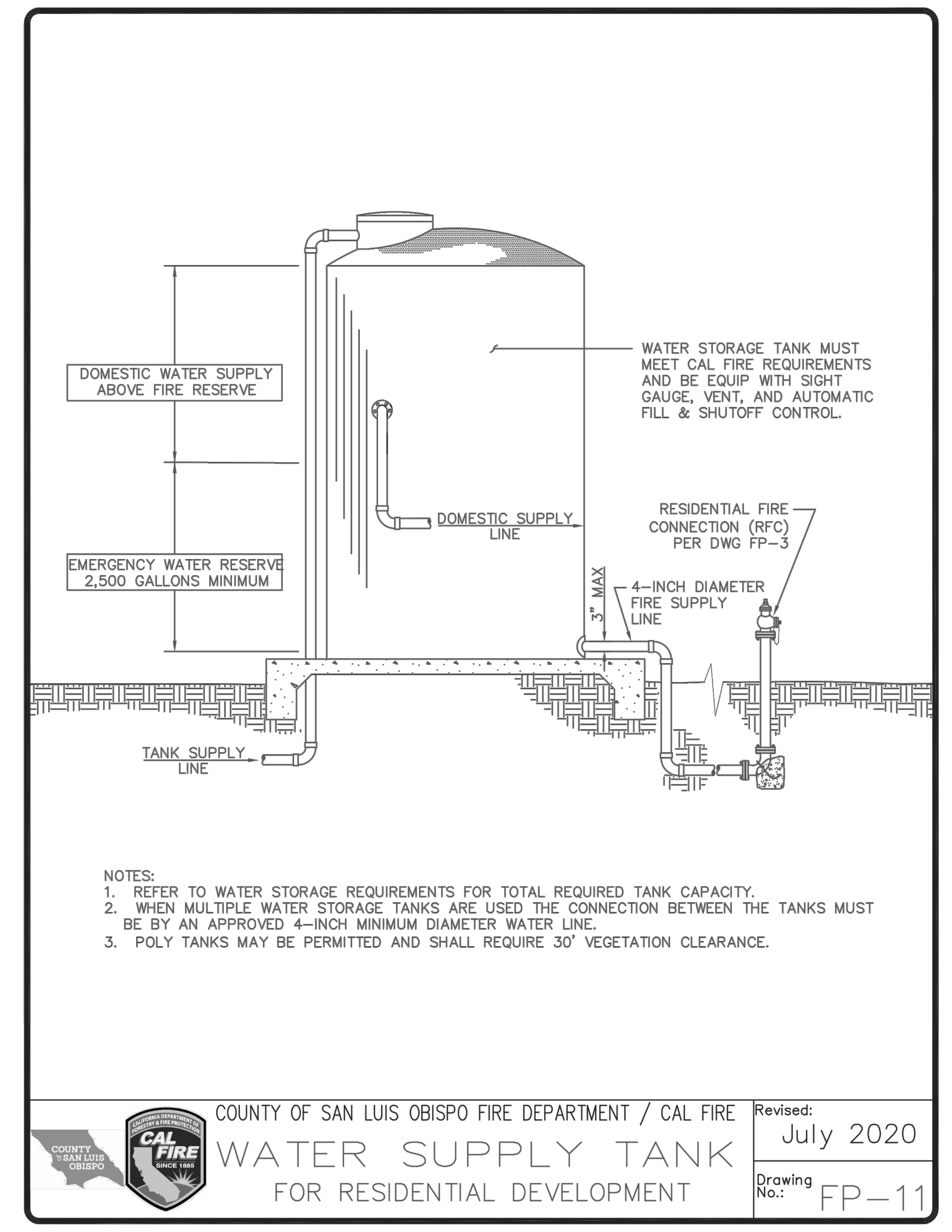
No.	Revision	Date
1	PC#1 REVISIONS	8/11/22

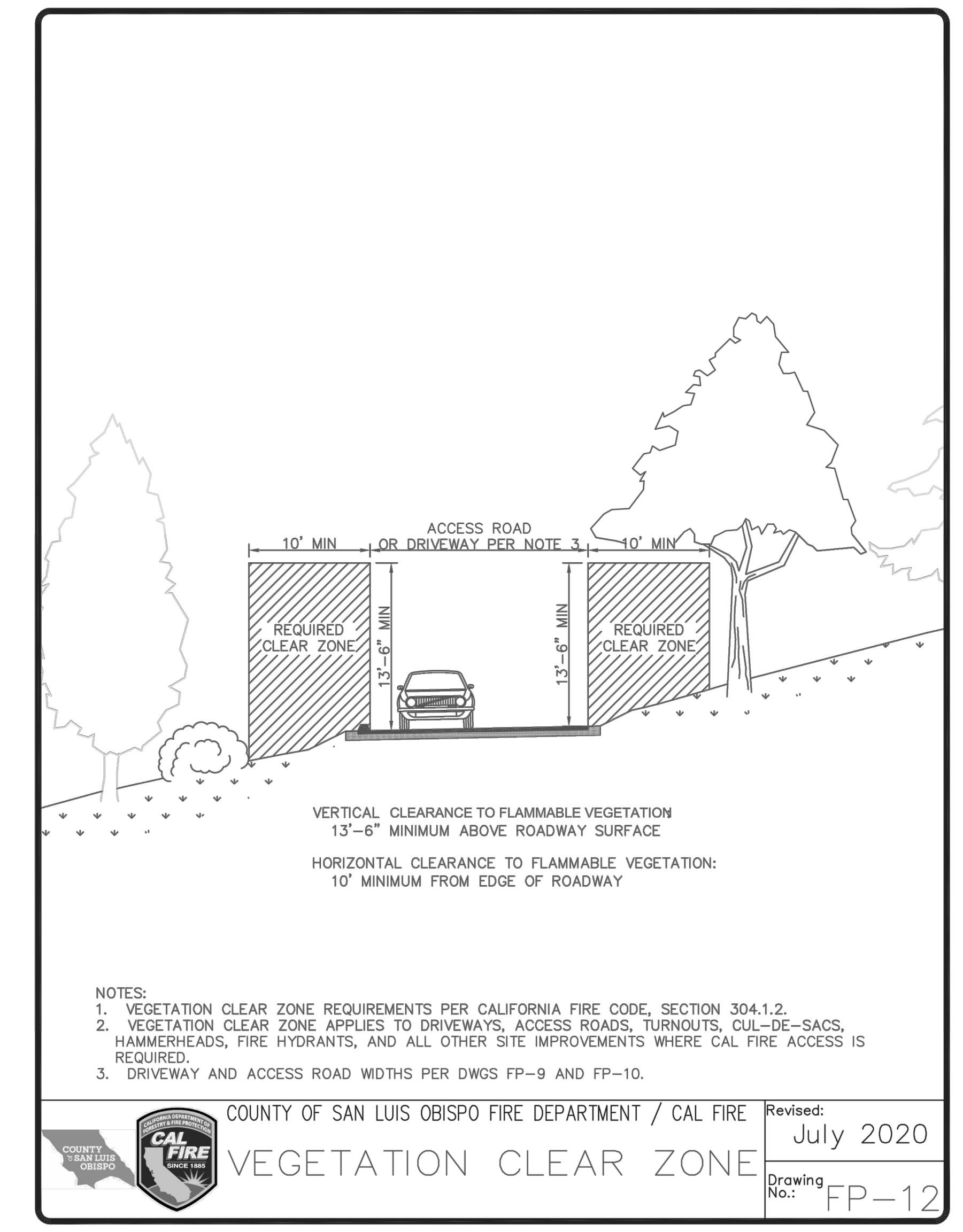
Date October 18, 2022

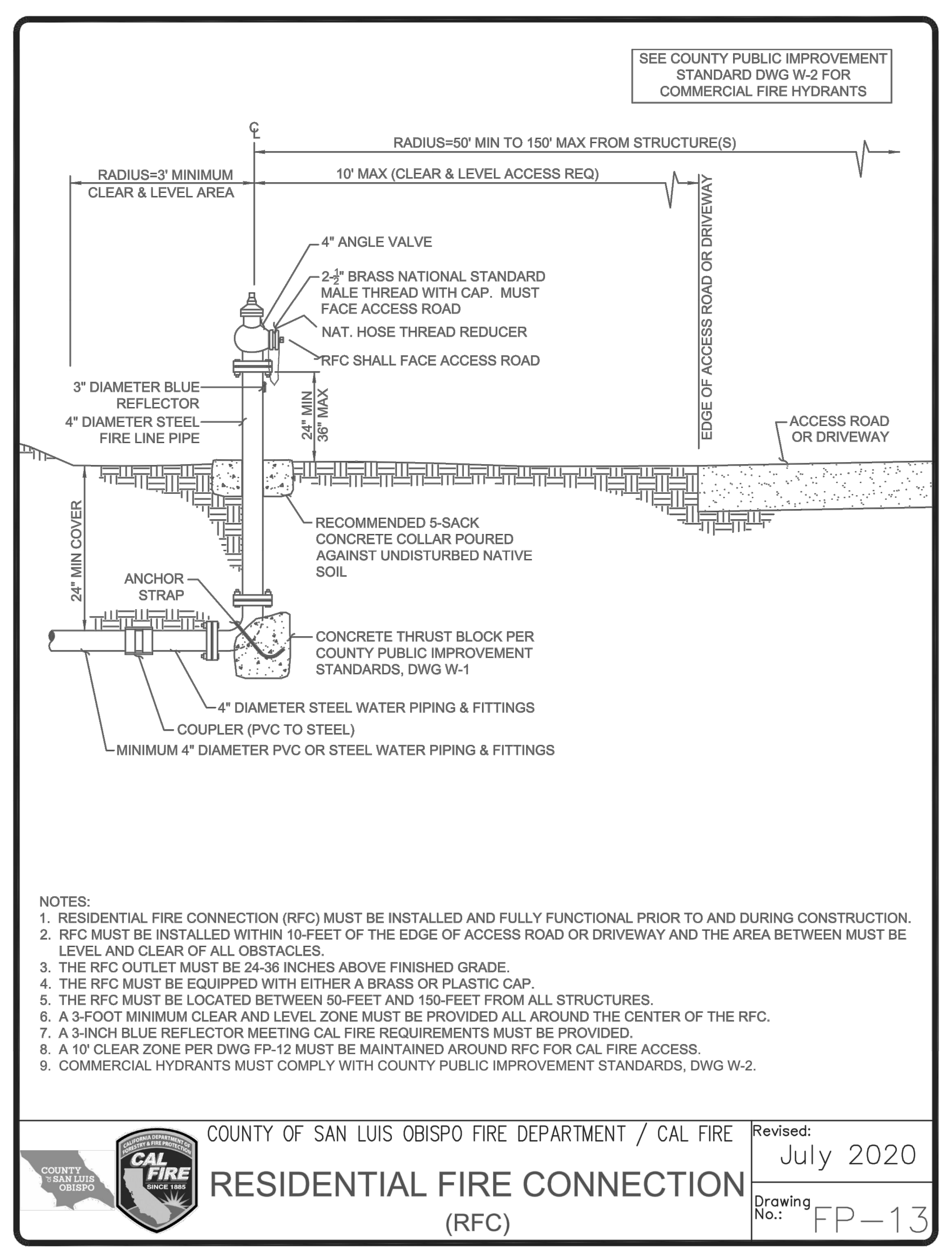
Sheet C-3

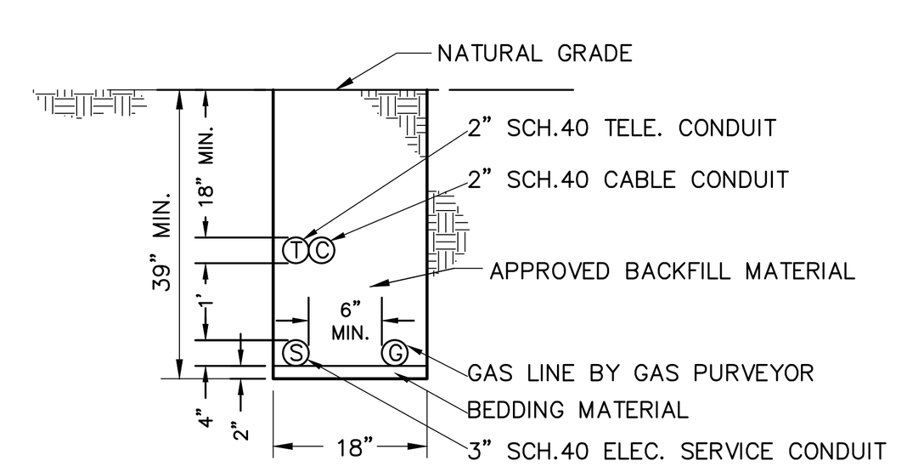




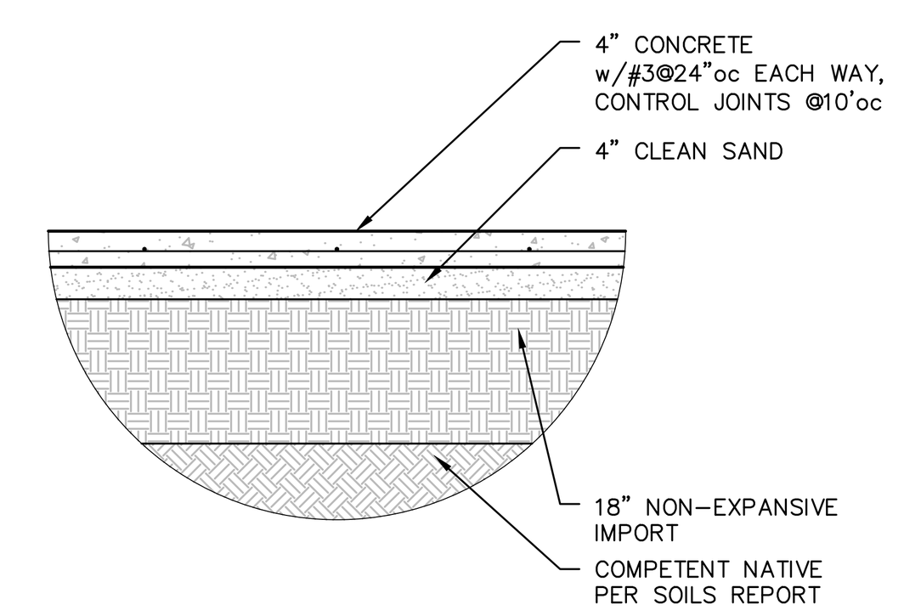




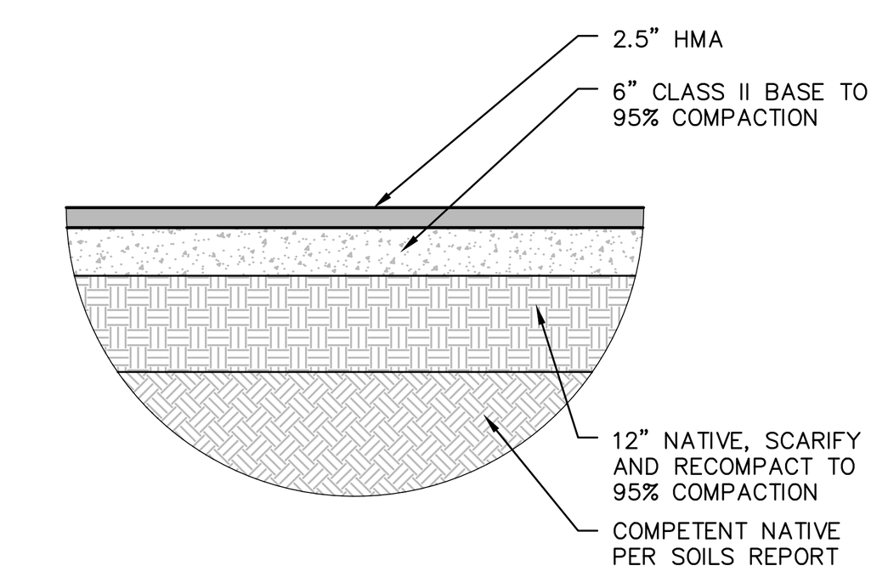




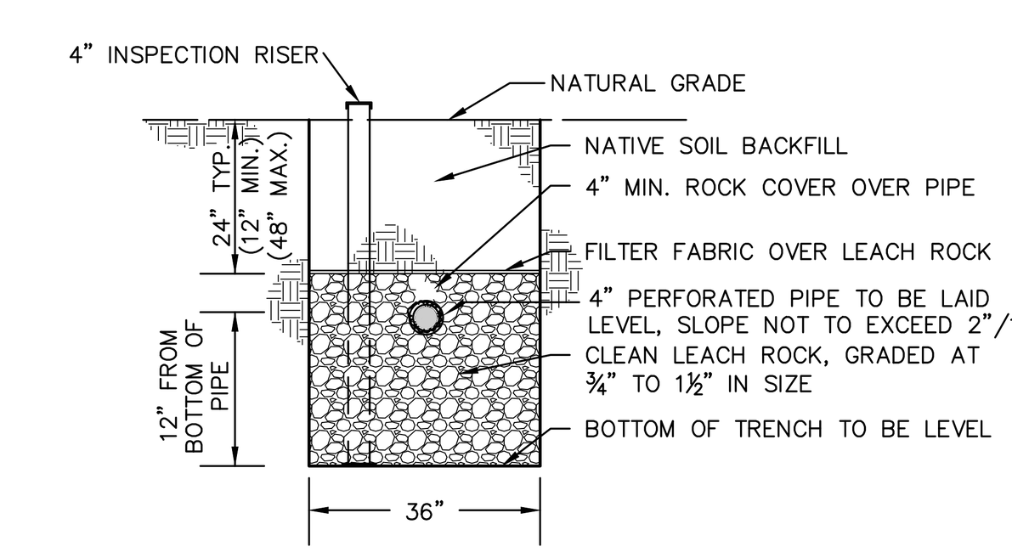
JOINT UTILITY TRENCH
N.T.S.



C / C-4 CONCRETE FLATWORK
N.T.S.



D / C-4 PAVED DRIVEWAY SECTION
N.T.S.



LEACH TRENCH SECTION
N.T.S.

SEPTIC CALCULATIONS

Project:
Starkovich Residence
0 Cougar Creek Way

Reference Standards:
SLO County OWTS Local Agency Management Program dated May 2020 (LAMP)
Approved by RWQCB and effective 9/25/2020

REGISTERED PROFESSIONAL ENGINEER Timothy Romano No. 67434 CIVIL STATE OF CALIFORNIA

Project Criteria

Project Criteria			Source
Percolation Rate	5	min/in	Geotech Report
Distance to Groundwater	50	ft	Geotech Report
Site Slope at leach lines	15	%	arch/civil plans
No. of Bedrooms (BR)	6		arch plans
Flow rate / water use	600	GPD	LAMP 6.B (250/300/375/450/525/600)
Application Rate	1.2	GPD/SF	LAMP Table 8
Total Infiltrative Area Required	500	SF	

System Separation Requirements

Groundwater Separation	8	ft	LAMP Table 6
Building Separation, leach lines	8	ft	LAMP
Building Separation, septic tank	5	ft	LAMP
Property Lines	5	ft	LAMP
Private water supply wells	100	ft	LAMP
Descending slopes and bluffs	100	ft	LAMP Table 5, may be reduced to 25' with engineering
Flowing streams, springs, water	100	ft	LAMP
Drainage course, subsurface drain	50	ft	LAMP

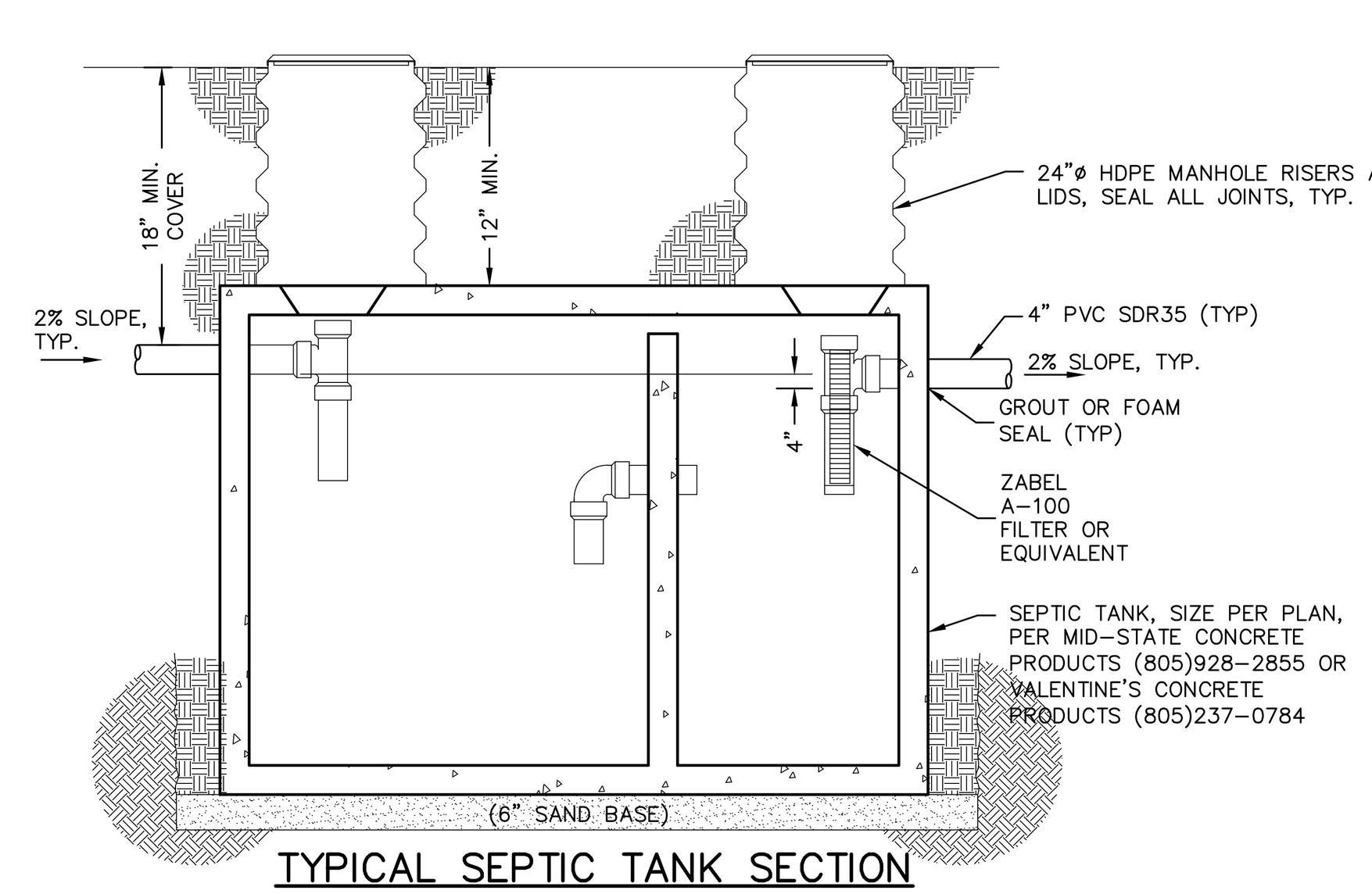
Leach Field Requirements

Max Length of leach lines	100	ft	LAMP
Standard leach line max width	3	ft	LAMP
Spacing of standard leach line	6	ft	center to center spacing per LAMP
Max Infiltrative Area per LF	4	SF	LAMP
Max Site Slope at leach field	30	%	LAMP

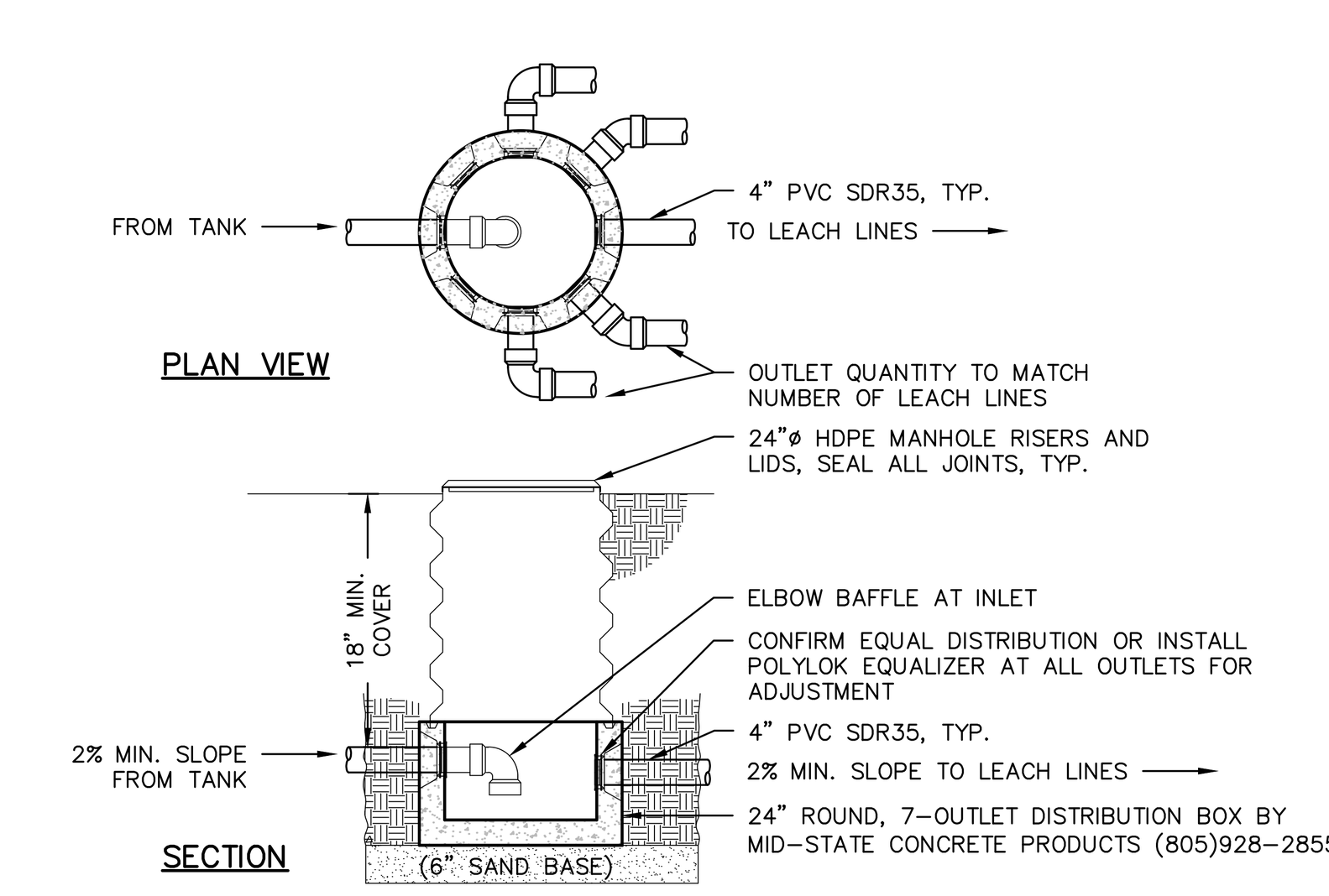
System Size

Min. Tank Capacity	1500	gallons	LAMP 5.A
Length of standard trench leach	125	ft	
Std. Trench Minimum Rows	2		
Std. Trench Row Length	63	ft	
Leach field width	9	ft	3ft trench width, 6ft center to center spacing

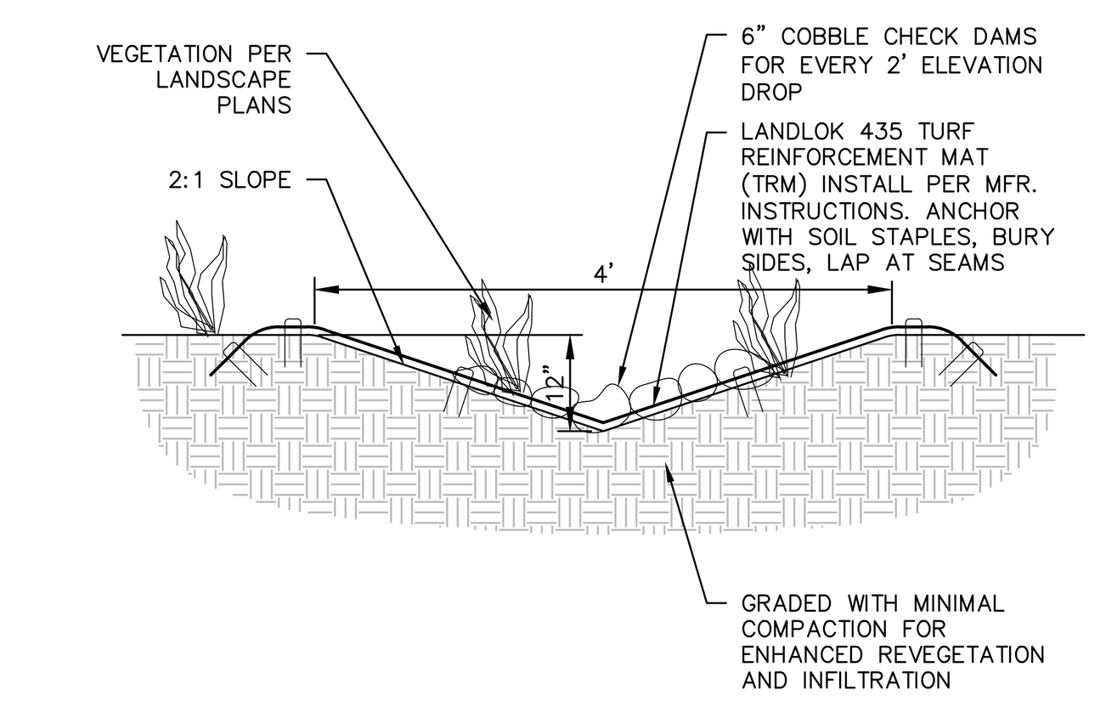
Calculations By: Tim Romano, PE
Date: 1/19/2022



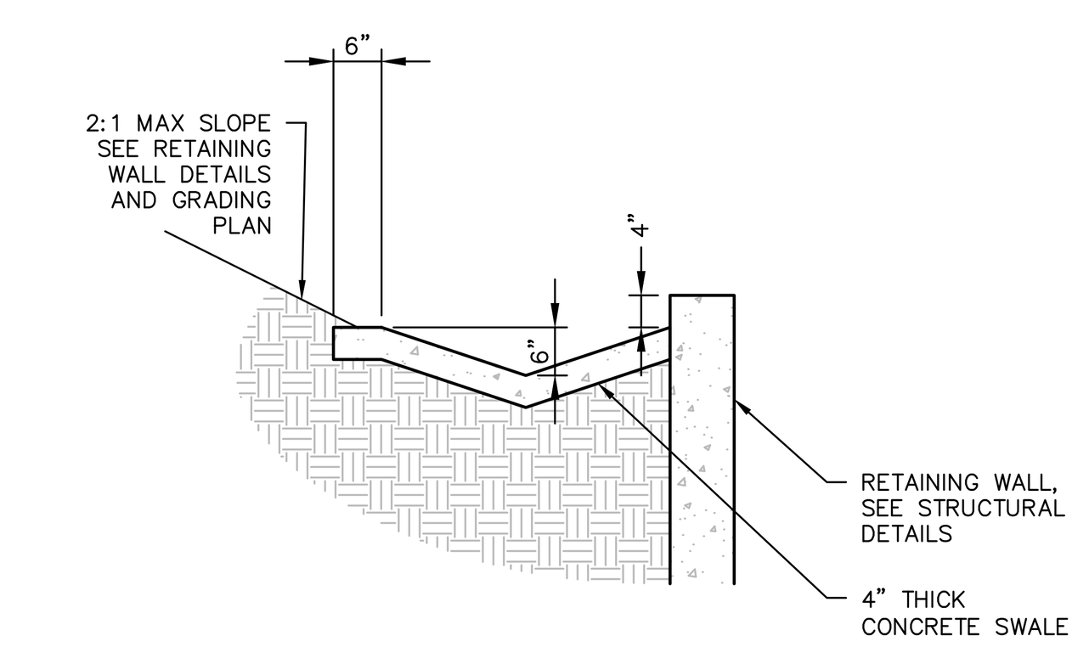
TYPICAL SEPTIC TANK SECTION
N.T.S.



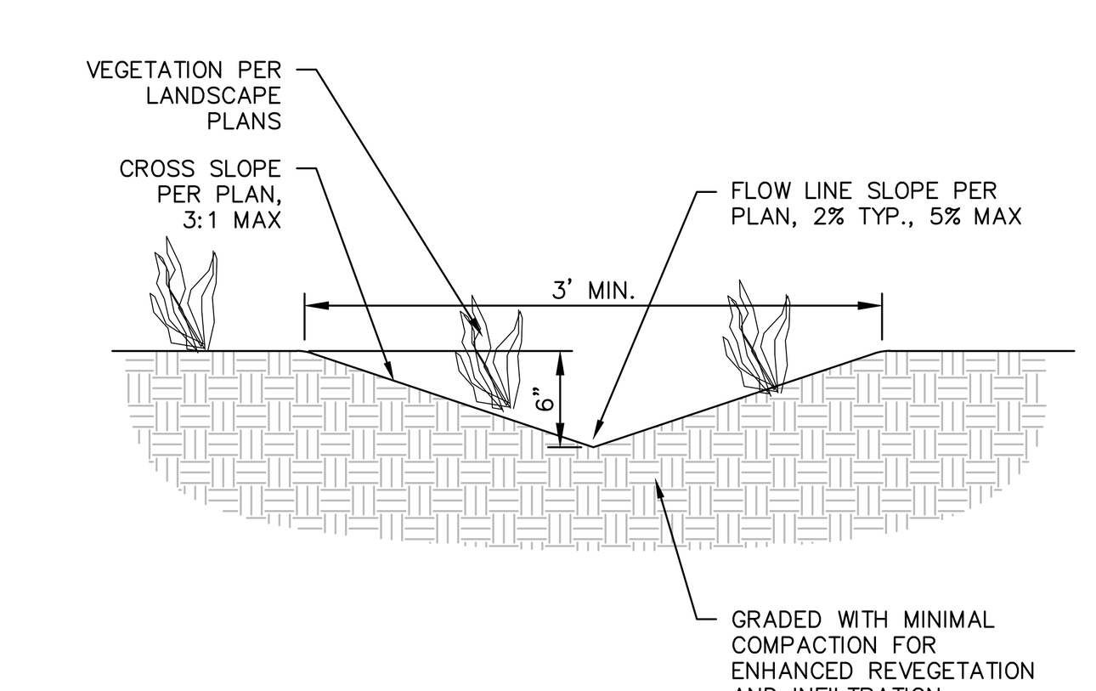
DISTRIBUTION BOX
N.T.S.



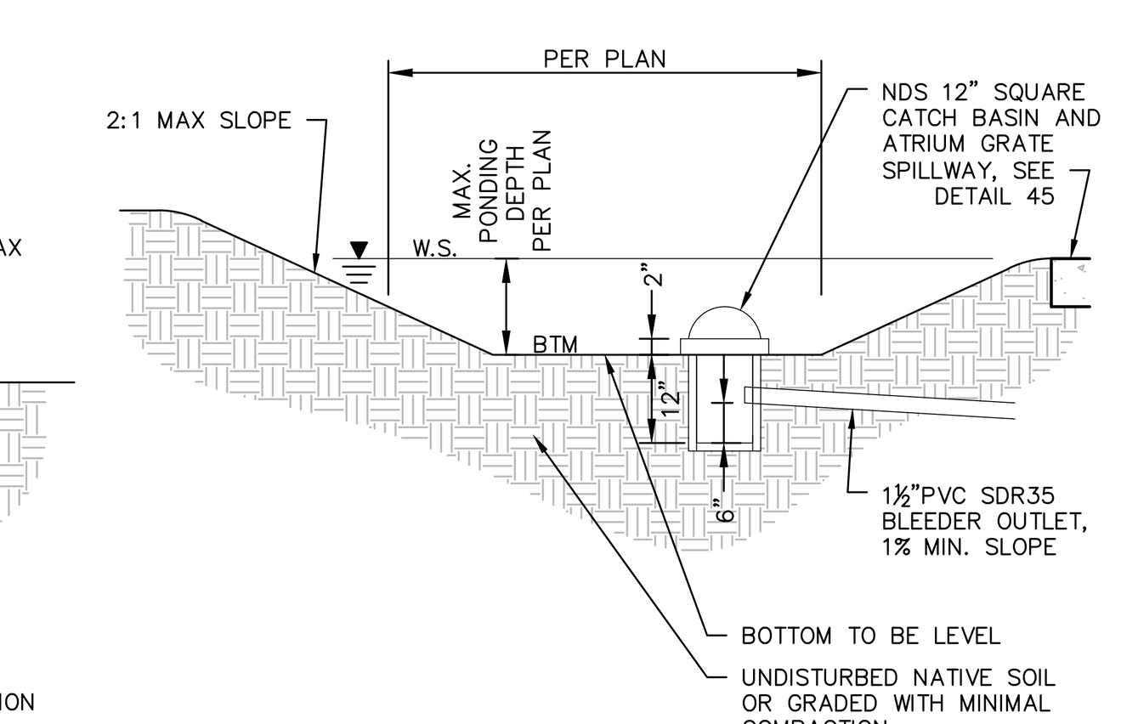
42 TRM LINED VEGETATED SWALE
N.T.S.



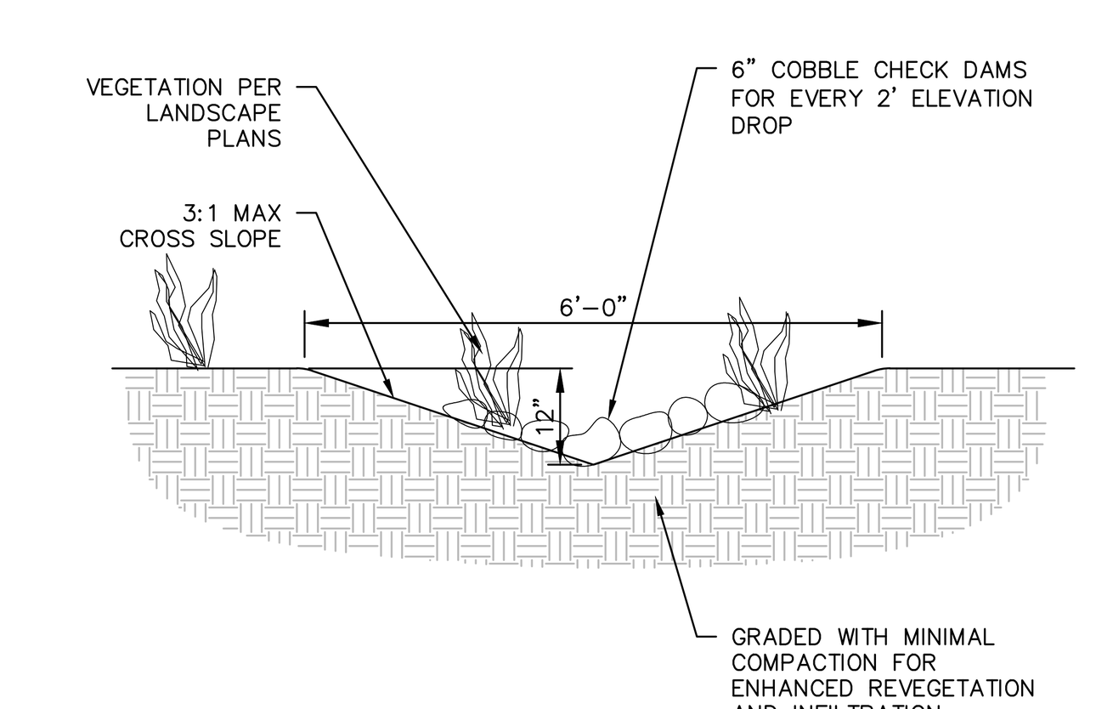
43 CONCRETE SWALE AT RETAINING
N.T.S.



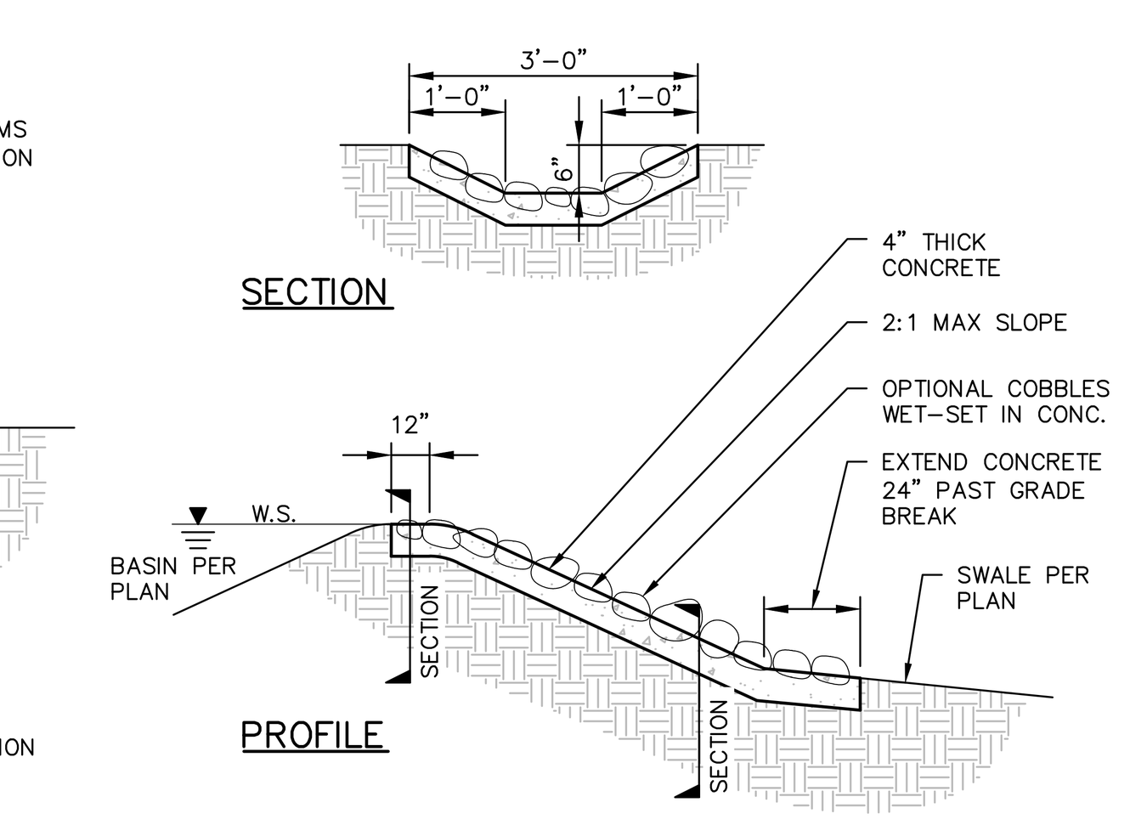
40 MINOR EARTHEN SWALE
N.T.S.



44 DETENTION BASIN
N.T.S.



41 EARTHEN SWALE
N.T.S.



45 PRIVATE BASIN SPILLWAY
N.T.S.

isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

LICENSED ARCHITECT WILLIAM D. ISAMAN No. C-34160 REN. 03/31/2023 STATE OF CALIFORNIA
ARCHITECT'S STAMP

JP WOODWORKS
CONTRACTOR

ROMANO DESIGN
CIVIL

T&S STRUCTURAL
STRUCTURAL

Brummel Mechanical Engineering, LLP
MECHANICAL

LANDSCAPE

REGISTERED PROFESSIONAL ENGINEER TIMOTHY ROMANO No. C67434 Exp. 12/31/22 CIVIL STATE OF CALIFORNIA
CONSULTANT'S STAMP

FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA
CIVIL DETAILS

No.	Revision	Date
1	PC#1 REVISIONS	8/11/22

Date: October 18, 2022

Sheet C-4

RETAINING WALL NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH THE 2019 EDITION OF THE CALIFORNIA BUILDING CODE (CBC).

2. GRADING AND PREPARATION OF FOUNDATION SOIL STRATA SHALL BE PER THE GEOTECHNICAL ENGINEERING REPORT NO. SL-12188-1 BY GEOSOLUTIONS DATED DECEMBER 1, 2021.

3. WHERE THE STRUCTURAL DETAILS SHOWN ON THIS SHEET ARE IN CONFLICT WITH OTHER CONSTRUCTION DOCUMENTS, THE ENGINEER OF RECORD SHALL BE NOTIFIED PRIOR TO MAKING ANY MODIFICATIONS TO THE DETAILS.

4. RETAINING WALL FOUNDATIONS SHALL BEAR ENTIRELY ON SIMILAR SOILS IN A SIMILAR STATE OF COMPACTION.

5. THE BOTTOMS OF ALL FOUNDATIONS SHALL BE LEVEL. CHANGES IN FOUNDATION ELEVATIONS SHALL BE MADE UTILIZING THE TYPICAL FOOTING STEP DETAIL PROVIDED IN THESE DRAWINGS.

6. FOUNDATIONS SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF FORMS OR REINFORCEMENT.

7. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOT SURCHARGE THE RETAINING WALLS WITH CONSTRUCTION EQUIPMENT.

8. CONSTRUCTION METHODS AND PROJECT SAFETY: THE CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE METHODS, PROCEDURES OR SEQUENCE OF CONSTRUCTION. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION. CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.

REINFORCING STEEL

N07-REIN

1. ALL REINFORCING STEEL SHALL BE DEFORMED INTERMEDIATE GRADE BARS CONFORMING THE FOLLOWING:

   NO. 4 BARS AND SMALLER..................ASTM A615, GRADE 40
   NO. 5 BARS AND LARGER....................ASTM A615, GRADE 60
   REINFORCING STEEL TO BE WELDED......ASTM A706, GRADE 60
   WELDED WIRE FABRIC............................ASTM A185

2. REINFORCING STEEL SHALL NOT BE WELDED, UNLESS SPECIFICALLY NOTED OTHERWISE.
3. TO HOLD REINFORCING BARS IN THEIR TRUE POSITION AND PREVENT DISPLACEMENT, STANDARD TIE AND ANCHORAGE DEVICES MUST BE PROVIDED. PLACING OF REINFORCEMENT SHALL CONFORM TO UBC SECTION 1907.5.
4. REFER TO CONCRETE AND CONCRETE BLOCK NOTES FOR MINIMUM SPLICE LENGTH AND MINIMUM RADIUS OF BEND, OF REINFORCING.
5. SPLICING OF BARS SHALL HAVE MINIMUM LAP PER DETAIL A/S-1 IN ALL CASES, UNLESS DIMENSIONED OTHERWISE ON DETAILS. WIRE BARS TOGETHER AT LAPS AND SPLICES. STAGGER SPLICES IN ADJACENT HORIZONTAL AND SLOPING REINFORCING BARS A MINIMUM OF THE REQUIRED SPLICE LENGTH.
6. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
7. FABRICATION, ERECTION AND PLACEMENT OF REINFORCING STEEL SHALL CONFORM TO CONCRETE REINFORCING STEEL INSTITUTE OF STANDARD PRACTICE.
8. REINFORCING STEEL SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BOND.
9. SPACING OF BARS SHALL BE CONSIDERED AS MAXIMUM SPACING.

CONCRETE

N06-CONC

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF CBC CHAPTER 19 AND ACI 318, LATEST REVISION, OF THE AMERICAN CONCRETE INSTITUTE, UNLESS SHOWN OR NOTED OTHERWISE ON THESE DRAWINGS.
2. READY-MIXED AND SITE-MIXED CONCRETE SHALL BE BATCHED, MIXED, AND DELIVERED IN ACCORDANCE WITH ASTM C94 OR ASTM C685.
3. CONCRETE SHALL CONFORM TO THE FOLLOWING:

CONCRETE CLASS	WALLS (CBC 1904.1)	SLAB-ON-GRADE	FOOTINGS AND ALL OTHERS
MAXIMUM AGGREGATE SIZE	3/4"	3/4"	1 1/2"
MINIMUM SACKS CEMENT PER YARD	4.5	4.5	4.5
MAXIMUM WATER/ CEMENT RATIO	0.58	0.58	0.58
SLUMP	3.5"±1/2"	3.5"±1/2"	3.5"±1/2"
28 DAY COMPRESSIVE STRENGTH	3000 PSI	2500 PSI	2500 PSI

4. CONCRETE SHALL DEVELOP A MINIMUM ULTIMATE COMPRESSIVE STRENGTH PER NOTE 3 AT 28 DAYS IN ACCORDANCE WITH ASTM C31 AND C39.
6. AGGREGATE SHALL CONFORM TO ASTM C33.
7. PORTLAND CEMENT SHALL CONFORM TO ASTM C150.
8. REINFORCING STEEL SHALL BE DEFORMED CONFORMING TO ASTM A615 GRADE 60 UNLESS OTHERWISE NOTED. CLEAR DISTANCE BETWEEN PARALLEL REINFORCEMENT SHALL NOT BE LESS THAN 2 TIMES THE NOMINAL DIAMETER OF THE REINFORCEMENT, OR 1-1/3 TIMES MAXIMUM SIZE AGGREGATE, NOR LESS THAN 1-1/2".
9. WELDED WIRE FABRIC REINFORCEMENT SHALL CONFORM TO ASTM A185.
10. WELDING OF REINFORCING STEEL SHALL BE PERFORMED ONLY WHERE INDICATED ON THE DRAWINGS AND SHALL BE IN COMPLIANCE WITH ALL REQUIREMENTS OF THE CBC AND THE STRUCTURAL WELDING CODE - REINFORCING STEEL, AWS D 1.4, LATEST REVISION, OF THE AMERICAN WELDING SOCIETY (UBC STANDARD 19-1). PROVIDE WELDING PROCEDURE AND MILL TEST REPORTS FOR ALL REINFORCEMENT TO BE WELDED. DESIGN ENGINEER SHALL APPROVE WELDING PROCEDURES AND MILL TEST REPORTS PRIOR TO EXECUTION OF WELDING.
11. COVERAGE FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CBC AND ACI STANDARD 318 UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
12. LAP SPLICES FOR REINFORCING BARS SHALL BE PER THE REINFORCING SPLICE SCHEDULE ON THESE DRAWINGS OR 24" MINIMUM UNLESS SHOWN OTHERWISE ON THE DRAWINGS. WIRE BARS TOGETHER AT LAPS OR SPLICES. STAGGER LAPS IN ADJACENT HORIZONTAL OR SLOPING REINFORCING BARS A MINIMUM OF THE REQUIRED SPLICE LENGTH. HOOKS SHALL BE CBC STANDARD HOOKS UNLESS SHOWN OTHERWISE. WELDED WIRE FABRIC SHALL BE SPLICED BY LAPPING A MINIMUM OF 12 INCHES OR TWO CROSS WIRES, WHICHEVER IS GREATER.
13. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ASTM C94 AND ACI STANDARD 304. CONCRETE SHALL BE CONSOLIDATED BY SUITABLE MEANS DURING CONSTRUCTION AND SHALL BE WORKED AROUND EMBEDDED ITEMS AND INTO CORNERS OF FORMS. WHERE STAY IN PLACE FORMS ARE USED, CONCRETE SHALL BE CONSOLIDATED BY INTERNAL VIBRATION.
14. ALL EMBEDDED ITEMS SHALL BE PLACED ACCURATELY AND SECURED PRIOR TO CONCRETE PLACEMENT. STABBING OF ANCHOR BOLTS INTO WET CONCRETE IS NOT ALLOWED.
15. CONSTRUCTION JOINTS SHALL BE LOCATED SO AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE. CONSTRUCTION JOINTS SHALL COMPLY WITH ACI 318 SECTION 26.5.6. LOCATE CONSTRUCTION JOINTS ONLY AS SHOWN ON THE DRAWINGS OR APPROVED IN ADVANCE BY THE ENGINEER. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SANDBLASTING, OR RAKING THE SURFACE TO PROVIDE 1/4" DEEP DEFORMATIONS.
16. REINFORCING AND EMBEDMENT ITEMS SHALL BE FREE OF EXCESSIVE SCALE OR RUST, DIRT, GREASE, OIL OR ANY OTHER SUBSTANCE THAT WILL IMPAIR BOND WITH CONCRETE.
17. WHEN COLD WEATHER CONDITIONS EXIST, PLACE CONCRETE IN COMPLIANCE WITH ACI 318 SECTION 26.5.4.

ABBREVIATIONS

N00-ABBR

#	NUMBER OR POUND	JH	JOIST HANGER
~	APPROXIMATELY	JST.	JOIST
L	ANGLE	JT(S).	JOINT, JOINTS
(AS)	ASSUMED	LL	LIVE LOAD
AB	ANCHOR BOLT	LLH	LONG LEG HORIZONTAL
ABV.	ABOVE	LLV	LONG LEG VERTICAL
ADDL.	ADDITIONAL	LOC. OR LCTN.	LOCATION
ADJ.	ADJACENT	LS	LAG SCREW
ALT.	ALTERNATE	LT.WT.	LIGHT WEIGHT
APPROX.	APPROXIMATE	LVL	LAMINATED VENEER LUMBER
ARCH.	ARCHITECTURAL, ARCHITECT	(M)	MEASURED
BLDG.	BUILDING	MAX.	MAXIMUM
BLK(G).	BLOCK, BLOCKING	MB	MACHINE BOLT
BLW.	BELOW	MBM	METAL BUILDING MANUFACTURER
BM.	BEAM	MECH.	MECHANICAL
BN	BOUNDARY NAILING	MFR.	MANUFACTURER
BO	BOTTOM OF	MI	MALLEABLE IRON
BOT.	BOTTOM	MIN.	MINIMUM
BRG.	BEARING	MISC.	MISCELLANEOUS
BS	BOTH SIDES	ML	MICRO-LAMINATED
BTWN.	BETWEEN	(N)	NEW
(C)	CALCULATED	NIC	NOT IN CONTACT
C	CHANNEL	NLG.	NAILING
C.	CAMBER	NS	NEAR SIDE
CALIF.	CALIFORNIA	NTS	NOT TO SCALE
CANT.	CANTILEVER	oc	ON CENTER
CB	CARRIAGE BOLT	OD	OUTSIDE DIAMETER, OUTSIDE DIMENSION
CBC	CALIFORNIA BUILDING CODE	O.F.	OUTSIDE FACE
CHD.	CHORD	OH	OPPOSITE HAND
CJ	CONSTRUCTION JOINT	OPNG.	OPENING
℄ OR CL.	CENTER LINE	OPP.	OPPOSITE
CLG.	CEILING	(OR) OR ORIG.	ORIGINAL
CLR.	CLEAR	PC.	PIECE
CMU	HOLLOW CONCRETE MASONRY UNIT	PERP.	PERPENDICULAR
COL.	COLUMN	PH	PAN HEAD
COMP.	COMPOSITE, COMPOSITION	PHTS	PAN HEAD TAPPING SCREW
CONC.	CONCRETE	PL OR PL.	PLATE
CONN.	CONNECTION	PLF	POUNDS PER LINEAR FOOT
CONST.	CONSTRUCTION	PP	PARTIAL PENETRATION
CONT.	CONTINUOUS	PPT	PRESSURE PRESERVATIVE TREATED
CONTR.	CONTRACTOR	PREFAB.	PREFABRICATED
COORD.	COORDINATE	PROJ.	PROJECT, PROJECTS, PROJECTION
CP	COMPLETE PENETRATION	PSF	POUNDS PER SQUARE FOOT
CSK.	COUNTERSINK	PSI	POUNDS PER SQUARE INCH
CTR.	CENTER	PT	PRESSURE TREATED
ø OR DIA.	DIAMETER	PT.	POINT
DBL.	DOUBLE	PTDF	PRESSURE TREATED DOUGLAS FIR
DET.	DETAIL	PTHF	PRESSURE TREATED HEM FIR
DF	DOUGLAS FIR	PW.	PLYWOOD
DF-L	DOUGLAS FIR-LARCH	QTY.	QUANTITY
DIAG.	DIAGONAL	(R)	RETROFIT
DIM.	DIMENSION	R.	RADIUS
DKG.	DECKING	REINF.	REINFORCE, REINFORCEMENT
DL	DEAD LOAD	REQD.	REQUIRED
DO	DO OVER	RET.	RETAINING
DO.	DITTO	RHWS	ROUND HEAD WOOD SCREW
DWG(S).	DRAWING, DRAWINGS	RWD.	REDWOOD
(E)	EXISTING	(S)	SURVEY
EA.	EACH	SCHD.	SCHEDULE
EF	EACH FACE	SCHM.	SCHEMATIC
EJ	EXPANSION JOINT	SECT.	SECTION
ELEV.	ELEVATION	SEL. STR.	SELECT STRUCTURAL
ELVTR.	ELEVATOR	SGL.	SINGLE
EMBED.	EMBEDMENT	SHT.	SHEET
EN	EDGE NAIL (PLYWOOD), END NAIL	SHTG.	SHEATHING
EQ.	EQUAL	SIM.	SIMILAR
EQUIP.	EQUIPMENT	SMS	SHEET METAL SCREW
ES	EACH SIDE	SOG	SLAB ON GRADE
EW	EACH WAY	SPEC(S).	SPECIFICATION, SPECIFICATIONS
EXP.	EXPANSION	SQ.	SQUARE
EXT.	EXTERIOR	SS	STAINLESS STEEL
FAB.	FABRICATED	STD.	STANDARD
FB	FLAT BAR	STGD.	STAGGERED
FF	FINISH FLOOR	STIFF.	STIFFENER
FG	FINISH GRADE	STL.	STEEL
FIN.	FINISH	STR. 1	STRUCTURAL 1
FJ	FLOOR JOIST	STRGR.	STRINGER
FLR.	FLOOR	SW	SHEAR WALL
FN	FACE NAIL	SYM.	SYMMETRICAL
FND.	FOUNDATION	T&B	TOP AND BOTTOM
FOC	FACE OF CONCRETE	T&G	TONGUE AND GROOVE
FOM	FACE OF MASONRY	TEMP.	TEMPORARY
FOS	FACE OF STUD	TF	TOP FLANGE
FRMG.	FRAMING	THK.	THICK
FS	FAR SIDE	THRU.	THROUGH
FT.	FOOT, FEET	TN	TOE NAIL
FTG.	FOOTING	TO	TOP OF
GA.	GAGE	TOC	TOP OF CONCRETE
GALV.	GALVANIZED	TOS	TOP OF STEEL
GB	GALVANIZED BOX	TS	TUBE STEEL
GL	GRID LINE	TYP.	TYPICAL
GLB	GLUED-LAMINATED BEAM	UBC	UNIFORM BUILDING CODE
GYP. BD.	GYPSUM BOARD	UCBC	UNIFORM CODE FOR BUILDING CONSERVATION
HCB	HOLLOW CONCRETE BLOCK	UNO	UNLESS NOTED OTHERWISE
HD	HOLDOWN	URM	UNREINFORCED MASONRY
HD.	HEAD	(V)	VERIFY
HDG	HOT DIPPED GALVANIZED	VERT.	VERTICAL
HDR.	HEADER	W	WIDE FLANGE
HK.	HOOK	w/	WITH
HGR.	HANGER	w/o	WITHOUT
HND.	HAND	WD.	WOOD
HOR.	HORIZONTAL	WP	WORK POINT
HS	HIGH STRENGTH	WSHR.	WASHER
HT.	HEIGHT	WWF	WELDED WIRE FABRIC
	INTERNATIONAL BUILDING CODE		
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS		
ID	INSIDE DIMENSION, INSIDE DIAMETER		
INFO.	INFORMATION		
INSTALL.	INSTALLATION		
INT.	INTERIOR		
INTRM.	INTERMEDIATE		
INTX.	INTERSECTION		

CONCRETE MASONRY UNITS

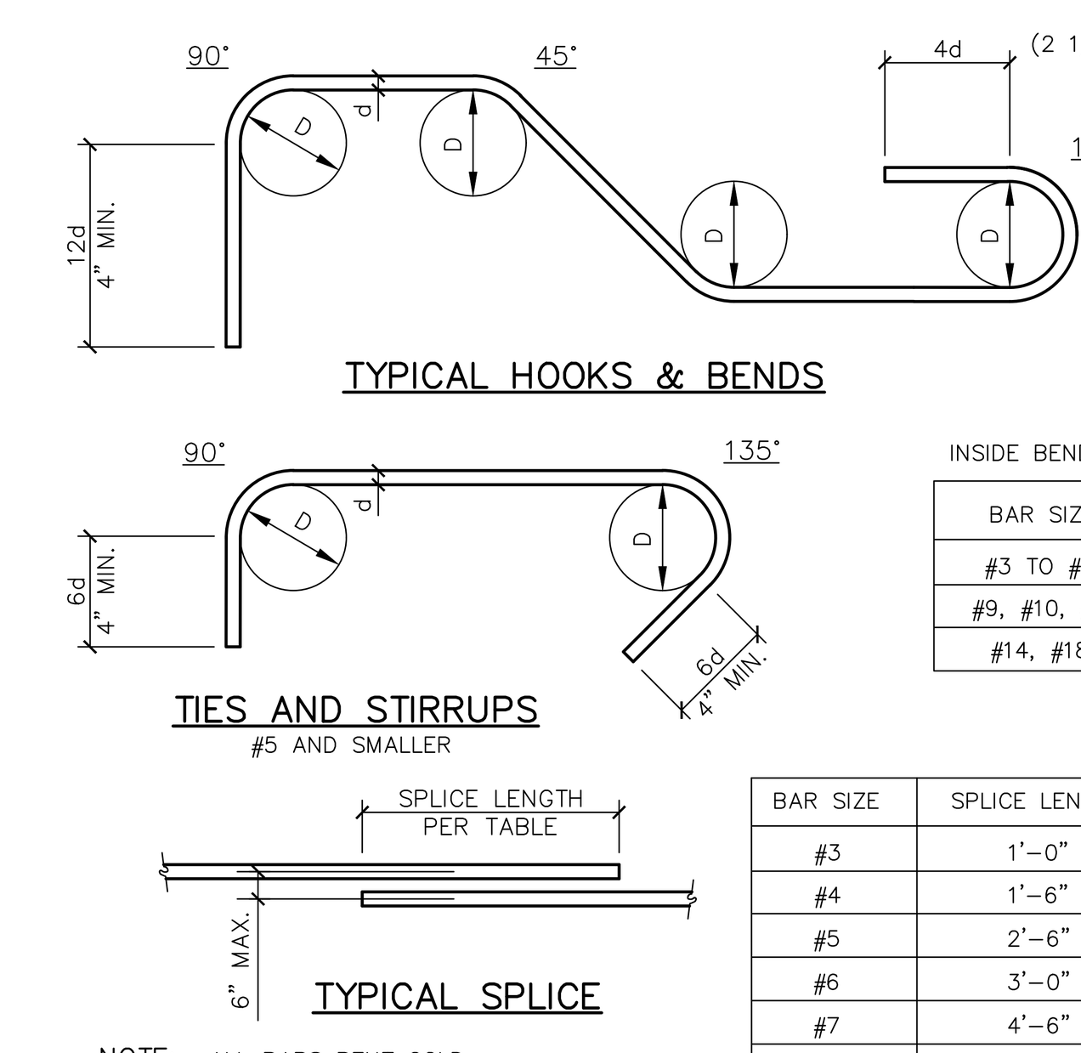
1. MASONRY CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER 21 OF THE CALIFORNIA BUILDING CODE AND TMS 602/ACI 530.1/ASCE 6.
2. CONCRETE MASONRY UNITS SHALL BE MEDIUM WEIGHT UNLESS NOTED OTHERWISE.
3. MASONRY MORTAR SHALL BE TYPE S.
4. MASONRY GROUT SHALL MEET THE REQUIREMENTS OF ASTM C476 AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2,000 PSI.
5. WALLS SHALL BE COMPOSED OF 8X8X16 STANDARD BLOCK OR 8X8X16 MORTARLESS HEAD JOINT BLOCK IN RUNNING BOND COURSES UNLESS SPECIFICALLY NOTED OTHERWISE ON THESE PLANS. ANY OTHER CONFIGURATION SHALL REQUIRE THE WRITTEN CONSENT OF THE PROJECT ENGINEER. BOND BEAM UNITS MAY BE USED WHERE HORIZONTAL REINFORCING IS REQUIRED ON THESE PLANS OR DETAILS.
6. WALLS SHALL BE GROUTED IN LIFTS OF FOUR FEET OR LESS. GROUT SHALL BE A SELF-CONSOLIDATING MIX OR VIBRATORY METHODS SHALL BE USED DURING PLACEMENT TO REMOVE ANY VOIDS.

STRUCTURAL OBSERVATIONS

THE FOLLOWING STRUCTURAL OBSERVATIONS SHALL BE PERFORMED PER THE PROVISIONS OF THE CALIFORNIA BUILDING CODE:

1. FORMS AND REINFORCEMENT PRIOR TO PLACEMENT OF CONCRETE.
2. CONCRETE MASONRY WALLS PRIOR TO GROUTING.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD 48 HOURS IN ADVANCE TO SCHEDULE THE OBSERVATION.



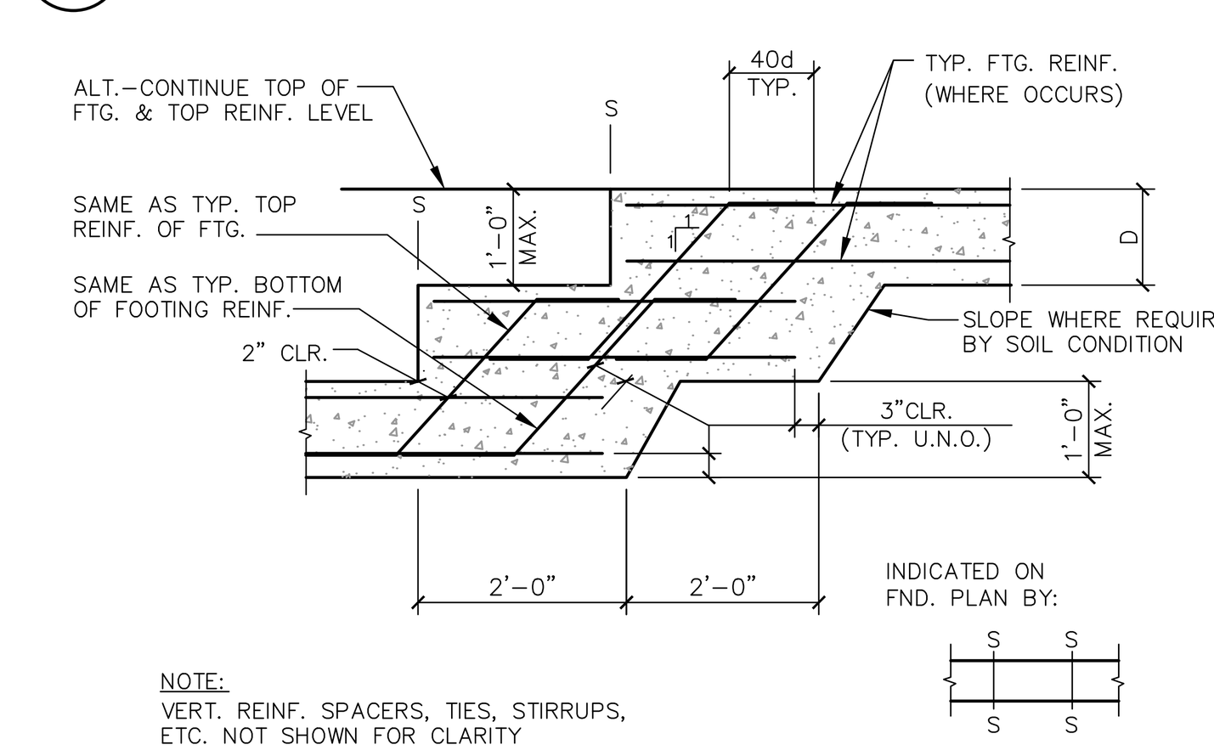
INSIDE BEND DIAMETERS

BAR SIZE	D
#3 TO #8	6d
#9, #10, #11	8d
#14, #18	10d

BAR SIZE	SPLICE LENGTH
#3	1'-0"
#4	1'-6"
#5	2'-6"
#6	3'-0"
#7	4'-6"
#8	5'-0"
#9	5'-10"

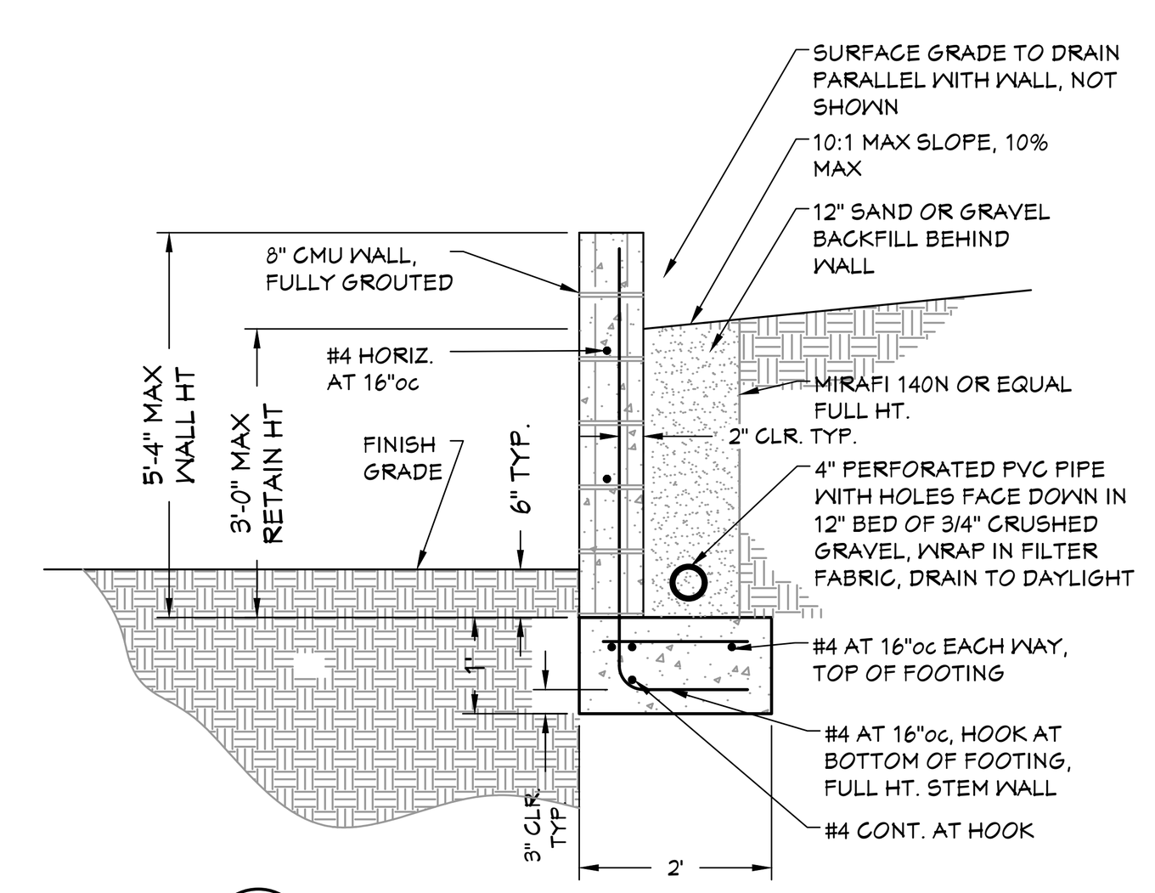
NOTE: ALL BARS BENT COLD
NO FIELD BENDING ALLOWED EXCEPT WHERE SPECIFICALLY SHOWN ON DRAWINGS

A / C-7 TYP. REINF. BEND & SPLICE DETAILS
NTS
TYP_REINF_00 1/24XP

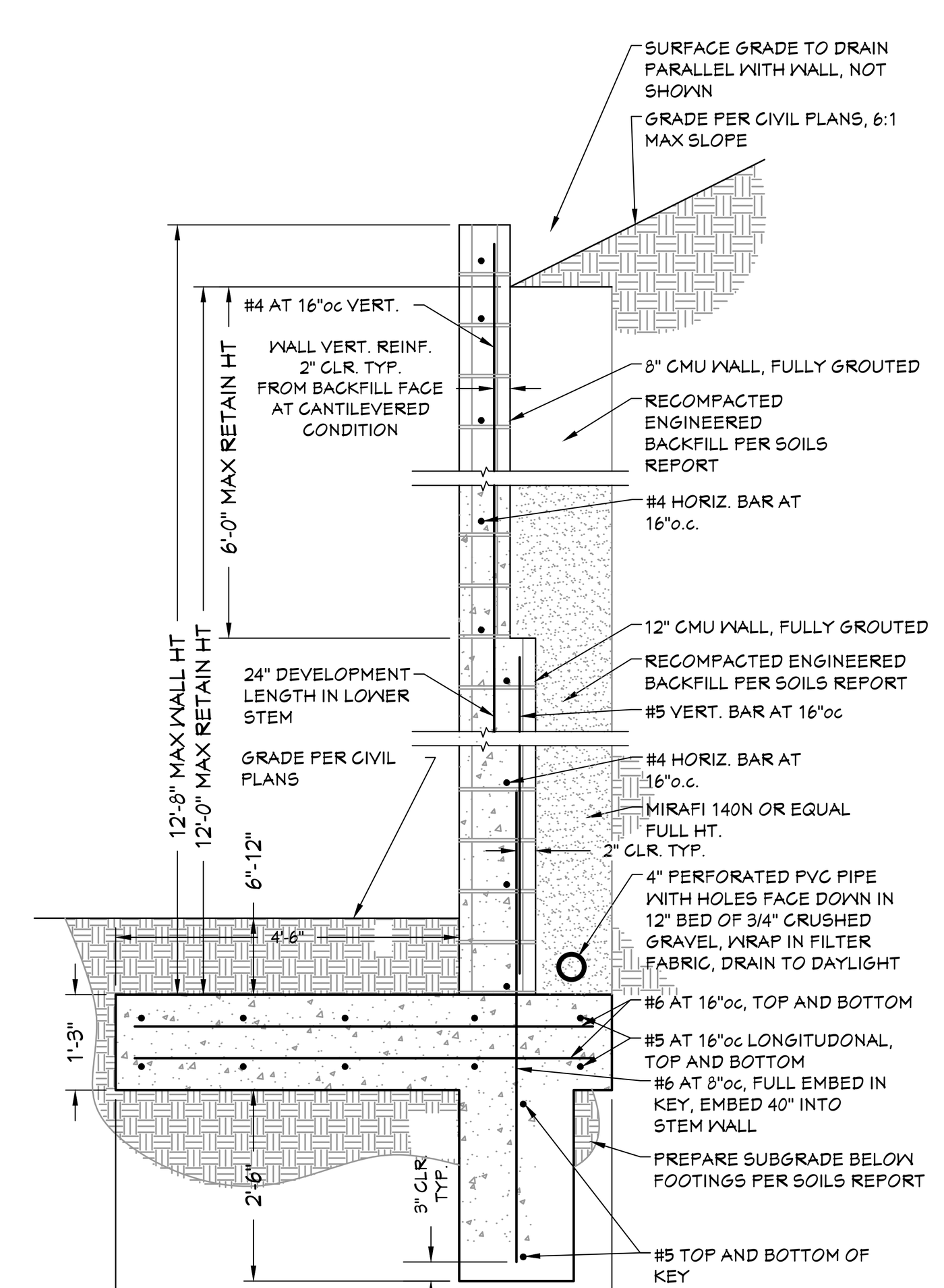


NOTE:
VERT. REINF. SPACERS, TIES, STIRRUPS, ETC. NOT SHOWN FOR CLARITY

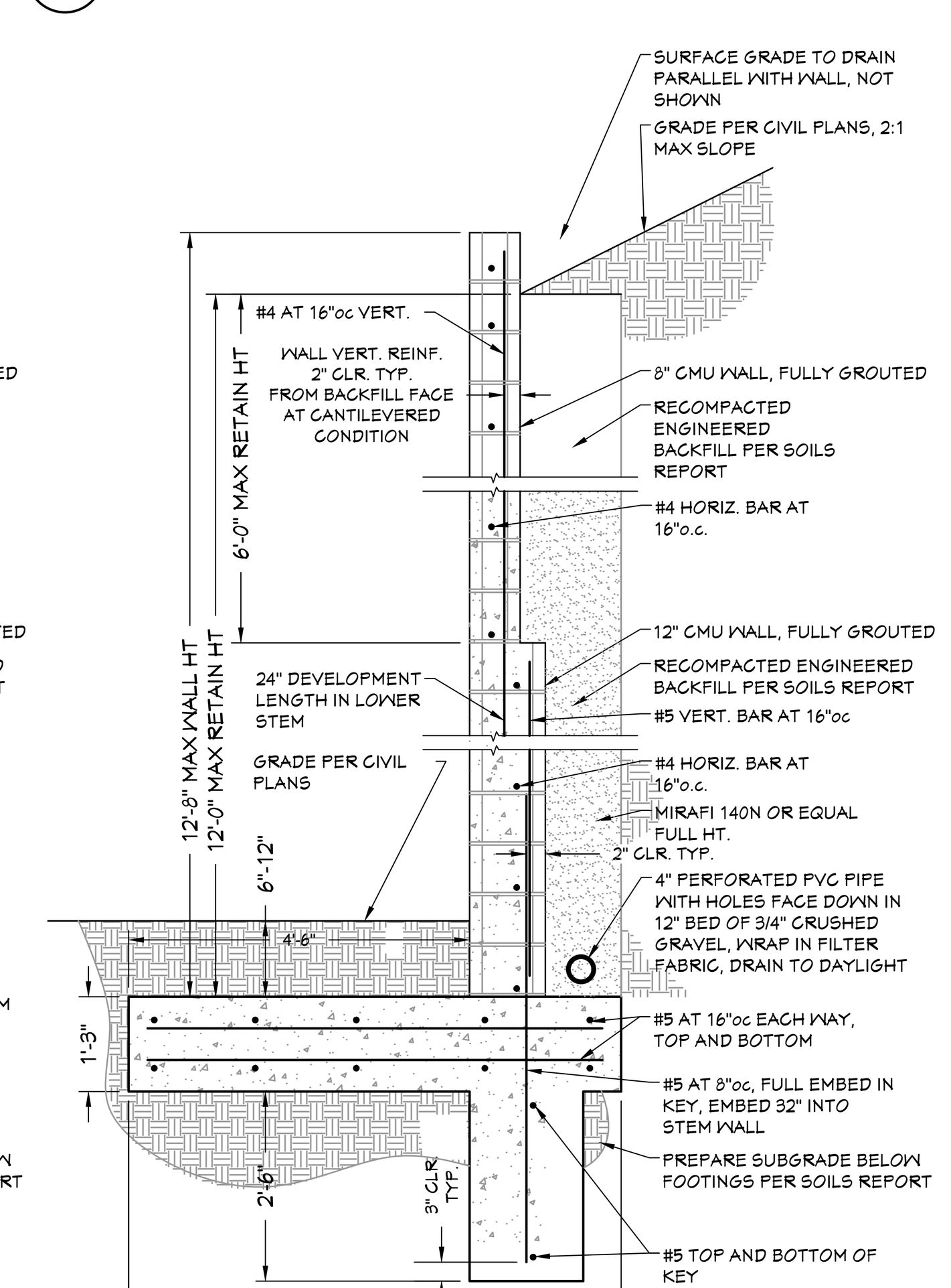
B / C-7 TYPICAL STEP FOOTING DETAIL
NTS
TYP_FND_00 1/24XP



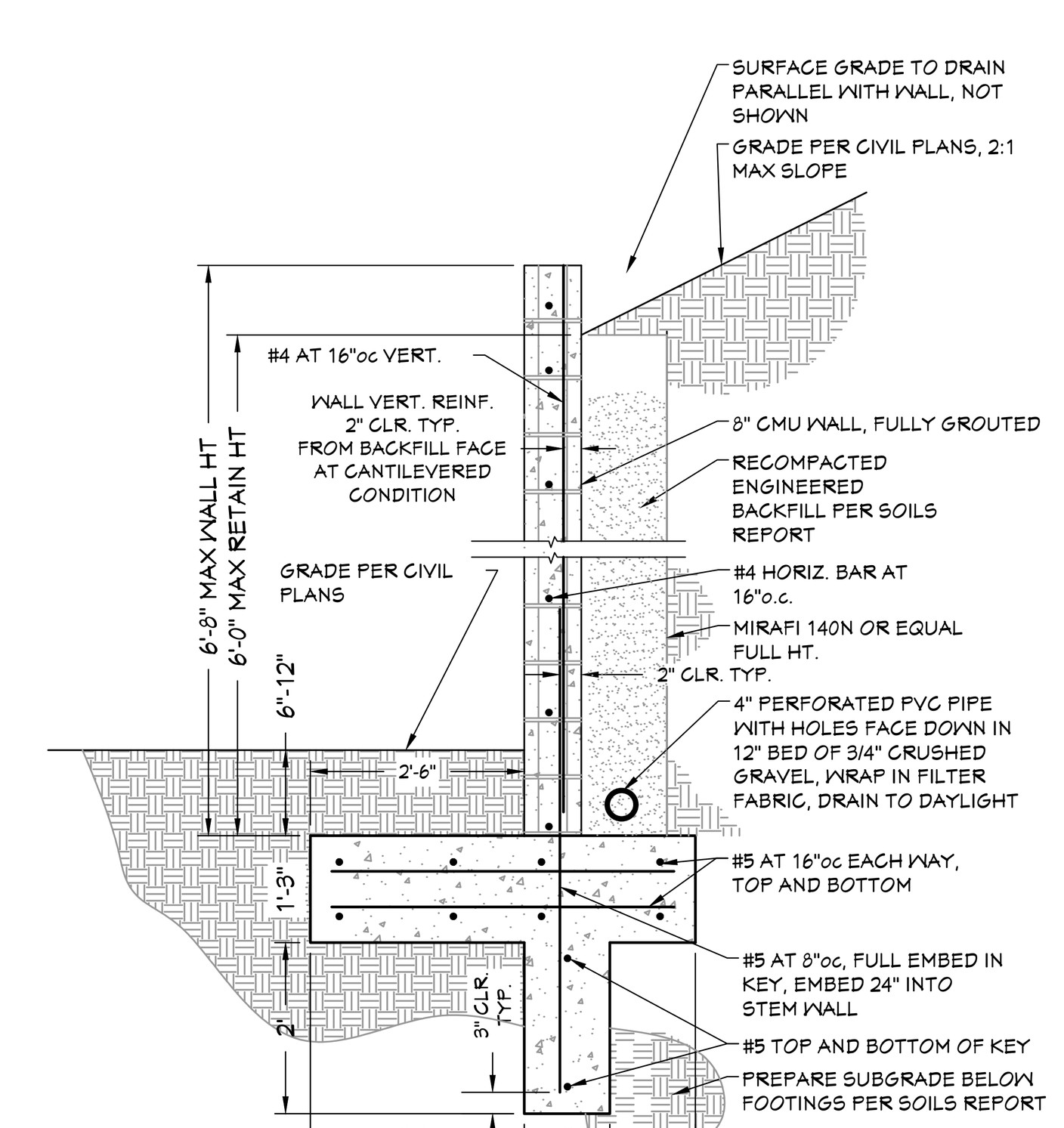
3 / C-7 LANDSCAPE WALL
SCALE: 1/2"=1'-0"



4 / C-7 RETAINING WALL W/ SURCHARGE
SCALE: 1/2"=1'-0"



2 / C-7 SITE RETAINING WALL
SCALE: 1/2"=1'-0"



1 / C-7 RETAINING WALL AT SLOPE
SCALE: 1/2"=1'-0"

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

ARCHITECT'S STAMP: LICENSED ARCHITECT, WILLIAM D. ISAMAN, No. C-34160, REN. 03/31/2023, STATE OF CALIFORNIA

CONTRACTOR: JP WOODWORKS

CIVIL: ROMANO DESIGN

STRUCTURAL: T&S STRUCTURAL

MECHANICAL: Brummel Mechanical Engineering, LLP

LANDSCAPE

CONSULTANT'S STAMP: REGISTERED PROFESSIONAL ENGINEER, No. C67434, 10/18/2022, Exp. 12/31/22, CIVIL, STATE OF CALIFORNIA

FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA
RETAINING WALL NOTES

No.	Revision	Date
1	PC#1 REVISIONS	8/11/22

Date: October 18, 2022

Sheet C-7

ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p. 805.544.5672
f. 805.544.5642

ARCHITECT'S STAMP

CONTRACTOR

CIVIL

STRUCTURAL

MECHANICAL

LANDSCAPE

CONSULTANT'S STAMP

FOR COUNTY STAMP

STARKOVICH RESIDENCE

LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

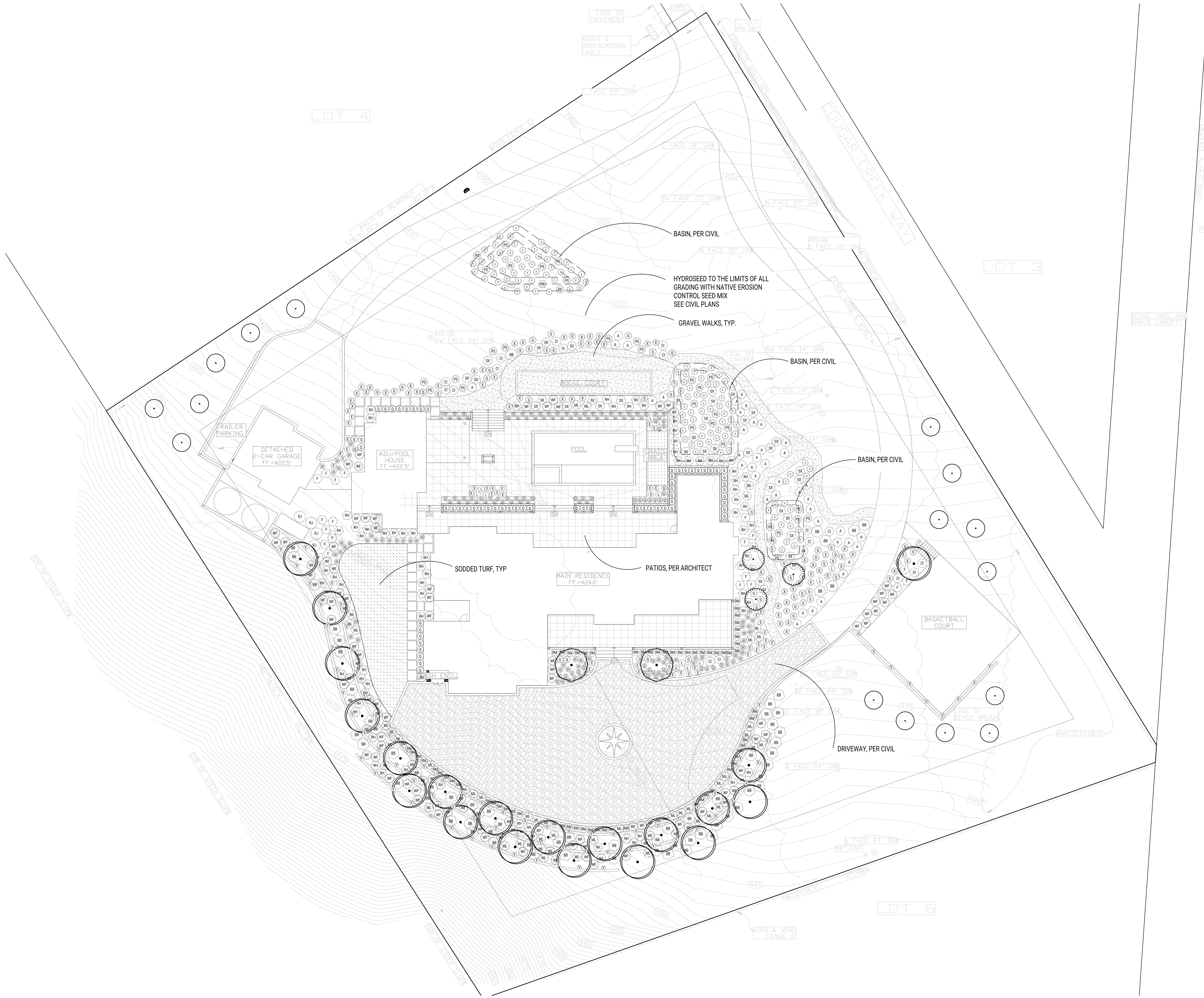
Oak Tree Mitigation Plan

No.	Revision	Date

Date: OCTOBER 18, 2022

Sheet

L 1.00



TREES	BOTANICAL / COMMON NAME
	CERCIS CANADENSIS 'FOREST PANSY' / FOREST PANSY EASTERN REDBUD
	OLEA EUROPAEA 'WILSONII' / WILSON OLIVE
	PYRUS CALLERYANA 'CAPITAL' / CAPITAL CALLERY PEAR
	QUERCUS AGRIFOLIA / COAST LIVE OAK MULTI-TRUNK - MITIGATION

SHRUBS	BOTANICAL / COMMON NAME
A	ARCTOSTAPHYLOS X `EMERALD CARPET` / EMERALD CARPET MANZANITA
CI	CISTUS X PULVERULENTUS 'SUNSET' / SUNSET ROCKROSE
DI	DIANELLA CAERULEA `CASSA BLUE` / FLAX LILY
E	ERIGERON KARVINSKIANUS / SANTA BARBARA DAISY
F	FEIJOA SELLOWIANA / PINEAPPLE GUAVA
V	FICUS PUMILA / CREEPING FIG
G	GAURA LINDHEIMERI / GAURA
L	LAVANDULA X INTERMEDIA 'PROVENCE' / PROVENCE LAVENDIN
X	MUHLENBERGIA DUBIA / PINE MUHLY
Q	OLEA EUROPAEA `LITTLE OLLIE` TM / LITTLE OLLIE OLIVE
PS	PENNISETUM SPATHIOLATUM / SLENDER VELDT GRASS
RJ	RHAMNUS ALATERNUS `JOHN EDWARDS` / ITALIAN BUCKTHORN
RH	RHAMNUS CALIFORNICA `MOUND SAN BRUNO` / CALIFORNIA COFFEEBERRY
RM	RHAPHIOLEPIS UMBELLATA `MINOR` / DWARF YEDDA HAWTHORN
BB	SALVIA 'BEES BLISS' / SAGE
SX	SALVIA X `POZO BLUE` / POZO BLUE SAGE
U	SESLERIA X `GREENLEE` / GREENLEE MOOR GRASS
ML	WESTRINGIA FRUTICOSA 'MORNING LIGHT' / MORNING LIGHT COAST ROSEMARY
WF	WESTRINGIA FRUTICOSA `WES03` TM / BLUE GEM COAST ROSEMARY

NOTES:
SEE SHEET L-1.02 FOR FULL LANDSCAPE SCHEDULE AND DETAILS

GRAPHIC SCALE
16 0 8 16 32 64
(In Feet)
1/16 inch = 1 foot

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

ARCHITECT'S STAMP

CONTRACTOR: JP WOODWORKS

CIVIL: ROMANO DESIGN

STRUCTURAL: STRUCTURAL

MECHANICAL: Brummel Mechanical Engineering, LLP

LANDSCAPE

CONSULTANT'S STAMP

FOR COUNTY STAMP

STARKOVICH RESIDENCE

LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

Landscape Plan

No.	Revision	Date

Date: OCTOBER 18, 2022

Sheet L1.01

PLANTING NOTES

CONTRACTOR SHALL SUBMIT LABELED PHOTOS OF ALL PLANT MATERIAL, TREES AND GROUNDCOVERS. PHOTOS SHALL BE OF THE SPECIFIED CONTAINER SIZE. PHOTOS SHALL BE SUBMITTED AS A COMPLETE SUBMITTAL PACKAGE FOR REVIEW AND APPROVAL. INCLUDE PHOTOS OF ANY SUBSTITUTES, CLEARLY LABELED.

ALL PLANTS ON THE PROPOSED LIST AT THE RIGHT ARE NOT ON THE INVASIVE PLANT LIST. ANY PLANTS ON THE INVASIVE PLANT LIST ARE PROHIBITED FROM USE.

ALL PLANTED AREAS SHALL BE CONTINUOUSLY MAINTAINED IN A HEALTHY, GROWING CONDITION, SHALL RECEIVE REGULAR PRUNING, FERTILIZING, MOWING, AND TRIMMING, AND SHALL BE KEPT FREE OF WEEDS AND DEBRIS BY THE OWNER OR PERSON IN POSSESSION OF SUCH AREAS. ANY DAMAGED, DEAD OR DECAYING PLANT MATERIAL SHALL BE REPLACED WITHIN THIRTY (30) DAYS FROM THE DATE OF DAMAGE.

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL PLANT MATERIAL AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.

PLANT SCHEDULE ON THE DRAWINGS SHALL BE USED AS A GUIDE ONLY. CONTRACTOR SHALL TAKEOFF AND VERIFY SIZES AND QUANTITIES BY PLAN CHECK. NOTIFY PROJECT LANDSCAPE ARCHITECT OF ANY MAJOR DISCREPANCIES.

UNLESS DESIGNATED ON THE DRAWINGS OTHERWISE, ALL STRUCTURAL AND HARDSCAPE IMPROVEMENTS SHALL BE CONSTRUCTED AND FINISHED AHEAD OF PLANTING.

ADJUST PLANT MATERIAL AS NECESSARY AROUND UTILITY LOCATIONS. NOTIFY LANDSCAPE ARCHITECT OF ANY MAJOR CONFLICTS OR NECESSARY ADJUSTMENTS.

SOILS SHALL BE AMENDED PER A SOILS FERTILITY ANALYSIS AS EXPLAINED IN THE COMPLIANCE WITH MWELO NOTES ON THE IRRIGATION PLAN. SOIL AMENDMENTS AND PREPARATION SHALL CONFORM TO STATE AB1881 AND LOCAL WATER EFFICIENT LANDSCAPE ORDINANCES.

ALL WORK ON THE IRRIGATION SYSTEM INCLUDING OPERATIONAL TESTS, AND BACKFILLING OF TRENCHES SHALL BE COMPLETED AHEAD OF PLANTING.

LOCATIONS OF ALL PLANT MATERIAL SHALL BE REVIEWED ON SITE BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO PLANTING. THE REPRESENTATIVE RESERVES THE RIGHT TO MAKE ANY ADJUSTMENTS, SUBSTITUTIONS, ADDITIONS, AND DELETIONS TO THE PLANT LAYOUT AS WORK PROGRESSES.

ALL GROUNDCOVER SHALL BE TRIANGULARLY SPACED, UNLESS OTHERWISE NOTED.

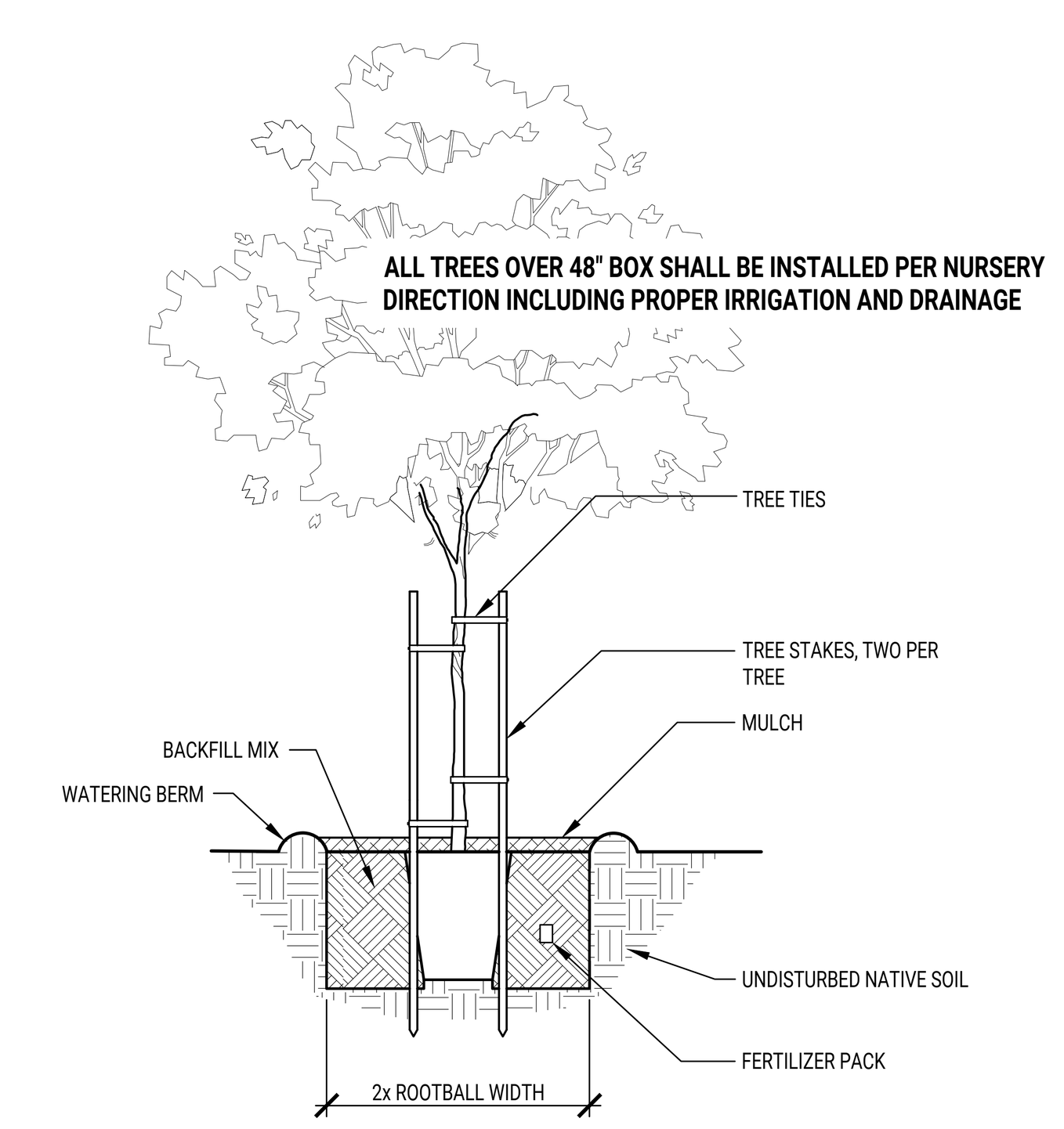
TREES SHALL BE INSTALLED NO CLOSER THAN TEN (10) FEET FROM UTILITIES.

TREES TO BE PLANTED WITHIN FIVE (5) FEET OF HARDSCAPE OR STRUCTURES SHALL BE INSTALLED WITH A ROOT BARRIER.

ALL PLANTING AREAS TO RECEIVE 3" THICK MIN. LAYER OF 'STRINGY CEDAR' BARK MULCH UNLESS NOTED OTHERWISE. PROVIDE SAMPLE FOR APPROVAL.

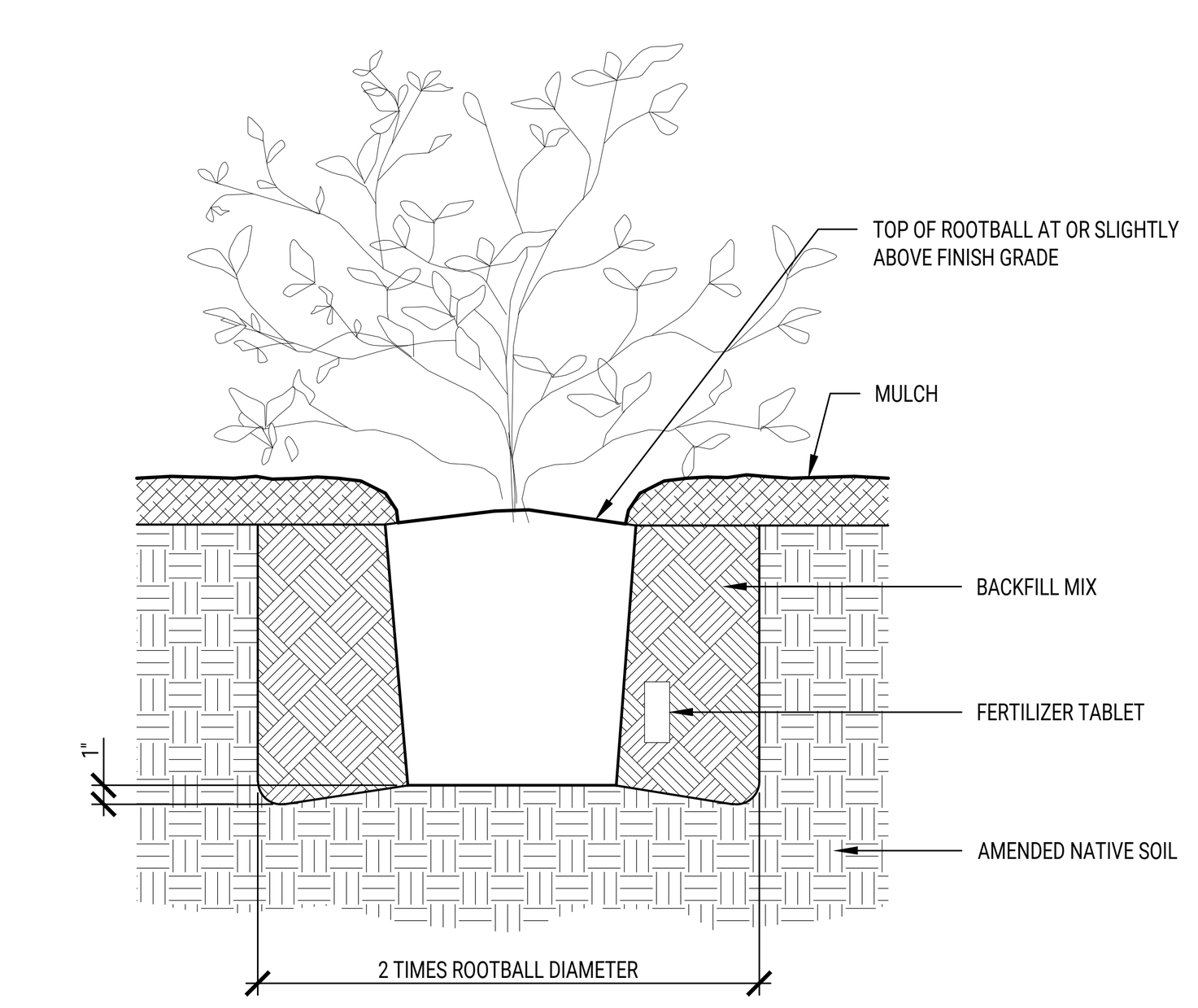
PLANTING SCHEDULE

TREES	BOTANICAL / COMMON NAME	SIZE	QTY
	CERCIS CANADENSIS 'FOREST PANSY' / FOREST PANSY EASTERN REDBUD	24" BOX	3
	OLEA EUROPAEA 'WILSONII' / WILSON OLIVE	36" BOX	20
	PYRUS CALLERYANA 'CAPITAL' / CAPITAL CALLERY PEAR	48"	2
	QUERCUS AGRIFOLIA / COAST LIVE OAK MULTI-TRUNK - MITIGATION	5 GAL.	16
SHRUBS	**BOTANICAL / COMMON NAME**	**SIZE**	**QTY**
A	ARCTOSTAPHYLOS X `EMERALD CARPET` / EMERALD CARPET MANZANITA	1 GAL	42
CI	CISTUS X PULVERULENTUS 'SUNSET' / SUNSET ROCKROSE	1 GAL	17
DI	DIANELLA CAERULEA `CASSA BLUE` / FLAX LILY	1 GAL	55
E	ERIGERON KARVINSKIANUS / SANTA BARBARA DAISY	1 GAL.	42
F	FEIJOA SELLOWIANA / PINEAPPLE GUAVA	5 GAL	20
V	FICUS PUMILA / CREEPING FIG	1 GAL	84
G	GAURA LINDHEIMERI / GAURA	5 GAL	11
L	LAVANDULA X INTERMEDIA 'PROVENCE' / PROVENCE LAVENDIN	5 GAL	11
X	MUHLENBERGIA DUBIA / PINE MUHLY	1 GAL	194
Q	OLEA EUROPAEA `LITTLE OLLIE` TM / LITTLE OLLIE OLIVE	5 GAL	90
PS	PENNISETUM SPATHIOLATUM / SLENDER VELDT GRASS	1 GAL	34
RJ	RHAMNUS ALATERNUS `JOHN EDWARDS` / ITALIAN BUCKTHORN	15 GAL	4
RH	RHAMNUS CALIFORNICA `MOUND SAN BRUNO` / CALIFORNIA COFFEEBERRY	5 GAL	79
RM	RHAPHIOLEPIS UMBELLATA `MINOR` / DWARF YEDDA HAWTHORN	5 GAL	68
BB	SALVIA 'BEES BLISS' / SAGE	1 GAL	69
SX	SALVIA X `POZO BLUE` / POZO BLUE SAGE	1 GAL	37
U	SESLERIA X `GREENLEE` / GREENLEE MOOR GRASS	1 GAL	108
ML	WESTRINGIA FRUTICOSA 'MORNING LIGHT' / MORNING LIGHT COAST ROSEMARY	5 GAL	43
WF	WESTRINGIA FRUTICOSA `WES03` TM / BLUE GEM COAST ROSEMARY	5 GAL	101



2 TREE PLANTING

1/2" = 1'-0" 329343-30



1 SHRUB PLANTING

1 1/2" = 1'-0" 329333-03

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p.805.544.5672
f.805.544.5642

ARCHITECT'S STAMP

CONTRACTOR: JP WOODWORKS

CIVIL: ROMANO DESIGN

STRUCTURAL: II&S STRUCTURAL

MECHANICAL: Brummel Mechanical Engineering, LLP

LANDSCAPE

CONSULTANT'S STAMP: LICENSED LANDSCAPE ARCHITECT WESLEY AROLA No. 5958 3/31/24 Renewal Date STATE OF CALIFORNIA

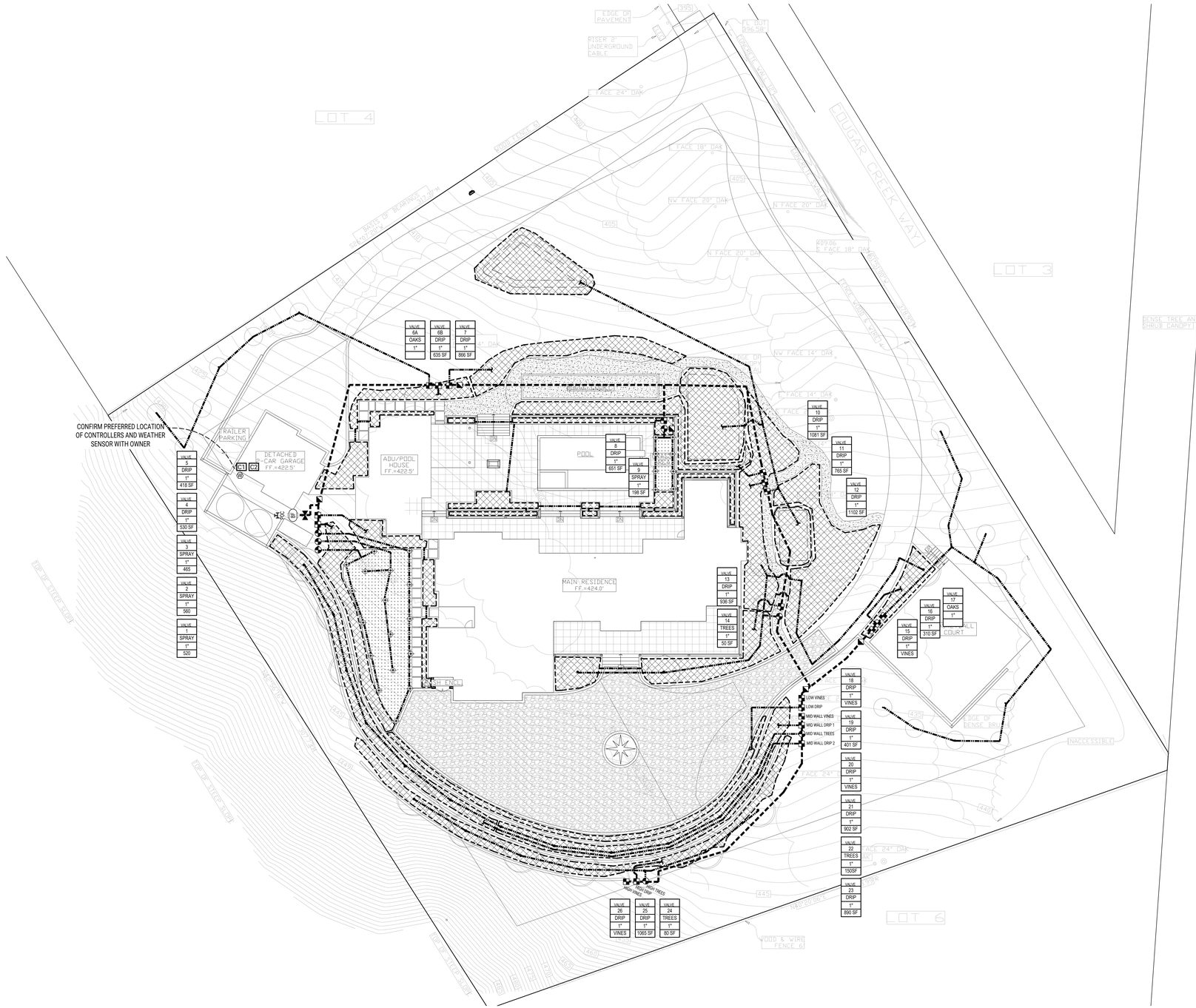
FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA
Landscape Schedule, Notes and Details

No.	Revision	Date

Date: OCTOBER 18, 2022

Sheet L1.02



NOTES:
SEE SHEETS L-2.02 FOR IRRIGATION SCHEDULE AND DETAILS

GRAPHIC SCALE
10 0 5 10 20 40
(In Feet)
1 inch = 10 feet

ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p. 805.544.5672
f. 805.544.5642

ARCHITECT'S STAMP

CONTRACTOR
JP WOODWORKS

CIVIL
ROMANO DESIGN

STRUCTURAL
T&S STRUCTURAL

MECHANICAL
Brummel Mechanical Engineering, LLP

LANDSCAPE
WWLA

CONSULTANT'S STAMP
LICENSED LANDSCAPE ARCHITECT
STATE OF CALIFORNIA

FOR COUNTY STAMP

STARKOVICH RESIDENCE

LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

Irrigation Plan

No.	Revision	Date

Date: OCTOBER 18, 2022

Sheet
L2.01

WATER USE CALCULATIONS

MAXIMUM APPLIED WATER ALLOWANCE (MAWA)

TERMINOLOGY			
	MAWA	=	Maximum Applied Water Allowance
	ETO	=	Reference Evapotranspiration
	0.62	=	Conversion factor (to gallons per square foot)
	ETAF	=	0.55 for Residential Projects
	ETAF	=	0.45 for Non-Residential Projects
	LA	=	Landscaped Area
	ETAF for SLA	=	Additional ET Adjustment Factor for SLA (1.0 - 0.7 = 0.3)
	SLA	=	Portion of Landscape Area identified as Special Landscape Area
	ETAF	=	ET Adjustment Factor (ETAF)

Project Type = Residential
Calculate for MAWA

	ET0	x	ETAF	x	AREA (sf)	x	CONVERSION	=	MAWA
MAWA (LA)	40	X	0.55	X	13,115	X	0.62	=	178,889
MAWA (SLA)	40	X	0.9	X	0	X	0.62	=	0
							MAWA (Gallons/Year) =		**178,889**
							ETWU (Gallons/ Year)=		**123,947**

ESTIMATED TOTAL WATER USE (ETWU)

TERMINOLOGY

	ETWU	=	Estimated Total Water Usage
	ET0	=	Reference Evapotranspiration
	0.62	=	Conversion factor (to gallons per square foot)
	PF	=	Plant Factor from WUCOLS
	HA	=	Hydrozone Area
	IE	=	Irrigation Efficiency
	SLA	=	Portion of Landscape Area identified as Special Landscape Area

ETWU = ET0 x 0.62 (PFxHA / IE) + SLA

Hydrozone	Irrigation Method	Plant Water Use Type	Ref ET	Conversion	PF	HA	Numerator	IE	Denominator + SLA	ETWU
1	SPRAY	H	40	0.62	0.8	520	10317	0.71		14,531
2	SPRAY	H	40	0.62	0.8	560	11110	0.71		15,648
3	SPRAY	H	40	0.62	0.8	465	9226	0.71		12,994
4	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	530	2629	0.85		3,093
5	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	418	2073	0.85		2,439
6A	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	50	248	0.85		292
6B	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	635	3150	0.85		3,705
7	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	866	4295	0.85		5,053
8	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	651	3229	0.85		3,799
9	SPRAY	H	40	0.62	0.8	198	3928	0.71		5,533
10	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	1081	5362	0.85		6,308
11	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	765	3794	0.85		4,464
12	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	1102	5466	0.85		6,430
13	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	936	4643	0.85		5,462
14	BUBBLER	M	40	0.62	0.5	50	620	0.8		775
15	AREA FOR DRIP EMITTERS	H	40	0.62	0.8	130	2579	0.85		3,034
16	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	310	1538	0.85		1,809
17	BUBBLER	L	40	0.62	0.2	30	149	0.8		186
18	AREA FOR DRIP EMITTERS	H	40	0.62	0.8	100	1984	0.85		2,334
19	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	401	1989	0.85		2,340
20	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	120	595	0.85		700
21	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	902	4474	0.85		5,263
22	BUBBLER	H	40	0.62	0.8	150	2976	0.8		3,720
23	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	890	4414	0.85		5,193
24	BUBBLER	H	40	0.62	0.8	80	1587	0.8		1,984
25	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	1065	5282	0.85		6,215
26	AREA FOR DRIP EMITTERS	L	40	0.62	0.2	110	546	0.85		642
									Total ETWU	**123,947**

COMPLIANCE WITH MWELO

1. PROJECT INFORMATION - SEE COVER PAGE OF THIS DRAWING SET FOR ALL INFORMATION INCLUDING, DATE, PROJECT APPLICANT AND OWNER, AND ADDRESS.
2. TOTAL LANDSCAPE AREA: 13,115 SF
   SHRUBS GROUNDCOVER AND TREES - 11,372 SF
   TURF - 1,743 SF
3. PROJECT TYPE - NEW CONSTRUCTION
4. WATER SUPPLY - WELL
5. CHECKLIST OF ALL DOCUMENTS IN LANDSCAPE DOCUMENT PACKAGE:
   X LANDSCAPE DESIGN PLAN - INCLUDED IN THESE LANDSCAPE DRAWINGS
   X IRRIGATION DESIGN PLAN - INCLUDED IN THESE LANDSCAPE DRAWINGS
   X GRADING DESIGN PLAN - PER CIVIL SHEETS
6. SEE BELOW FOR WATER EFFICIENT LANDSCAPE WORKSHEET
7. SEE BELOW FOR WATER BUDGET CALCULATIONS (MAWA) AND (ETWU)
8. I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE MWELO

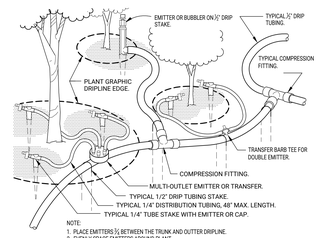
WESLEY AROLA - CA RLA #5958

CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING ITEMS:
http://www.water.ca.gov/wateruseefficiency/docs/MWELO09-10-09.pdf

1. SOILS MANAGEMENT REPORT
   Submit soil samples to a laboratory for analysis and recommendations. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
   The soil analysis may include: soil texture; infiltration rate determined by laboratory test or soil texture infiltration rate table; pH; total soluble salts; sodium; percent organic matter; and recommendations.
   The soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.
   The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design
   The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion
2. CERTIFICATE OF COMPLETION - SEE APPENDIX C OF THE MWELO
3. IRRIGATION SCHEDULING - PER SECTION 492.10 OF THE MWELO
4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE - PER SECTION 492.11 OF THE MWELO
5. IRRIGATION AUDIT REPORT - PER SECTION 492.12 OF THE MWELO

IRRIGATION NOTES

1. IRRIGATION PLAN IS DIAGRAMMATIC. FINAL LOCATION OF PIPING WILL BE DETERMINED AT THE TIME OF INSTALLATION. MAINLINE AND LATERALS SHALL BE PLACED IN THE SAME TRENCH WHEN POSSIBLE.
2. ALL EQUIPMENT REQUIRED BUT NOT SPECIFIED ON THE DRAWING, TO COMPLETE THE WORK, SHALL BE PROVIDED BY THE IRRIGATION CONTRACTOR.
3. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND/OR SPECIFICATIONS.
4. ALL PIPING RUNNING UNDER HARDSCAPE/WALLS SHALL BE SLEEVED. MINIMIZE SLEEVING AS MUCH AS POSSIBLE BY LOCATING LATERALS AND MAINLINE IN PLANTING AREAS.
5. FOR DRIP IRRIGATION AREAS, CONTRACTOR SHALL INSTALL AIR RELIEF VALVES, OPERATION INDICATORS, AND FLUSH VALVES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL COORDINATE POWER TO CONTROLLERS AND DEDICATE ONE (1) 20 AMP BREAKER FOR EACH CONTROLLER. THE AUTHORIZED REPRESENTATIVE SHALL REVIEW CONTROLLER LOCATIONS PRIOR TO INSTALLATION. 120 VOLT SERVICE AND HOOK-UP TO THE CONTROLLER SHALL BE COMPLETED BY A LICENSED ELECTRICAL CONTRACTOR. THIS COST IS TO BE A PART OF THE LANDSCAPE CONTRACTOR'S BID.
7. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE PLANS AND SITE CONDITIONS PRIOR TO BEGINNING WORK. SHOULD CONFLICTING INFORMATION BE FOUND ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE PROJECT LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH THE WORK IN QUESTION.
8. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY AT NO EXPENSE TO THE OWNER.
9. CONTRACTOR SHALL SLEEVE UNDER PAVING PER PLANS AND SPECIFICATIONS. ALL SLEEVES UNDER PAVING SHALL RECEIVE IDENTIFYING MARK ON TOP OF CONCRETE. EXTEND ALL SLEEVES 18" BEYOND EDGE OF PAVING.
10. SPLICING OF 24 VOLT WIRES WILL NOT BE PERMITTED EXCEPT IN VALVE BOXES. LEAVE A 24" COIL OF EXCESS WIRE AT EACH SPLICE. LABEL ALL WIRES W/ WATERPROOF MARKERS AT ALL SPLICES AND VALVE MANIFOLDS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL MATERIAL APPEARING ON PLAN.
12. ALL EXISTING UTILITIES, WATER LINES AND FIRE HYDRANTS SHALL REMAIN CONNECTED AND N FULL CONTINUOUS OPERATION DURING AND FOLLOWING ALL CONTRACT WORK.
13. CONTRACTOR SHALL NOT INSTALL ANY PLANTING UNTIL THE FOLLOWING ARE COMPLETED: 1. THE IRRIGATION SYSTEM SHALL BE FULLY OPERATIONAL. 2. HYDROSTATIC PRESSURE TESTS SHALL BE PERFORMED ON MAIN AND LATERAL LINES. 3. ALL ZONES SHALL PASS A COVERAGE TEST. 4. CONTROLLERS SHALL BE FULLY OPERATIONAL.



NOTE:
1. PLACE EMITTERS ½ BETWEEN THE TRUNK AND OUTTER DRIPLINE.
2. EVENLY SPACE EMITTERS AROUND PLANT.
3. STAKE THE DRIP TUBING AT EACH TEE, ELL, COUPLER AT EACH EMITTER OR TRANSFER, AND AT 6'-0" MAX O.C.

3 TYPICAL DRIP TUBING
1 1/2" = 1'-0" FX-IR-FX-DRIP-01

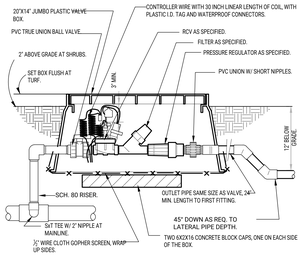
IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	TORO DZK-700-1 DRIP CONTROL VALVE KIT. WITH 1" IRRITROL 700 ULTRAFLOW INLINE VALVE, TORO Y-FILTER, PRESSURE REGULATOR AND FITTINGS.
	AREA TO RECEIVE DRIP EMITTERS AT EACH PLANT : PROVIDE (1) 2 GAL EMITTER / 1 GALLON PROVIDE (2) 2 GAL EMITTER / 5 GALLON AND LARGER
TURF	HUNTER MP ROTATOR POPUP SPRAY. HIGH EFFICIENCY. SELECT PROPER HEADS AND ADJUST TO PROVIDE HEAD TO HEAD COVERAGE AND AVOID OVERSPRAY
TREES	BELOW GRADE TREE BUBBLER TORO FB-50-PC -UP TO 24" BOX = 2 BUBBLERS -GREATER THAN 24" BOX = 3 BUBBLERS IN TRIANGULAR ARRANGEMENT -SPECIMEN TREES OVER 48" BOX SHALL BE IRRIGATED PER THE SUGGESTION OF THE ARBORIST OR NURSERY
	IRRITROL 100P1-S GLOBE PRESSURE REDUCING STEM ELECTRIC REMOTE CONTROL VALVE, 1", GLOBE BODY CONFIGURATION, FLOW CONTROL
	TYPICAL HOSE BIB
	MATCO-NORCA 770T PVC WHITE BALL VALVE FOR SCH 40 AND SCH 80 PIPE, THREADED ENDS COMPLY WITH ASTM F1498, WITH "T" HANDLE, SAME SIZE AS MAINLINE. 1/2" - 4".
BF	FEBCO 825Y 3/4" REDUCED PRESSURE BACKFLOW PREVENTER
C1 C2 ZONES 18+ ZONES 1-18	(TWO) - IRRITROL TC-18EX-R HYBRID CONTROLLER, 18 - STATION, EXTERIOR MODEL. CLIMATE LOGIC COMPATIBLE, AND REMOTE-READY. CONFIRM EXACT LOCATION WITH OWNER
W	IRRITROL RS1000 WIRELESS RAIN SENSOR
POC	POINT OF CONNECTION - CONFIRM LOCATION AND SIZE ON CIVIL PLANS
	IRRIGATION MAINLINE: PVC SCHEDULE 40 - 1 1/2"
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40 PVC SCHEDULE 40 IRRIGATION PIPE.

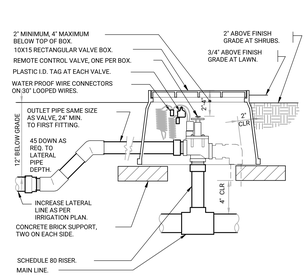
LATERAL SIZING
MINIMUM LATERAL SIZE SHALL BE 3/4". SIZING OF LATERAL PIPE SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

VALVE TAG

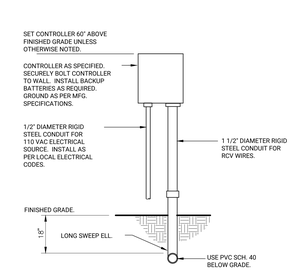
VALVE			
X	STATION #	3/4"	0-9 GPM
-	TYPE	1"	9.1-18 GPM
X	SIZE	1 1/4"	18.1-30 GPM
X	HYDROZONE AREA	1 1/2"	31.1-40 GPM
		2"	40.1-60 GPM



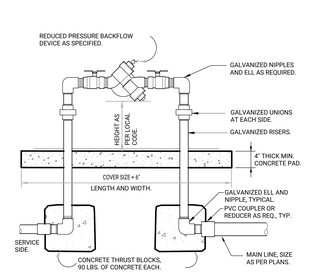
5 1" DRIP VALVE/FILTER/REGULATOR
1 1/2" = 1'-0" FX-IR-FX-DRIP-12



4 ELECTRIC REMOTE CONTROL VALVE
1 1/2" = 1'-0" FX-IR-FX-RCV-05



2 WALL MOUNT CONTROLLER
1" = 1'-0" FX-IR-FX-CONT-07



1 RP BACKFLOW W/ENCLOSURE
1" = 1'-0" FX-IR-FX-BACK-06

Isaman design, Inc.
ARCHITECTURE
2420 broad street
san luis obispo, ca 93401
p. 805.544.5672
f. 805.544.5642

ARCHITECT'S STAMP

CONTRACTOR
JP WOODWORKS

CIVIL
ROMANO DESIGN

STRUCTURAL
T&S STRUCTURAL

MECHANICAL
Brummel Mechanical Engineering, LLP

LANDSCAPE
WWLA

CONSULTANT'S STAMP
LICENSED LANDSCAPE ARCHITECT
WESLEY AROLA
No. 5958
Expiration Date
STATE OF CALIFORNIA

FOR COUNTY STAMP

STARKOVICH RESIDENCE
LOT 5
COUGAR CREEK WAY
ARROYO GRANDE, CA

Irrigation Notes and Details

No.	Revision	Date

Date: OCTOBER 18, 2022
Sheet
L2.02