INITIAL STUDY/NEGATIVE DECLARATION
[Pursuant to Public Resources Code Section 21080(c) and California Code of Regulations, Title 14, Sections 15070-15071]

Lead Agency: San Joaquin County Community Development Department

Project Applicant: Darren Mangrum

Project Title/File Number(s): PA-2100126

Project Description: Darren Mangrum (Applicant) is seeking a use permit for commercial cannabis cultivation from the County of San Joaquin Community Development Department (Proposed Project). The Proposed Project is located at 24707 S. Bird Road in Tracy, Ca, on a three-acre parcel in San Joaquin County (County) (APN: 250-100-06) (Project Site). The Proposed Project would be constructed in two phases over three years. Phase one includes the construction of a 10,368-sf building (Building A) containing three greenhouses for cannabis cultivation and conversion of an existing 2,280-sf building (Building D) for office/security purposes. Conversion of Building D would include general construction to meet ADA requirements as well as adding doors for security. An existing 1,440-sf structure would be used for storage of administration documents (Building F). In addition, a stormwater retention basin and two wastewater tanks (to collect excess water generated from greenhouse production) would be constructed, 12 concrete parking stalls would be constructed (7 east of Building A, 2 north of Building E, and 3 north of Building D, one of which is ADA-compliant), and a 50kw emergency back-up diesel generator would be utilized. A base rock access road would be constructed throughout the Project Site to allow access to the greenhouses and provide emergency access to all buildings. Security fencing that is surrounding the property is planned that will meet the requirements of both the sheriff's security requirements and the title fence regulations.

Phase two includes the construction of a 13,824-sf building (Building C) containing four greenhouses and a 5,760-sf building (Building B) containing one greenhouse for cannabis cultivation, the utilization of an existing 5,000-sf agricultural building (Building E) for tractor/equipment storage, and the construction of four additional concrete parking stalls west of Building C. Existing structures situated on the proposed location for Building B will be demolished. The total disturbed area would be 2.16 acres.

The project would be served by a private septic system, two existing on-site wells (agricultural and domestic), natural on-site stormwater drainage, and include exterior downcast safety lighting. The agricultural well would serve the greenhouses, while the domestic well would serve the security office (Building D). Access to the site is off of South Bird Road via a secured automatic gate. The project would include a security system with 24-hour monitoring and a licensed and armed security guard present on site at all times.

The County's issuance of the use permit triggers the need for compliance with the California Environmental Quality Act (CEQA). Therefore, the County has requested CEQA compliance in association with approval of the use permit.

Assessor's Parcel No(s).: 250-100-06

Acres: 3 acres

General Plan: A/G (General Agriculture)

Zoning: AG-40 (General Agriculture, 40-acre minimum)

Potential Population, Number of Dwelling Units, or Square Footage of Use(s):
A commercial cannabis cultivation facility (8 greenhouses) totaling 29,952 sf and three existing structures (2,280 sf, 1,440 sf, and 5,000 sf).

Surrounding Land Uses:

North: Agricultural, Highway 205 is approximately 0.8 miles north of the project site
South: Agricultural/Residential, an existing residence abuts the southern parcel boundary
East: Agricultural/Industrial, Highway 5 is approximately 1 mile east of the project site
West: Agricultural with scattered residences

References and Sources for Determining Environmental Impacts:

Original source materials and maps on file in the Community Development Department including: all County and City general plans and community plans; assessor parcel books; various local and FEMA flood zone maps; service district maps; maps of geologic instability; maps and reports on endangered species such as the Natural Diversity Data Base; noise contour maps; specific roadway plans; maps and/or records of archeological/historic resources; soil reports and maps; etc.

Many of these original source materials have been collected from other public agencies or from previously prepared EIR's and other technical studies. Additional standard sources which should be specifically cited below include on-site visits by staff; staff knowledge or experience; and independent environmental studies submitted to the County as part of the project application (Biological Memorandum dated January 17, 2022 and a Cultural Resources Report dated January 14, 2022 prepared by Montrose Environmental). Copies of these reports can be found by contacting the Community Development Department.

Tribal Cultural Resources:

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

No. Auburn Rancheria and Buena Vista Rancheria of Me-Wuk Indians were notified of the project in July 2021 and did not request further consultation.

General Considerations:

1. Does it appear that any environmental feature of the project will generate significant public concern or controversy?

   ☐ Yes ☒ No

   Nature of concern(s): *Enter concern(s) or delete section if not applicable.*

2. Will the project require approval or permits by agencies other than the County?

   ☒ Yes ☐ No

   Agency name(s): San Joaquin County and Tracy Rural Fire Protection District, County cannabis license from the County's Environmental Health Department and Annual State License from the Department of Cannabis Control.

3. Is the project within the Sphere of Influence, or within two miles, of any city?

   ☒ Yes ☐ No

   City: The Project Site is approximately 1.88 miles east of the City of Tracy's sphere of influence. The Project Site is approximately 1.88 miles east of the City of Tracy's sphere of influence.

Attachments

Attachment A: Site Management Plan/Operations Plan
Attachment B: Biological Memorandum
Attachment C: Well Data
Attachment D: Cultural Resources Letter Report
Attachment E: Nitrate Loading Study and Soil Suitability Report
Attachment F: Geotechnical Engineering Report
Attachment G: Grading Plans
Attachment H: Modification Request

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a **"Potentially Significant Impact"** as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology / Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

Determination: (To be completed by the Lead Agency) On the basis of this initial evaluation:

☐ I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Nina Gordart
Signature

12-6-2022
Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and

   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

ISSUES:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
I. Aesthetics.					
Except as provided in Public Resources Code Section 21099, would the project:					
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐	☐

Impact Discussion:

The Proposed Project Site is located on the west side of South Bird Road, within the City of Tracy, in San Joaquin County. The on-site developments and improvements are located in flat terrain and the Project Site is in a relatively rural area not frequented by the public. The Project Site is not located near a designated State Scenic Highway or other designated scenic corridor. The nearest eligible State Scenic Highway is Highway 580, approximately 8 miles south of the Project Site, which does not provide views of the Project Site (Caltrans, 2021). Therefore, the Proposed Project would have no impacts on scenic vistas or resources. The Proposed Project would utilize both existing and new structures (including greenhouses) for commercial cannabis cultivation. No outdoor cultivation is proposed with this application, nor permitted in San Joaquin County. Although the Proposed Project would change the visual character of the Project Site by adding buildings and perimeter fencing, the existing structures are similar in appearance to agricultural structures in the vicinity and are not expected to degrade the existing visual character or quality of public views. Therefore, impacts to public views would be less than significant.

The Proposed Project would utilize enclosed structures for all cultivation. Indoor lighting for cultivation would include a mix of natural light and LED lighting; the mixed light cultivation areas would be designed to allow sunlight to be used to provide light most of the year, and supplemented with LED lights when necessary. The proposed greenhouses would be constructed of a twin-wall polycarbonate roof with 80 percent light transmission and 95 percent light diffusion. Light pollution would be reduced by 95 percent through the use of black-out curtains and insulation. Although the Proposed Project would introduce new light sources, all exterior security lighting would only activate via motion-sensor and would be fully shielded, downward casting and would not spill over onto other properties or the night sky, in compliance with Development Title Section 9-1015.5(g). Any proposed lighting would comply with the County's Development Title regulations regarding light and glare. Pursuant to Development Title Section 9-1025.6(b), "no use shall cause glare above 1.0 foot-candles on an adjacent lot developed residentially, zoned for residential use, or shown as residential on the General Plan Map, or cause glare on a street or alley." Therefore, impacts from new lights sources would be less than significant.

Impacts to aesthetics, as a result of the Proposed Project, would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
II. Agriculture and Forestry Resources.					
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒	☐

Impact Discussion:

This Proposed Project is a commercial cannabis cultivation operation, which is an allowable use within the General Agriculture zoning designation. The Project Site is classified by Department of Conservation California Important Farmland Finder as "Urban and Built-Up Land" (DOC, 2021). The Project Site is not classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the Proposed Project would not result in the conversion of important farmland to a non-agricultural use. The Project Site is zoned General Agriculture (AG-40). The Project Site is not under a Williamson Act contract. The Proposed Project is not zoned forest land or timberland and does not involve the removal of trees; therefore, the Proposed Project would not result in the loss or conversion of forest land.

The Proposed Project would have no impacts on agriculture and forestry resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
III. Air Quality.					
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐	☐
d) Result in substantial emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐	☐

Impact Discussion:

The San Joaquin Valley Unified Air Pollution Control District (SJVAPCD) has been established by the State in an effort to control and minimize air pollution. The SJVAPCD provided comments on the Proposed Project on December 22, 2021. SJVAPCD reviewed the project, and determined that the project is not expected to exceed any of the District's significance thresholds: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of sulfur (SOx), 15 tons of per year of 10 microns or less in size (PM10), or 15 tons per year of particulate matter of 2.5 microns or less in size (PM2.5). The District also stated that the Proposed Project is not subject to District Rule 9510 (Indirect Source Review), but is subject to District Rule 2201 (New and Modified Stationary Source Review Rule) and District Rule 2010 (Permits Required). The project may also be subject to various other district rules and regulations including: Regulation VIII (Fugitive PM 10 Prohibitions), Rules 4102 (Nuisance), Rules 4601 (Architectural Coatings, and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Pacing and Maintenance Operations). At the time of development, the applicant will be required to meet all applicable SJVAPCD rules and regulations.

The Proposed Project has the potential to expose off-site sensitive receptors to air pollutant emissions from construction activities, which include emissions of particulate matter from diesel-fueled engines. Construction-related activities associated with the Proposed Project would generate emissions of criteria air pollutants from site preparation (e.g., grading, trenching, and clearing), off-road equipment, material transport, worker vehicles, and vehicle travel. The generation of dust (fugitive PM10 and PM2.5) during construction activities could adversely affect sensitive receptors and construction workers by exacerbating existing respiratory problems such as asthma. Dust can also adversely affect children and the elderly who are more susceptible to respiratory illnesses. Furthermore, the Proposed Project has the potential to release fumes from volatile organic compounds utilized. This is a potentially significant impact. **Mitigation Measure AQ-1** requires that dust and construction control measures are implemented that would minimize emissions from construction activities. With mitigation, potential air quality impacts would be reduced to less than significant

The Proposed Project would be required to pave access driveways and parking areas in asphalt concrete or pour cement concrete pursuant to Development Title Section 9-1015.5(e). However, the Applicant has submitted a Modification Request (**Attachment I**) to the County, requesting the use of a gravel road per the recommendation of the Project's geotechnical engineer. The Proposed Project does not include on-site store-front retail sales or other uses which would draw cannabis related customers to the site. As a result of the required surfacing, dust generated by the movement of vehicles on to and off of the property related to operation of the Proposed Project is expected to be less than significant.

Regarding odors, the greenhouse structures would include ventilation fans and the applicant proposes to implement activated charcoal air-scrubbers in the greenhouse structures used in the cultivation operation. Supplemental information (**Attachment A**) provided by the applicant as a part of the odor management plan states that all greenhouse doors would remain closed and all staff would be required to take a training course highlighting the importance of closing doors and ensuring exhaust and filtration systems are running as required to minimize on-site odors. The activated charcoal air scrubbers that will be changed at least once every three months. Additionally, the Proposed Project would be subject to the public safety requirements contained in Title 4 of the San Joaquin County Ordinance. Title 4 regulations require that commercial cannabis licensees each operate pursuant to an Odor Control Plan approved by the County's Environmental Health Department as part of their County licensing process. These plans will be filed with the Environmental Health Department as part of the commercial cannabis license applications that must be reviewed and approved prior to operation.

Mitigation Measures:

AQ-1: The following control measures shall be implemented during construction:

a) Emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area, shall be controlled so that dust does not remain visible in the atmosphere beyond the boundary line of the emission source.

b) When wind speeds result in dust emissions crossing property lines, and despite the application of dust control measures, grading and earthmoving operations shall be suspended and inactive disturbed surface areas shall be stabilized.

c) Fugitive dust generated by active operations, open storage piles, or from a disturbed surface area shall not result in such opacity as to obscure an observer's view to a degree equal to or greater than does smoke as dark or darker in shade as that designated as No. 2 on the Ringlemann Chart (or 40 percent opacity).

d) All exposed soils be watered as needed to prevent dust density as described above and in order to prevent dust from visibly exiting the property.

e) All haul trucks transporting soil, sand, or other loose material offsite shall be covered.

f) All vehicle speeds on unpaved roads shall be limited to 25 mph.

g) During construction the contractor shall, where feasible, utilize existing power sources (e.g., power poles) or clean fuel (i.e. gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators.

h) Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. Signs shall be posted in the designated queuing areas of the construction site to remind off-road equipment operators that idling time is limited to a maximum of 5 minutes.

Impacts to air quality, as a result of the Proposed Project, would be less than significant after mitigation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
IV. Biological Resources.					
Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒	☐

Impact Discussion:

A Biological Assessment was prepared for the Proposed Project and is included as **Attachment B**. As part of the Biological Assessment, a site visit was conducted on November 19, 2021 in order to assess vegetative communities with the potential to be impacted by the Proposed Project, and other sensitive biological resources. The Biological Assessment reviewed the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants, California Department of Fish and Wildlife (CDFW) California Natural Diversity Database, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory, and the Natural Resources Conservation Service Soils Report (NRCS, 2019). The USFWS Information for Planning and Consultation was also reviewed to determine special-status species that may occur within the region (USFWS, 2021). For the purpose of this Initial Study, special-status include species that are:

- Ranked by CNPS as List 1 or List 2;
- Listed or proposed for listing as endangered or threatened under the California Endangered Species Act and/or Federal Endangered Species Act;
- Designated as endangered, rare, or fully protected pursuant to the California Fish and Game Code; or
- Designated as a Species of Special Concern by CDFW.

The Project Site includes areas of developed land and ruderal/disturbed habitat. This habitat is characterized by areas or removed orchard which has been graded and partially graveled over. Cheeseweed mallow (*Malva parviflora*) was the predominant ground cover. The northern border of the Project Site was fenced and lined with cedar (*Cedrus spp.*) and interspersed with prickly Russian thistle (*Salsola tragus*). Ornamental plants including California fuscia (*Epilobium canum*), rose (*rosa sp.*), red valerian (*Caprifoliaceae ruber*), and blueberry (*Vaccinum sect. Cyanococcus*) surround the Project Site boundaries and existing office building. Both the Biological Assessment and site survey concluded that the Project Site lacks suitable habitat for special-status plants. Therefore, there would be no impact to special-status plants.

The Project Site offers habitat with potential to support two species-status animal species: the Swaindon's hawk (*Buteo swainsoni*) and the Burrowing Owl (*Anthene cunicularia*). Walnut trees (*Juglans spp.*) located within the Subject Property may provide suitable habitat for nesting birds, including Swainson's hawk, and the open field to the north of the Project Site may serve as appropriate foraging habitat. The periphery of the Project Site is less disturbed and the surrounding vegetation may provide cover to wildlife from predators. This area may provide suitable habitat for burrowing owls as small mammal burrows were present along the western border. Ground disturbing activities could result in minor sensory disturbance to birds nesting nearby. Nesting birds are protected under California Fish and Game Code as well as the Migratory Bird Treaty Act, and such disturbance would be a potentially significant impact. **Mitigation Measure BIO-1** would avoid potential impacts to nesting birds by requiring a preconstruction nesting bird survey prior to construction and establishing a disturbance-free buffer around active nests. With implementation of **Mitigation Measure BIO-1**, potential impacts to nesting birds, including special-status bird species, would be less-than significant.

Habitat types on the Project Site include areas of developed land and ruderal/disturbed habitat. Construction activities would be limited to areas of developed land and ruderal/disturbed habitat. Ruderal habitat includes graveled over orchid and existing buildings. Ruderal and cleared orchard habitats are not considered sensitive, and impacts to these habitats would be less than significant. There is designated Critical Habitat for delta smelt mapped on the Project Site (USFWS, 2021c); however, there were no waterways found on the Project Site that would serve as suitable habitat for this species. As stated above, there are no aquatic habitats present on or adjacent to the Project Site. Therefore, no direct conversion of aquatic habitat would occur.

The Project Site is developed and subject to regular disturbance from ongoing agricultural activities. Existing fencing occurs around the Project Site and adjacent vineyards. This area does not provide significant wildlife habitat. The Project Site does not serve as a wildlife corridor or nursery. Lands surrounding the Project Site contain orchards that would not be impacted by the Proposed Project. The Proposed Project would not alter or impact wildlife access or movement and impacts would be less-than-significant.

San Joaquin County has provisions to protect native oak trees, heritage oak trees, and historical trees from removal associated with development projects. However, the Project Site does not contain protected native oaks, heritage oaks, or historical trees. The Proposed Project would not conflict with any local policies protecting biological resources and impacts would be less than significant.

There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans that cover the area of the Project Site. Therefore, the Proposed Project would not conflict with an established or proposed conservation plan. There would be no impact related to adopted habitat or conservation plans.

Mitigation Measures:

BIO-1: Should work commence during the nesting season (February 1 through August 31), a preconstruction nesting bird survey shall be conducted by a qualified biologist no more than 7 days prior to the start of ground disturbing activities. This survey will include the assessment of areas that can be used by burrowing owl (*Athene cunicularia*), to ensure that the listed species will not be impacted. Accessible areas within 500 feet of construction shall be surveyed for active nests. Should an active nest be identified, a disturbance-free buffer shall be established by the qualified biologist based on the needs of the species identified. The buffer shall be clearly marked by high-visibility material and shall remain in place until the nest is determined to be no longer active. Ground-disturbing activities, including the removal of trees, shall not occur within the buffer. Should construction cease for a period of five days or more, an additional nesting bird survey shall be conducted.

Impacts to biological resources, as a result of the Proposed Project, would be less than significant after mitigation.

V. Cultural Resources.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource pursuant to§ 15064.5?	☐	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐	☐

Impact Discussion:

In order to identify if any cultural resources were present on the Project Site, Montrose Environmental Solutions (Montrose) completed a record search on November 11, 2021 at the Central California Information Center (CCIC) of the California Historical Resources Information System. Additionally, Montrose sent a request to the Native American Heritage Commission (NAHC) asking for a search of the Sacred Lands File and for a list of contacts who might have information regarding cultural resources within the Proposed Project area. The CCIC reported that no resources have been identified within the Project Site and the NAHC reported no listings in the Sacred Lands file for the Project Site. Montrose conducted a field survey on November 19, 2021. The field survey was completed using two transects across the northern half, then transects behind and between the various structures except the historic residence. Ground surface visibility was very good and no cultural materials were found within the Project Site. Results of the background research and field survey are included in a Cultural Resources Letter Report (**Attachment E**). Additionally, existing shed structures situated on the proposed location for Building B will be demolished in order to construct the new greenhouse; these buildings do not qualify as historical resources.

There is always the potential, however remote, that previously unknown archaeological resources and/or human remains could be encountered during subsurface construction activities. This is a potentially significant impact. Implementation of Mitigation Measures **CR-1** and **CR-2** would provide for the appropriate treatment of inadvertently discovered resources human remains.

Mitigation Measures:

CR-1: All work within 50-feet of the find should be halted until a qualified professional archaeologist can evaluate the significance of the find in accordance with CRHR criteria. Work should not resume in the vicinity of the find until any required mitigation has been completed.

CR-2: If human remains are uncovered, compliance with Section 15064.5 (e) (1) of the CEQA Guidelines and Health and Safety Code Section 7050.5 is required. All project-related ground disturbances within 100-feet of the find should halt until the county coroner has been notified. If the coroner determines that the remains are Native American, the coroner will ask the NAHC to identify a Most Likely Descendant, who will work with the construction contractor, agency officials, and a qualified professional archaeologist to determine an appropriate avoidance strategy or other treatment plan. Project-related ground disturbance in the vicinity of the find should not resume until the process detailed in CEQA Guidelines Section 15064.5 (e) has been completed.

Impacts to cultural resources as a result of the Proposed Project would be less than significant after mitigation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
VI. Energy.					
Would the project:					
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?	☐	☐	☒	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐	☐

Impact Discussion:

Construction of the Proposed Project would consume energy primarily from fuel consumed by construction vehicles and equipment. Fossil fuels used for construction vehicles and other equipment would be used during site preparation and trenching. Fuel consumed during construction would be temporary in nature and would not represent a significant demand on available fuel. There are no unusual characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or State.

Once operational, the Proposed Project would consume energy for the purposes of cultivation, security lighting/cameras, and general domestic uses. The Proposed Project would temporarily utilize a back-up diesel generator only in the event of an emergency where PG&E was not available. The proposed greenhouse structures would be made of opaque metal siding and a twin-wall polycarbonate translucent roof with 80 percent light transmission and 95 percent light diffusion. Mixed light cultivation would occur through a combination of natural light and LED lighting. Energy would be supplied through PG&E. The anticipated energy demand for the Proposed Project is approximately 2,400 kilowatt-hours (KWh) per day (see **Attachment 1**). This represents a normal energy demand in relation to the size of the proposed facilities. Energy would only be used to the extent necessary to run the Proposed Project operations. Therefore, operation of the Proposed Project would not result in inefficient, wasteful, or unnecessary consumption of energy resources.

Furthermore, the Proposed Project would promote energy efficiency through building design. LED energy-efficient lighting would be implemented in the greenhouse buildings. Additionally, sensor-driven environmental control systems combined with high-efficiency heating and ventilation equipment, including energy efficient dehumidification systems and ventilation fans would be utilized in the greenhouses. All buildings would be equipped with electronic thermostats with advanced sensors for accurate temperature control and monitoring of climatic data in real-time.

The project proposes to use regulations from The California Energy Code (also titled The Energy Efficiency Standards for Residential and Non-Residential Buildings), which was created by the California Building Standards Commission in response to a legislative mandate to reduce California's energy consumption. The Code's purpose is to advance the state's energy policy, develop renewable energy sources and prepare for energy emergencies. These standards are updated periodically be the California Energy Commission. The code includes energy conservation standards applicable to most buildings throughout California. These requirements will be applicable to the proposed project, and will be triggered at the time of building permit application, ensuring that any impact to the environment due to wasteful, inefficient, or unnecessary consumption of energy will be less than significant and preventing any conflict with state or local plans for energy efficiency and renewable energy. Considering the re-use of existing buildings and the design of greenhouse facilities, the Proposed Project would not conflict with or obstruct state or local plan for renewable energy or energy efficiency.

Impacts to energy, as a result of the Proposed Project, would be less than significant.

VII. Geology and Soils.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
Would the project:					
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	☐
iv) Landslides?	☐	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐	☐
d) Be located on expansive soil and create direct or indirect risks to life or property?	☐	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐	☐

Impact Discussion:

A Geotechnical Engineering Report was completed for the Proposed Project (**Attachment G**), which concluded that the Proposed Project is feasible from a geotechnical standpoint. Although the Project Site is located in an area that may be subject to seismic ground shaking in the future, there are no mapped surface faults on the Project Site that would have the potential to rupture. The nearest fault, Vernalis Fault, is located approximately one mile north of the Project Site, with additional fault complexes west of Tracy (DOC, 2021a). Additionally, the Proposed Project would be required to comply with the California Building Code (CBC), which includes provisions for foundations as well as design criteria for seismic loading and other geologic hazards based on fault and seismic hazard mapping. Therefore, impacts related to seismic ground shaking or failure would be less than significant.

The Project Site is relatively flat and would therefore not be susceptible to landslides. According to the California Department of Conservation Earthquake Zones of Required Investigation mapper, the Project Site is not located within a California Geological Survey-identified Liquefaction or Landslide zone (DOC, 2021b). Impacts relating to landslides and liquefaction are less than significant.

According to the USDA Web Soil Survey, the majority of the soils on the Project Site are made up of Vernalis clay loam and Capay clay (NRCS, 2019). These soils tend to have a low erosion potential and are generally well drained. The Proposed Project includes the re-use/conversion of existing structures and the construction of new structures on relatively flat terrain. Grading would occur, including approximately 3,075 cy of cut, 225 cy of fill, for a net export of 2,850 cy. However, ground disturbance would occur related to the installation of the stormwater retention basin, cannabis wastewater tanks, and minor trenching. As the site is relatively level, cuts and fills during earthworks are anticipated to be minimal, with two feet or less in the vertical extent and excavations for underground utilities not anticipated to exceed five feet below grade (**Attachment G**). This ground disturbance could potentially result in soil erosion. This would be a potentially significant impact. However, as discussed in **Section X** below, **Mitigation Measure HYD-1** would ensure impacts related to erosion would be less than significant. Therefore, the Proposed Project would not result in substantial soil erosion or the loss of topsoil and impacts to soil erosion or loss of topsoil would be less than significant.

The Proposed Project would be served by two existing onsite septic tanks. Soil types on the Project Site are well drained and currently support existing septic tanks. Furthermore, a Nitrate Loading Study and Soil Suitability Report (**Attachment F**) was competed for the Proposed Project, as required by the County's Environmental Health Department. The report determined that the existing two septic tanks are capable of adequately servicing the Proposed Project and that soils on the Project Site appear conducive for septic tank use. The Nitrate Loading Study and Soil Suitability Report also concluded that the uses related to the Proposed Project would be less intensive than current uses, with less hydraulic and nitrate loading compared to existing conditions. No additional septic tanks are proposed. Therefore, the Proposed Project and Project Site soils have the ability to continue supporting the two existing septic tanks.

There are no known paleontological or unique geological features present on the Project Site (**Attachment B**). There is always the potential, however remote, that previously unknown unique paleontological resources or sites could be encountered during subsurface construction activities. This is a potentially significant impact. In the event that paleontological resources or sites are found, **Mitigation Measure GEO-1** would ensure that the Proposed Project would not directly or indirectly destroy a unique paleontological resource or site. After implementation of **Mitigation Measure GEO-1**, impacts to paleontological resources would be less than significant.

Mitigation Measures:

GEO-1: In the event of any inadvertent discovery of paleontological resources, all work within a 50-foot radius of the find shall be halted and the County shall be notified. Workers shall avoid altering the materials until a professional paleontologist can evaluate the significance of the find and make recommendations to the County on the measures that shall be implemented to protect the discovered resources.

Impacts to geology and soils, as a result of the Proposed Project, would be less than significant with Mitigation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
VIII. Greenhouse Gas Emissions.					
Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

Impact Discussion:

Generally, the emissions of GHGs contributing to global climate change are a cumulative issue attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, city, and virtually every individual on Earth. An individual project's direct GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable contribution to climate change depending on the amount of GHG emissions that would be generated. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would result in a cumulative contribution to global GHG emissions. Estimated GHG emissions, given the size and nature of the project, are considered less than significant compared to the global scale of emissions. Estimated GHG emissions attributable to future regional development would be primarily associated with increases of carbon dioxide (CO2) and, to a lesser extent, other GHG pollutants such as methane (CH4) and nitrous oxide (N2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions from the three employees anticipated to be on-site during a twenty-four (24) hour day and related deliveries (see Transportation Section below), and minimal agricultural related emissions.

As noted previously, the proposed project will be subject to the rules and regulations of the SJVAPCD. The SJVAPCD has adopted the Guidance for Valley Land- use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and the District Policy - Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD, 2015). The guidance and policy rely on the use of performance-based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project-specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA. To be determined to have a less-than-significant individual and cumulative impact with regard to GHG emissions, projects must include BPS sufficient to reduce GHG emissions by 29 percent when compared to Business As Usual (BAU) GHG emissions. Per the SJVAPCD, BAU is defined as projected emissions for the 2002-2004 baseline period. Projects which do not achieve a 29 percent reduction from BAU levels with BPS alone are required to quantify additional project-specific reductions demonstrating a combined reduction of 29 percent. The project is expected to meet BPS through the use of on-site renewable energy (e.g. solar photovoltaic systems), and potentially exceeding Title 24 energy efficiency standards through the use of energy-efficient lighting and control systems, the installation of energy-efficient mechanical systems, the installation of drought-tolerant landscaping, efficient irrigation systems, and the use of low-flow plumbing fixtures.

It should be noted that neither the SJVAPCD nor the County provide project-level thresholds for construction-related GHG emissions. The proposed project would not result in significant construction of GHG related emissions because the project will largely be re-using existing buildings and construction of new greenhouse structures. Minimal construction GHG emissions are a one-time and short-term release and, therefore, would not generate a significant contribution to global climate change.

Impacts to greenhouse gas emissions as a result of the Proposed Project would be less than significant.

IX. Hazards and Hazardous Materials.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐	☐

Impact Discussion:

Materials associated with the cultivation of commercial cannabis, such as fertilizers, pesticides, cleaning solvents, and gasoline, could be considered hazardous if improperly stored, disposed of, or transported. However, as stated in the Site Management Plan/Operations Plan (**Attachment A**), staff would be trained on the proper use, storage, and disposal requirements for hazardous waste. The Proposed Project includes storage areas for chemicals that would be designed and located consistent with State and local guidelines. The proposed process for disposal includes temporarily storing all used hazardous waste in labeled, plastic-lined metal cans or drums until it can be removed off site for disposal. The San Joaquin County Environmental Health Department requires the owner/operator to report to the California Environmental Reporting System before any hazardous materials/waste can be stored or used onsite.

Cannabis vegetative waste would be chipped and stored onsite for composting. The Proposed Project shall comply with Division 10, Section 4-10035(r) of the San Joaquin County Code Ordinance, which specifies that all Commercial Cannabis Licensees shall dispose of all cannabis waste and hazardous materials in a manner that meets applicable State and County requirements and is consistent with its waste management plan.

Additionally, wastewater associated with cannabis cultivation would be pumped from the greenhouses to two 500-gallon proposed in-ground wastewater tanks. The tanks would emptied and trucked off site by a certified hazardous waste service approximately once per month.

The Proposed Project would be regulated by Title 4, Section 8307 of the Department of Cannabis Control Regulations which states:

a) Licensees shall comply with all pesticide laws and regulations enforced by the Department of Pesticide Regulation.

b) For all pesticides that are exempt from registration requirements, licensed cultivators shall comply with all applicable pesticide statutes and regulations enforced by the Department of Pesticide Regulation and the following pesticide application and storage protocols:

1) Comply with all pesticide label directions;
2) Store chemicals in a secure building or shed to prevent access by wildlife;
3) Contain any chemical leaks and immediately clean up any spills;
4) Apply the minimum amount of product necessary to control the target pest;
5) Prevent offsite drift;
6) Do not apply pesticides when pollinators are present;
7) Do not allow drift to flowering plants attractive to pollinators;
8) Do not spray directly to surface water or allow pesticide product to drift to surface water. Spray only when wind is blowing away from surface water bodies;
9) Do not apply pesticides when they may reach surface water or groundwater; and
10) Only use properly labeled pesticides. If no label is available consult the Department of Pesticide Regulation.

For commercial cannabis cultivation, any pesticide or herbicide use associated with its production is subject to the same rules and regulations as any other agricultural crop. Compliance with these State and local regulations is administered by the Agricultural Commissioner that is the local enforcement authority for the California Department of Food and Agriculture and the California Department of Pesticide Regulation. Compliance with these regulations would ensure impacts related to the use of potentially hazardous materials are less-than-significant.

The Project Site is not classified as being within a flood zone or inundation area, nor is it in an area mapped as having unstable soils according to the USDA Web Soil Survey (NRCS, 2019). Therefore, the Project Site would not be specifically susceptible to accident conditions involving the release of hazardous materials into the environment.

The Proposed Project is in a rural location and is not located within one-quarter mile of an existing or proposed school. The Project Site is not listed as a site containing hazardous materials in the Department of Toxic Substances Control EnviroStor database (EnviroStor, 2022) or the State Water Resources Control Board's GeoTracker database (GeoTracker, 2022). The Proposed Project is not located within an airport land use plan and not located within two miles of a public airport or private airstrip. The nearest airport is the Tracy Municipal Airport, approximately 4.8 miles southwest of the Project Site.

The Proposed Project was referred to the South San Joaquin County Fire Authority, who provided feedback on December 13, 2021. The Proposed Project would comply with all suggested measures related to emergency access, such as construction of all-weather access roads with a minimum 20-foot unobstructed width and a truck turning radius of 29-feet and 9-inches inside and 47-feet and 7-inches outside of the entrance. In addition, construction of the Proposed Project would occur within the boundary of the Project Site and would not result in lane closures and thus would not affect emergency access or evacuation and would not interfere with an adopted emergency response or evacuation plan.

The Proposed Project is not located within a High Fire Hazard Severity Zone (FRAP, 2021) and is largely surrounded by developed and irrigated agricultural land which is not particularly susceptible to wildland fires. The Applicant would adhere to all Federal, State, and local fire requirements/regulations for setbacks and defensible space; these setbacks are applied at the time of building permit review. Additionally, all fire protection requirements listed in the South San Joaquin County Fire Authority letter dated December 13, 2021, were included in the Proposed Project, with the exception of surfacing the site with asphalt pursuant to Development Title Section 9-1015.5(e). The Applicant has submitted a Modification Request (**Attachment I**) to the County, requesting the use of a gravel road per the recommendation of the Project's geotechnical engineer. This request would be reviewed at the time of Project approval.

Impacts from hazards and hazardous materials as a result of the Proposed Project would be less than significant.

X. Hydrology and Water Quality.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
Would the project:					
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☒	☐	☐	☐
i) result in substantial erosion or siltation on- or off-site;	☐	☒	☐	☐	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒	☐

Impact Discussion:

No water resources exist on or in the vicinity of the Project Site. However, construction of the Proposed Project could potentially violate water quality standards or waste discharge requirements, as construction equipment and materials have the potential to result in accidental discharge of pollutants which could potentially migrate to nearby water resources or groundwater. This would be a potentially significant impact. Potential pollutants include particulate matter, sediment, oils and greases, concrete, and adhesives. Mitigation Measure **HYD 1** would require construction activities to employ erosion and sediment control BMPs and/or obtain coverage under the NPDES Construction General Permit for construction activities, as necessary. Disturbed areas would be restored to pre-construction conditions and once operational. The Proposed Project would not generate potential pollutants that could affect water quality. With implementation of **Mitigation Measure HYD-1**, impacts related to water quality standards would be less than significant.

The Proposed project would utilize the existing agricultural and domestic wells on site, which draw from groundwater. According to the Proposed Project's Site Management /Operations Plan (**Attachment A**), the estimated daily water use for the Proposed Project would be approximately 7,800 gallons per day (7,500 gallons for cultivation and 300 gallons for domestic uses). This amount of water use is not expected to substantially decrease groundwater supplies. Additionally, the Proposed Project includes design features to reduce water consumption, such as implementation of a drip-irrigation system, drain water capturing system, and a timed fertilizer/water injection system. Irrigation would use a low flow emitter drip system to minimize water used for landscaping and all plumbing features would be low flow water saving fixtures, per the California Energy Code. The Project Site is located on the Tracy Sub-basin, considered a medium priority groundwater basin as designated by DWR. San Joaquin County has adopted a Comprehensive Groundwater Quality Management Plan (2017) that present's approaches to eliminating/reducing impairments of beneficial uses of groundwater although there are no thresholds in the County for groundwater depletion related to cannabis cultivation. However, the Proposed Project's current wells include water meters; the Applicant would provide a record of all data collected to the County upon request. Furthermore, the Proposed Project includes a minimum amount of new impervious surfaces, which is not expected to impede groundwater recharge.

The Proposed Project would not substantially alter the existing drainage pattern of the Project Site or surrounding area, as no major grading is proposed and disturbed areas would be restored to pre-construction conditions. However, construction of the Proposed Project has the potential to result in temporary minor erosion and siltation. This would be a potentially significant impact. **Mitigation Measure HYD-1** would require construction activities to employ erosion and sediment control BMPs and/or obtain coverage under the NPDES Construction General Permit for construction activities, as necessary. This would include implementation of BMPs during construction to reduce the potential for impacts associated with erosion and exceeding water quality thresholds. Implementation of BMPs such as fiber rolls, hay bales, and silt fencing, would reduce the potential for sediment and stormwater runoff containing pollutants from entering receiving waters. With implementation of **Mitigation Measure HYD-1**, impacts related to alterations in drainage patterns and impervious surfaces would be less than significant.

Development Title Section 9-1135.2 requires all development projects to provide drainage facilities within and downstream from the development project. Accordingly, the Proposed Project includes construction of a stormwater retention basin. On December 20, 2021, San Joaquin County Mosquito & Vector Control District submitted a comment letter for the Proposed Project, which requires the Applicant incorporate mosquito prevention BMPs related to the stormwater retention basin. **Mitigation Measure HYD-2** includes these BMPs.

The Project Site is not classified as being within a flood zone and is not expected to impede/ redirect flood flows or cause the release of pollutants due to project inundation.

Mitigation Measures:

HYD-1: If it's determined that the project requires coverage under the NPDES Construction General Permit, the Applicant shall obtain coverage prior to initiation of construction activities. The SWRCB requires that construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the CWA. To comply with the NPDES permit, a Notice of Intent shall be filed with the SWRCB and a SWPPP shall be approved prior to construction. The SWPPP shall include a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills) including a description of the type and location of erosion and sediment control BMPs to be implemented at the Project Site; and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the Project Site. A copy of the SWPPP shall be kept on the Project Site.

If it's determined that coverage under the NPDES Construction General Permit is not required, the following water quality BMPs recommended by the Construction General Permit shall nonetheless be employed:

- Areas where ground disturbance occurs shall be identified in advance of construction and limited to approved areas.
- Vehicular construction traffic shall be confined to the designated access routes and staging areas.
- Equipment maintenance and cleaning shall be confined to staging areas. No vehicle maintenance shall occur on-site during construction.
- Disturbed areas shall be restored to pre-construction contours to the extent possible.
- Hay/straw bales and silt fences shall be used to control erosion during stormwater runoff events.
- The highest quality soil shall be salvaged, stored, and used for native re-vegetation/seeding.

- Drainage gaps shall be implemented in topsoil and spoil piles to accommodate/reduce surface water runoff.
- Sediment control measures shall be in place prior to the onset of the rainy season and will be maintained until disturbed areas have been re-vegetated. Erosion control structures shall be in place and operational at the end of each day if work activities occur during the rainy season.
- Fiber rolls shall be placed along the perimeter of disturbed areas to ensure sediment and other potential contaminants of concern are not transported off-site or to open trenches. Locations of fiber rolls will be field adjusted as needed.
- Vehicles and equipment stored in the construction staging area shall be inspected regularly for signs of leakage. Leak-prone equipment will be staged over an impervious surface or other suitable means will be provided to ensure containment of any leaks. Vehicle/equipment wash waters or solvents will not be discharged to surface waters or drainage areas.
- During the rainy season, soil stockpiles and material stockpiles will be covered and protected from the wind and precipitation. Plastic sheeting will be used to cover the stockpiles and straw wattles will be placed at the base for perimeter control.
- Contractors shall immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. Leaks and spills shall be reported to the designated representative of the lead contractor. Contaminated media shall be collected and disposed of at an off-site facility approved to accept such media.

HYD-2:
General Stormwater Management Mosquito Control BMPs

- Ensure Mosquito Control Agencies have access to infrastructure to inspect or make appropriate treatments when necessary.
- Manage sprinkler and irrigation systems to minimize runoff entering stormwater infrastructure.
- Avoid intentionally running water into stormwater systems by not washing sidewalks and driveways, washing cars on streets or driveways, etc.
- Inspect facilities weekly during warm weather for the presence of standing water or immature mosquitoes.
- Remove emergent vegetation and debris from gutters and channels that accumulate water.
- Consider mosquito production during the design, construction, and maintenance of stormwater infrastructure.
- Design and maintain systems to fully discharge captured water in 96 hours or less.
- Include access for maintenance in system design.
- Design systems with permanent water sources such as wetlands, ponds, sumps, and basins to minimize mosquito habitat and plan for routine larval mosquito inspection and control activities with the assistance of a local mosquito control program.

Stormwater Treatment Ponds and Constructed Treatment Wetlands

- Whenever possible, stock stormwater ponds and constructed wetlands with mosquito-eating fish available from local mosquito control programs.
- Design and maintain accessible shorelines to allow for periodic maintenance and/or control of emergent and shoreline vegetation, and routine monitoring and control of mosquitoes. Emergent plant density should be routinely managed so mosquito predators can move throughout the vegetated areas and are not excluded from pond edges.
- Whenever possible, design and maintain deep zones in excess of four feet (1.2 m) to limit the spread of invasive emergent vegetation such as cattails. The edges below the water surface should be as steep as practicable and uniform to discourage dense plant growth that may provide immature mosquitoes with refuge from predators and increased nutrient availability.
- Use concrete or liners in shallow areas to discourage plant growth where vegetation is not necessary.
- Whenever possible, provide a means for easy dewatering if needed.
- Manage the spread and density of floating and submerged vegetation that encourages mosquito production (i.e., water hyacinth, water primrose, parrot's feather, duckweed, and filamentous algal mats).
- If possible, compartmentalize managed treatment wetlands so the maximum width of ponds does not exceed two times the effective distance (40 feet [12 m]) of land-based application technologies for mosquito control agents.

Impacts to hydrology and water quality, as a result of the Proposed Project, would be less than significant after mitigation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XI. Land Use and Planning.					
Would the project:					
a) Physically divide an established community?	☐	☐	☐	☒	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐	☐

Impact Discussion:

Projects that have the potential to physically divide an established community typically include new freeways and highways, major arterials streets, and railroad lines. The Proposed Project would not physically divide an established community. No impact would occur.

The Project Site is zoned General Agriculture (AG-40) and under a General Plan designation of General Agriculture, which are allowable designations per County guidelines for commercial cannabis cultivation. The Proposed Project would not alter the zoning or General Plan land use designations. Therefore, the Proposed Project would not conflict with any existing land use plans, policies, or regulations. The Proposed Project is not in conflict with any Master Plans, Specific Plans, or Special Purpose Plans, or any other applicable plan adopted by the County. The Proposed Project is also subject to a Development Agreement application, which must be approved by the San Joaquin County Board of Supervisors. The Use Permit and Development Agreement applications are being processed concurrently, and will be reviewed as one project by the Planning Commission and ultimately, the Board of Supervisors.

Impacts to land use and planning, as a result of the Proposed Project, would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XII. Mineral Resources.					
Would the project:					
a) Result in the loss of availability of a known_mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒	☐
b) Result in the loss of availability of a locally- important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒	☐

Impact Discussion:

San Joaquin County applies a mineral resource zone (MRZ) designation to land that meets the significant mineral deposits definition by the State Division of Mines and Geology. The Project Site is located in MRZ-1, which is described as "Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence." The Project Site is currently developed and is surrounded by existing agricultural development with no active mineral extraction. Furthermore, the United States Geological Survey Mineral Resource Data System does not identify any records of mineral resources within Project Site (USGS, 2021).

The Proposed Project would have no impacts on mineral resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XIII. Noise.					
Would the project result in:					
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐	☐
c) For a project within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐	☐

Impact Discussion:

The Proposed Project will not generate a substantial increase to ambient noise levels or excessive ground borne vibration and noise in the vicinity of the project site. The cultivation, manufacturing, and distribution activities will take place indoors; no outdoor cultivation is proposed or permitted with this application. No customers will be permitted on site, only deliveries for the Proposed Project.

The Proposed Project located approximately 90 feet north of the nearest residence. Development Title Section 9-1025.9 lists the Residential use type as a noise sensitive land use. Development Title Section Table 9-1025.9 Part II states that the maximum sound level for stationary noise sources during the daytime is 70 dB and 65dB for nighttime. This applies to outdoor activity areas of the receiving use, or applies at the lot line if no activity area is known. Additionally, Development Title Section 9-1025.9(c)(3) states that noise from construction activities are exempt from noise standards provided the construction occurs no earlier than 6:00 A.M. and no later than 9:00 P.M. The proposed project would be subject to these Development Title standards. Therefore, noise impacts from the Proposed Project are expected to be less than significant. The Proposed Project is not located within an airport land use plan or within two miles of a public airport or private airstrip.

Impacts to noise, as a result of the Proposed Project, would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XIV. Population and Housing.					
Would the project:					
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	☐

Impact Discussion:

The Proposed Project does not involve the construction of homes or facilities that would directly or indirectly induce unplanned population growth or displace existing people or housing. The Project Site's existing access is located off of South Bird Road, and the project proposes to utilize all on-site services for water, wastewater, and stormwater retention. No new utilities or infrastructure would be constructed that could potentially induce unplanned population growth.

The Proposed Project would have no impact on population and housing.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XV. Public Services.					
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
Fire protection?	☐	☐	☒	☐	☐
Police protection?	☐	☐	☒	☐	☐
Schools?	☐	☐	☐	☒	☐
Parks?	☐	☐	☐	☒	☐
Other public facilities?	☐	☐	☐	☒	☐

Impact Discussion:

The Proposed Project does not involve housing or other uses that would necessitate the need for new or altered government facilities.

The Proposed Project was referred to the San Joaquin County Fire Authority, who provided feedback on December 13, 2021. All fire protection suggestions were included in the Proposed Project with the exception of paving the site with asphalt pursuant to Development Title Section 9-1015.5(e). The Applicant has submitted a Modification Request (**Attachment I**) to the County, requesting the use of a gravel road per the recommendation of the Project's geotechnical engineer. This request would be reviewed at the time of Project approval. The Proposed Project has appropriate water resources for fire emergencies and would be required to conform to all fire protection and prevention requirements. Additionally, the Proposed Project will adhere to the turning radii requirements set forth by the South San Joaquin Fire Authority for both the inside and outside entrances. The Proposed Project is not expected to increase demand on fire services since the project would be required to meet all applicable building, fire, and planning codes. Based on these factors, impacts on fire protection are anticipated to be less than significant.

The Proposed Project was referred to the San Joaquin County Sheriff Office for review, which provided feedback on July 29, 2021. All security suggestions were included in the Proposed Project design and comprehensive security plan. In addition, the Proposed Project would adhere to the San Joaquin County Code regarding the security plan and operational requirements for cannabis cultivation (San Joaquin, 2021c). With these ordinance requirements in place, the Proposed Project is not expected to impact the performance objectives of the San Joaquin County Sheriff Office. Therefore, impacts on police protection are anticipated to be less than significant.

Adding new development and workers always has the potential to result in the need for police or fire services. However, this would represent an insignificant increase in demand and is not expected to result in unacceptable service ratios or response times. Significant impacts to fire or police protection, schools, parks or other public facilities are not anticipated.

Impacts to public services, as a result of the Proposed Project, would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XVI. Recreation.					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐

Impact Discussion:

The Proposed Project does not include a residential component nor is it anticipated that the proposed operation would cause a significant population increase such that the existing neighborhood or regional parks and other public facilities would be negatively impacted. Additionally, no new recreational facilities are proposed as part of the Proposed Project, nor is it anticipated that the Proposed Project would generate population growth which might require new or expanded recreational facilities.

The Proposed Project would have no impact on recreation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XVII. Transportation.					
Would the project:					
a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities?	☐	☐	☒	☐	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐	☐

Impact Discussion:

Access to the Proposed Project would be provided by South Bird Road. Construction of the Proposed Project would temporarily result in a negligible increase in traffic volumes in the vicinity of the Project Site. Eight greenhouses are proposed to be built, with approximately one greenhouse built every three months. Vehicular trips from construction would consist of worker trips and deliveries of equipment and materials to and from the Project Site (up to 10 construction worker trips per day and one construction delivery per month). The temporary increase in trips due to construction of the Proposed Project would not cause a significant change to roadway level of service.

Operation of the Proposed Project would generate limited traffic from infrequent deliveries and employee trips. During operations, a maximum number of three employees could potentially be present. Operations would require three shifts per day, and shifts would be seven days a week, from the hours of 7:00 AM. to 4:00 P.M. One security guard is on site 24 hours a day. Regular employee trips would result in approximately three roundtrip employee trips per day. Approximately one supply delivery would occur per day. A single, monthly wastewater pumping trip would also occur. Therefore, up to four trips could potentially occur per day along with one monthly wastewater pumping trip. Operation of the Proposed Project would not constitute a substantial increase in traffic, and would not cause a significant change to roadway level of service. There would be a less-than-significant impact.

The Office of Planning and Research (OPR) Technical Advisory contains screening thresholds for land use projects and suggests lead agencies may screen out vehicle miles travelled (VMT) impacts using project size, maps, and transit availability. For small land use projects anticipated to generate fewer than 110 trips per day, absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, may be assumed to cause a less-than significant impact. As described above, operation of the Proposed Project would generate a maximum of 4 trips per day. Therefore, as the number of additional trips generated by the Proposed Project is below the 110-trip screening threshold for VMT impacts contained in the OPR Technical Advisory, the Proposed Project can be assumed to cause a less-than-significant transportation impact related to vehicle miles traveled.

The Proposed Project does not include modification to the existing roadways or design features that would increase hazards. Construction of the Proposed Project would occur within the Project Site boundary and would not result in lane closures and thus would not affect emergency access or evacuation. Pursuant to Development Title Section 9-1015.5(h)(1), the Proposed Project would be served by a driveway no less than twenty (20) feet in width to comply with fire access requirements. As a result, the Proposed Project would provide adequate emergency access. Pursuant to Development Title Section 9-1015.5(e), all parking spaces, driveways, and maneuvering areas are required to be surfaced and permanently maintained with asphalt concrete. However, the Applicant has submitted a Modification Request (**Attachment I**) to the County, requesting the use of a gravel road per the recommendation of the Project's geotechnical engineer. This request would be reviewed at the time of Project approval.

Impacts to transportation, as a result of the Proposed Project, would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XVIII. Tribal Cultural Resources.					
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐	☐

Impact Discussion:

The Community Development Department has provided notice to tribal representatives culturally and historically tied to the area. Consultation under AB 52 was not requested; however, the Buena Vista Rancheria of Me-Wuk Indians requested in a July 23, 2021 letter, that if tribal cultural resources are inadvertently discovered, the Buena Vista Rancheria should be notified. **Mitigation Measure TCR-1** would ensure the Buena Vista Rancheria is notified of any inadvertently discovered tribal cultural resources. No cultural resources were identified during investigations or in consultation with Native American tribes. However, there is the possibility that unanticipated discoveries of subsurface archaeological deposits or human remains may occur. This is a potentially significant impact. Formal consultation under AB 52 and the application of **Mitigation Measures CR-1** and **CR-2** would reduce impacts to tribal cultural resources to a less than significant level.

Mitigation Measures:

TCR-1: If any tribal cultural resources are discovered during construction of the project, the Buena Vista Rancheria shall be notified.

Impacts to tribal cultural resources, as a result of the Proposed Project, would be less than significant with mitigation.

XIX. Utilities and Service Systems.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
Would the project:					
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒	☐

Impact Discussion:

The Proposed Project would be served by two existing private septic systems, two existing on-site wells (agricultural and domestic), a proposed stormwater retention basin, and existing electrical and telecommunication services. New facilities would not be required. The existing structures on site are provided power by Pacific Gas and Electric (PG&E). Services would be extended to the proposed buildings; new electrical lines or facilities would not be required. Stormwater would be managed on site, as the Proposed Project includes the construction of a stormwater detention basin between Proposed Buildings A and B. The environmental effects of Proposed Project elements are analyzed throughout this Initial Study. All existing utility infrastructure were originally constructed under a County permit and would continue to comply with County regulations. No offsite utility improvements would be needed to serve the Proposed Project.

According to the Proposed Project's Site Management /Operations Plan (**Attachment A**), the estimated daily water use for the Proposed Project would be approximately 7,800 gallons per day (7,500 gallons for cultivation and 300 gallons for domestic uses). A well completion report for the agricultural well (**Attachment C**) conducted on November 23, 2010 indicated that the existing agricultural well was capable of producing 40 to 45 gallons per minute. A well performance letter for the domestic well (**Attachment C**) completed August 29, 2022 and indicated that the existing domestic well was capable of producing 22 gallon per minute. The Proposed Project would utilize the agricultural well for cultivation activities and the domestic well for the security office (Building D). The two existing wells have sufficient water supplies to serve the Proposed Project.

The Proposed Project would require very minimal domestic wastewater treatment services; two existing on-site septic tanks would provide wastewater treatment. Wastewater associated with cannabis cultivation is expected to be minimal (150 gallons per month) due to proposed water conservation methods, and would be pumped from the greenhouses to two 500-gallon proposed in-ground wastewater tanks.

The tanks would emptied and trucked off site by a certified hazardous waste service approximately once per month. The Proposed Project would generate green waste associated with cultivation activities. All green waste would be transferred to a chipper and combined with non-cannabis materials for onsite compositing. General solid waste would be minimal, generated from general administrative activities, and would be disposed of weekly at Tracy Delta Solid Waste in Tracy. The Applicant shall adhere to all Federal, State and Local regulations regarding wastewater treatment and water usage requirements.

Impacts to utilities and service systems, as a result of the Proposed Project, would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
XX. Wildfire.					
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒	☐

Impact Discussion:

Construction of the Proposed Project would occur within the Project Site boundaries and would not result in lane closures and thus would not affect emergency access or evacuation. As defined by CAL FIRE, the Project Site is located within a Local Responsibility Area Un-zoned Fire Hazard Severity Zone (FRAP, 2021). The project site is not located in or near a moderate, high, or very high fire zone designation. The entire Project Site is relatively flat and construction and/or maintenance of infrastructure associated with the Proposed Project does not involve any unique elements that would exacerbate fire risk. The Proposed Project does not propose major grading and drainage patters would not be modified; therefore, the Proposed Project is not expected to result in flooding or landslides as a result of post-fire slope instability or drainage changes.

The proposed Project would have no impacts regarding wildfire.

XXI. Mandatory Findings of Significance.	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Analyzed in The Prior EIR
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐	☐

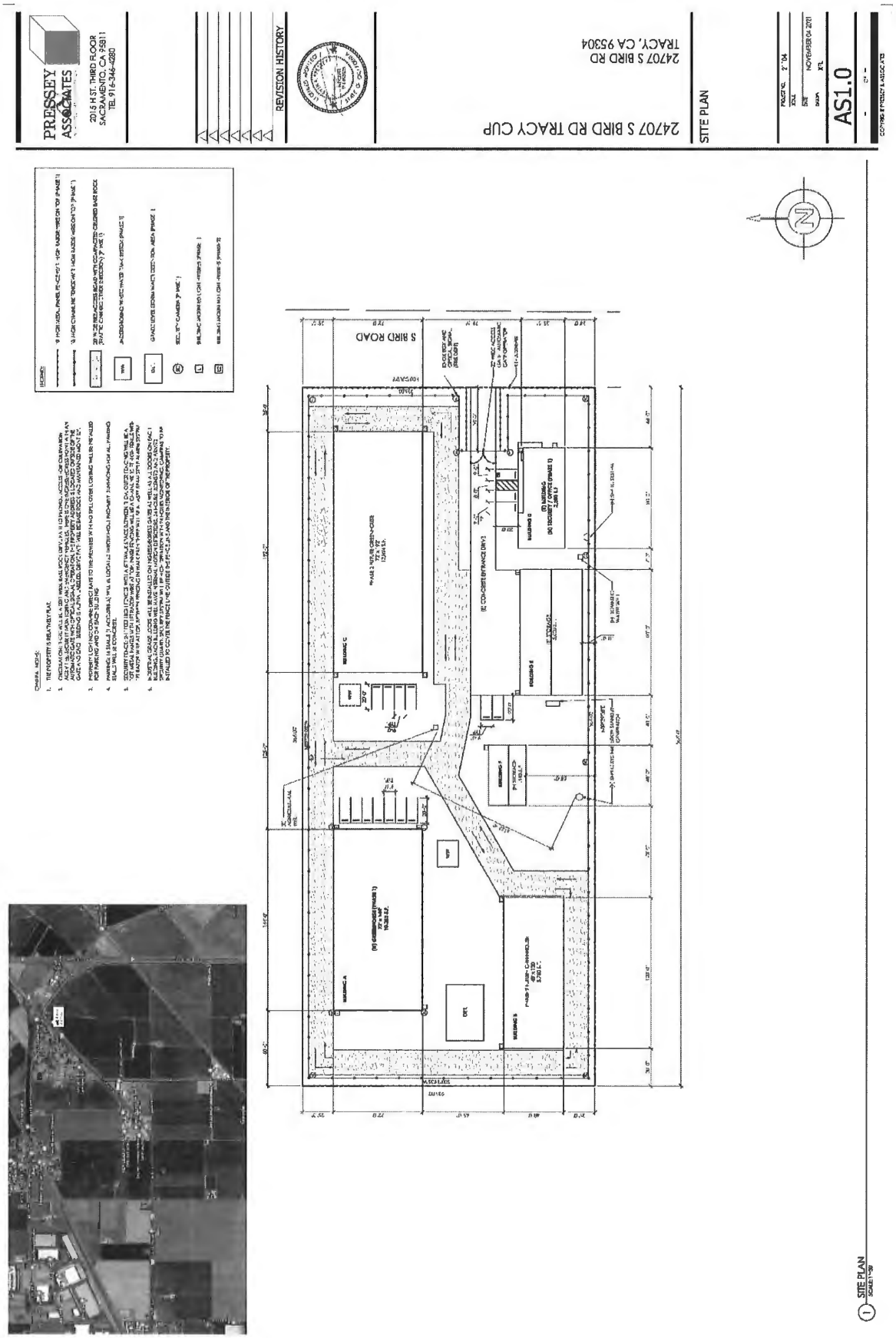
Impact Discussion:

As discussed in the previous sections, the Proposed Project could potentially have significant environmental effects with respect to Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Hydrology and Water Quality, and Tribal Cultural Resources. However, the impacts of the Proposed Project would be reduced to a less than significant level with the implementation of the mitigation measures identified in the sections.

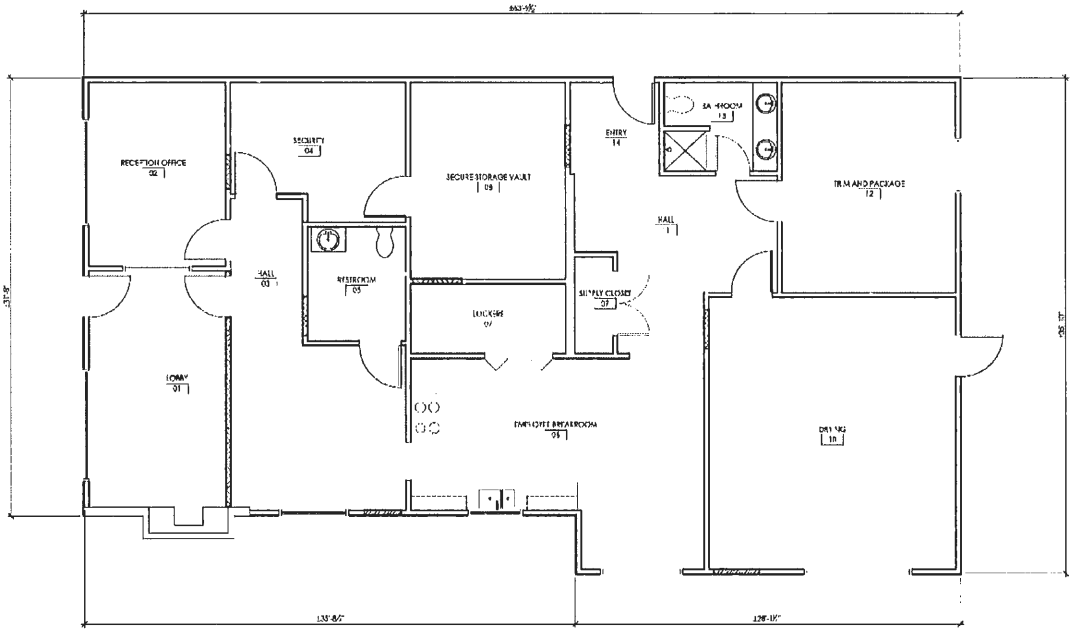
The proposed project does not have the potential to degrade the environment or eliminate a plant or animal community. The project would not result in significant cumulative impacts or cause substantial adverse effects on human beings, either directly or indirectly.

Note: Authority cited: Sections 21083, 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080, 21083.05, 21095, Pub. Resources Code; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

Attachment: (Map[s] or Project Site Plan[s])



Attachment: (Map[s] or Project Site Plan[s])



1 FLOOR PLAN

PRESSEY ASSOCIATES

2015 H ST. THIRD FLOOR
SACRAMENTO, CA 95811
TEL 916-346-4280

REVISION HISTORY

24707 S BIRD RD TRACY CUP

24707 S BIRD RD
TRACY, CA 95304

FLOOR PLAN

PROJECT NO. 21104
SCALE
DATE NOVEMBER 04 2021
DRAWN XFL

A1.0

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ATTACHMENT A

SITE MANAGEMENT PLAN/OPERATIONS PLAN

Natural Synergy

Prepared by: Natural Synergy
September 15, 2022
Address: 24707 South Bird Road, Tracy, Ca, 95304

SITE MANAGEMENT/OPERATIONS PLAN

INTRODUCTION

The Natural Synergy, LLC. Cannabis Cultivation project (proposed project) consists of the building of approximately 24,000 sq ft of Mixed Light Cultivation light deprivation greenhouses and the renovation of an existing building into an office/security office. Natural Synergy, LLC is requesting approval of the proposed project in order to operate a commercial cannabis business. The project site is located at 24707 South Bird Road, Tracy, Ca. In the San Joaquin County.

Project Description

The proposed project consists of the building of approximately 30,000 sq. ft of Mixed Light Cultivation light deprivation greenhouses, which would be utilized for cultivation activities under this application and the renovation of an existing building into an office/security office.

Natural Synergy, LLC proposes to cultivate plants of varying stages of life including young plants, juvenile plants, and adult plants. The cultivation buildings, as shown in Attachment B, are the only buildings where cultivation of plants, propagation of plants, and testing would occur.

Objectives and Goals

1. **Consumer Safety** - Committed to providing the highest quality and safest cannabis product consistent with stringent state requirements including purchasing practices, testing standards, labeling, packaging, shipping, recall preparedness, and record keeping to ensure all product information provided to customers is accurate and timely.

2. **Integrity** - Conduct business in a professional and ethical manner consistent with maintaining the integrity of the cannabis industry and follow all applicable state and local cannabis laws and regulations and other applicable laws and regulations relevant to our responsibilities as an employer.

3. **Quality** – Commitment to stringent quality standards and accountability in our distribution processes to produce the highest quality and safest cannabis product in the industry.

4. **Research** – Commitment to further clinical research relating to cannabis and commit to the extent practicable, to support research activities that are ethically defensible, socially responsible, scientifically valid, and meet good clinical practice.

5. **Security** - Commitment to prevent the misuse of cannabis at every stage of the supply chain under our control and ensuring all facilities are secure through constant monitoring, intrusion protection, fencing, and inventory tracking requirements.

6. **Sustainability** - Commit to using sustainable growing methods, minimizing exposure to impurities, and reducing our environmental impact and protecting the County's natural resources.

7. **Team** – Commitment to our employees through mutual appreciation, respect, open communication and recognition as well as ongoing education for every employee. All employees will be thoroughly trained to maintain high quality assurance standards, safety, and compliance requirements.

Mixed Light Cultivation Greenhouses (Separated areas)

Plants in the Mixed Light Cultivation Greenhouses will be in the same location for both Veg and Flower and will receive adjusted light for each stage of Veg and Flower and will mature in approximately 56 days. During this period of the process plants will be fed daily and typically would receive one of three different concentrations. Plants will receive the low concentration during vegetation, medium concentration during early flower, and high concentration during late flower.

Lighting

Indoor lighting for cultivation would include a mix of natural light and LED lighting. The LED lights improve the quality of the plants and are considered the industry standard. Natural light would also be used to reduce costs and energy. The Mixed Light Cultivation Greenhouse portion of the building is designed to allow sunlight to be used to provide light throughout most of the year and would be supplemented with LED lights when necessary.

Drying

After harvesting, the branches with buds on the main stock will be ready for drying. The branches will then be collected, weighed, and logged into the Harvest Record, according to the plant's particular strain. The branches will be moved to a secure dark designated areas to dry with temperatures between 60-70 degrees and humidity between 55-65%. A small fan, dehumidifier and A/C unit maybe be implemented if needed.

Trimming

After the plants are dried, they are processed through hand trimming with an option to utilize an automatic trimmer or similar product in the future. The finished buds will then be placed in an airtight glass jar. The next step in the process is curing.

Curing (Dry Process)

Many of the aromatic compounds (terpenes) that give cannabis its unique smell and flavor can degrade and evaporate at temperatures as low as 50°F. Therefore, the flowers are placed in an airtight container and once a day the container is opened for 1 to 3 hours to allow any moisture to escape. The curing process is complete in approximately two weeks. Once the plant material has been cured, it would be logged into the state's Track and Trace system in accordance with state requirements and packaged to be sent to an off-site manufacturing facility or packaged for retail sale.

Security and Fencing

The Cultivation Facility is required to provide on-site security and to prepare a Security Plan to address the risk inherent with this type of business. The cultivation facility will be fenced with 2-10 foot-high fencing providing either solid or privacy slats with 1 foot of razor wire. On-site high definition security cameras will be installed throughout the facility. Primary access to the facility will be through a main gate located off of South Bird Road. The gate will be closed during day business hours with a camera screening to allow security to screen visitors and open gate to allow visitors access to the premises. All vehicles/visitors accessing the Cultivation Facility will be required to stop at a gate located at the main entrance during operating hours. Scheduled visitors will be required to stop at the gate and show their identification and licensing credentials, as appropriate, to security using the cameras in order to be buzzed-in and escorted throughout the premises. Unscheduled visitors will need to go through the security building and escorted throughout the premises. Badges will be provided to everyone. No one under the age of 21 will be allowed within the cultivation and packaging areas. Some of the plan requirements include:

* All visitors will be required to log in on written or electronic logs. The Security Director will maintain all logs for no less than 90 days. The visitor log would include visitor name, date of birth, identification type and number (driver's license number), date of visit, duration of visit, purpose of visit, and name of person they are visiting.
* Visitors will be escorted at all times by a designated employee and would be required to wear an ID badge during the entirety of their visit. ID badges will have the date written on them and shall be turned into the Security Director or designated employee when the visitor leaves the premises.

* Access into the facility will be limited to a single staff/visitor entry/exit point, visible from South Bird Road. The access point shall remain closed and locked at all times, ingress and egress points would be controlled by security. Security shall be on duty during all operational hours of the facility.
* On-site security cameras will be installed throughout the facility. Cameras will be equipped with High Definition capability and auto focus, and shall record at high resolution no less than 1080 pixels. DVR or Cloud based back-up systems will archive video from all cameras for a minimum of 45 days. Onsite Surveillance storage systems must be secured in a lockbox or secured cabinet or closet to protect from employee tampering or criminal theft. Surveillance system will allow remote access (via the internet) 24hours a day to the Sheriff's Office.
* All exterior building entrances will have coded door entries. The codes will be changed every 90 days. Only employees designated by security will be assigned to change the codes.
* All interior doors designated as high security areas (lobby, dry, trim, packaging, loading) would remain closed and locked at all times while not in immediate use or attended by a manager/security agent.
* Employees will be required to wear employer-issued identification card in a conspicuous manner at all times while within the facility. Identification cards will be controlled by security, issued and collected daily to prevent unlawful duplication, replication or counterfeiting.

Vehicle and Emergency Access, Circulation, and Parking

Vehicle and emergency vehicle (police and fire) access to the site will be from South Bird Road. During operating hours, all vehicles are required to log in at the gate. After hours, the gate will be locked. Emergency vehicle access will be provided around the perimeter of the cultivation facility to enable access to all buildings. Knox boxes will be provided at the gate to enable fire and police personnel to access the site in the event of a fire or emergency. The closest fire station to the Cultivation Facility site is Tracy Fire Department located at 835 N. Central Ave, approximately 4 miles from the Cultivation Facility site.
Delivery vehicles accessing the site will be directed to go to the main gate of the Cultivation Facility on South Bird Road and show all ID required to enter. The facility does not include any loading docks. The project will include 16 concrete surface parking spaces for employees and visitors.

Exterior Lighting, Landscaping and Signage

The Cultivation Facility lighting will include building mounted lights. All lighting will conform to the San Joaquin County's ordinance, which requires lighting to be "fully shielded, downward casting, and not to spill over onto other structures, or properties of the night sky."

Odor Management

The greenhouses will include fans, misters and vents. The vents will be opened and closed depending upon humidity, temperature and air quality within the greenhouses.

We will use activated charcoal air-scrubbers in each greenhouse. The charcoal filled air scrubbers will be changed every 3 months (more frequently if needed).

To minimize odors produced by the facility, as well as eliminating any unavoidable odors produced throughout operations, all doors would remain closed, including interior doors. All staff will be required to take training courses, highlighting the importance of closing doors and ensuring exhaust and filtration systems are running as required to minimize on-site odors and the potential release of objectionable odors.

Green Waste Disposal

The Cultivation Facility will generate green waste associated with cultivation activities. At the end of each day all green waste collected in the Mixed Light Cultivation Greenhouse and through processing is removed and transferred to a "chipper." To ensure the green waste is unusable it would be chipped and combined with non-cannabis materials (e.g., sawdust, wood chips) for onsite composting. The chipper will be power washed and sanitized "as needed" to maintain cleanliness.

Chemical Storage and Disposal

The cultivation process requires the use of fertilizers and other chemicals, including calcium nitrate, iron chelate, ammonium nitrate, and magnesium sulfate. Many of these fertilizers are composed of concentrated salts high in nitrogen, phosphorous, and potassium (in the form of alkaline salts), with an assortment of micronutrients essential for plant growth. Undiluted, these fertilizers can pose an inhalation, skin and eye irritation risk. When mixed with water, the risk is significantly reduced. The project includes adopting Good Agricultural Practices regarding watering criteria and installing a fertilizer injection system (fertigation) to automatically mix, dose, balance pH, and distribute nutrients through a drip-feeding system directly to the plants, to help reduce the potential for a chemical spill.

However, many of these fertilizers are considered hazardous waste and are highly regulated by numerous State and local agencies. Staff whose job responsibilities include handling and using the chemicals would be trained on the proper use, storage and disposal requirements. The building will include storage areas for chemicals that would be designed and located consistent with state and local guidelines. The process for disposal of these wastes includes temporarily storing all used hazardous waste in a plastic-lined metal can or drum waste until it can be removed off-site for disposal. Each can would be labelled "Hazardous Waste," with a list of the hazardous materials that may be placed into the can, and if necessary, labelled "Flammable Materials", as appropriate. Some cans would be dedicated for liquid waste and others for solid waste, such as hazardous-waste-soaked rags. When a can is full, it would be labelled with the date, removed from the facility on a weekly basis by a hazardous waste removal contractor, and disposed of at an approved hazardous waste disposal site including Landfill or a Transfer and Recycling station.

Infrastructure and Energy Conservation Features

The Cultivation Facility is designed to minimize its carbon footprint, conserving water and energy usage and reducing any undesired impact on the community at large and its natural resources. The following considerations have been taken and will be implemented.

* The use of LED lighting will be throughout the Veg and flowering area of the facility. LED improves the quality of the plants as they produce less heat which will help control the greenhouse temperature. They are also more efficient for the greenhouse lighting coverage, electricity and maintenance bills. Additionally, Natural Synergy, LLC will implement Mixed Light Cultivation Facility Technology (MLCF), which drastically reduces the need to use lights by 70%. Throughout the majority of the year, natural sunlight will be used for cultivation.
* Use of energy efficient heat retention curtains as well as light deprivation curtains in the Mixed Light Cultivation Facility Greenhouses. These curtains not only serve their purpose for triggering the flowering response in the crop production cycle but also save energy by retaining valuable heat in the winter months.
* Sophisticated, intuitive environmental control systems will be used, designed to minimize energy consumption based on interpretation of real time environmental data. For example, if on a sunny day in February the crop is receiving enough natural light radiation to meet the instantaneous needs of the crop, the control software will send an output signal to the lighting system to "turn OFF" until such time as the supplemental light is again required, this greatly reduces energy consumption.
* Sensor-driven environmental control systems combined with high-efficiency heating and ventilation equipment, including energy efficient dehumidification systems and ventilation fans.
* Buy and source products and materials locally or USA made whenever possible.
* Working toward an operation to eliminating outside power sources substantially by installing alternative energy emergency generators and Solar to reduce the environmental impact through best management practices and low impact developments with future upgrades or additions.

Energy

The project would require electricity for lighting and other business-related activities. The project includes a total of one backup generator to provide backup power in the event of an emergency. It is estimated that the Cultivation Facility will consume approximately 2,400 kilowatt-hours (kWh) per day.

Water

An Agriculture well and Domestic well will provide water to the Cultivation Facility. The Cultivation Facility proposed water infrastructure system would use existing connections where feasible. The water source for

cultivation is through the existing agricultural well. Water for fire services would include the use of the water basin on the east end of the facility. In order to significantly reduce water consumption in the cultivation operation, the cultivation site will use a drip-irrigation system, drain water capturing system and a fertilizer injection system (fertigation) to water and "feed" the plants. Fertigation systems automatically mix, dose, balance pH, and distribute nutrients through a drip-feeding system directly to the plants. Water would be pumped through filters into a "fresh water tank". When plants are ready to be fed, fresh water would be pumped and nutrients mixed using the Fertigation system (eliminating the need for mixing tanks). Irrigation pumps controlled by digital timers would be set to deliver water/nutrients to plants 3 times per day, for approximately 1-2 minutes each time (based on small, medium or large plants). Drip irrigation systems slowly release just the right amount of nutrient solution required, thus saving water. It is estimated that 95% of all irrigated water delivered to plants would be absorbed during "feeding." The remaining 5% runoff would drain into a large holding tank, where it is filtered and reused for plant irrigation (i.e., closed loop system).
The cultivation activities would not include any runoff water from plant irrigation. No treatment will be necessary as there would be no runoff water to treat.
Landscape irrigation would use a low flow emitter drip system to minimize water used for landscaping.
All plumbing fixtures would be low flow water saving fixtures, per California Energy Code.

Water Demand

Water demand for plant cultivation is estimated to not exceed 7,500 gallons per day (GPD). At maximum capacity, there would be 7,500 plants within the facility. Based on the water demand required for irrigation it is estimated one pound of cannabis can be produced for under 100 gallons of water. This would equate to an adult plant using 1 gallon per day of water, a juvenile plant using 0.5 gallons per day, and young plants using 0.25 gallons per day of water. Approximately 3,500 adult plants, 2,000 juvenile plants, and 2,000 young plants (all at varying stages within their life division), would utilize approximately 5,000 gallons per day. However, depending on the amount of adult plants at any one point, the estimated water demand could be higher, but would not exceed 7,500 gallons per day. Metered wells will collect data of usage, if needed. It is estimated that an additional approximately 300 GPD would be used for ancillary cleaning, daily sink, and toilet use by employees.

Wastewater

Wastewater created from sewer generation is currently directed into the existing septic system located on the south side of the cultivation facility. A leach field located east of each septic tank would have enough capacity for operations of the proposed project. All the wastewater will be going to existing septic tanks.

Stormwater and Drainage

Stormwater flows west into a basin from the center of the Cultivation Facility. Surface water runoff from the Cultivation Facility would not enter into the storm system, nor directly into a waterway. No cultivation drain water runoff from areas of cultivation flow towards this storm drain system.

Site Clearing, Grading, and Construction

The Cultivation Facility does not include any clearing, significant grading, or construction with the exception of resurfacing the gravel access driveway, concrete, installation of a locked front access gate, fence, conversion of building into office/security and building the greenhouse. All other construction activities would be limited to within the building and building upgrades. No vegetation is to be removed as a result of the proposed project.
All construction equipment, including construction
employee vehicles would be staged on-site. It is anticipated there would be approximately 1 monthly construction truck trips during the most intense
stage of construction activities and up to 10 construction personnel on the site. It is anticipated most construction vehicles would travel on South Bird Road to 11th Street to access Interstate 5.

CULTIVATION DEPARTMENT MANUAL

Table of Contents

Cultivation Department Overview

The purpose of this manual is to define the policies and procedures for the Cultivation Department of this production facility. All team members working in the Cultivation Department must follow these policies and procedures.

Role of the Cultivation Department

The role of the Cultivation Department is to manage each stage of the plant's life cycle and shepherd each plant from the beginning of her life through the end of her life by providing the appropriate environment, nutrients, water, lighting and grooming to ensure that the highest- quality cannabis is produced.

The Cultivation Department is open 7 days a week. It is the responsibility of the Cultivation Department to make sure that each plant is inspected daily and that she receives appropriate care throughout her life cycle. To ensure proper care of our plants, employees need to be scheduled accordingly.

Cultivation Facility

To produce a plant free of mold, disease, heavy metals and other contaminates, it is important to start by providing a clean, quality environment for plants to grow.

To this end:

* Strict protocols are in place for controlling our greenhouses, such as proprietary grow tables/trays that are thoroughly cleaned and disinfected after every use.
* All greenhouse environments are sanitized with a 5% bleach solution after every cycle.
* All trimmed plant material is removed and discarded daily.
* Greenhouse environments circulate significant amounts of air around each plant through controlled air movement.
* Nutrients are Organic Materials Review Institute certified.

* Mold mitigation is accomplished through a regulated and monitored environment. By targeting relative humidity levels at or near 40%-50%, we will be able to dramatically inhibit mold and mildew development.
* The genetic lines that we will be cultivating have shown an ability to resist mold and mildew frequently experienced by the industry. Our selective breeding of plants with specific physical characteristics will help to minimize mold and mildew development as well.
* Any contaminated, diseased or unhealthy plant is culled from our greenhouses and disposed of following plant destruction protocols.

Propagation Overview

Cloning is an integral part of our overall growing program and the key to our genetic diversity this guarantees new plants from fresh, known sources and provides pest- and disease-free stock that is proprietary to the company. Propagating plants from cuttings/clones guarantees mono-crops of identical plants from a single "mother" plant of known origin. They are identical in every way and therefore have known sex, growth patterns, yield, quality and flower time, as well as many other similarities that can make them an advantage over seed-grown plants.

Cloning

Clones are culled from healthy, disease-free mother plant stock to ensure quality control and vigorous rooting.
* They are cut at a 45 degree angle from branches consisting of 45 nodes and the cut tip is immediately submerged in fresh water to prevent air from entering the fresh wound of the cut.
* Leaf surface is actively minimized by up to 50% forcing the plant energy to be channeled into root production instead of leaf production.
* The clones stems are coated in sterile rooting hormone and then transplanted into rock wool 1.5" soft pots and placed under a 24 hour low light schedule for ten to fourteen days.
* Clones are then placed under LED fixtures, in humidity-controlled trays with dome lids and watered sparingly.
* The cubes are conditioned using a mild nutrient solution set to pH 5.5 and soaked for 24 hours.

* They are subject to bright light and the drip irrigation system.

Stem coded hormone:

NPK=Nitrogen-Phosphorous-Potassium, the basic macronutrients needed by the plant.
EC=Electrical Conductivity, the available salts that are in the nutrient solution.
pH= A scale of acidity/alkalinity that ranges from 0-14, 0 being most acidic, 14 being most basic and 7 being neutral. Cannabis plants like a slightly acidic rate of water (5.7-6.1), with certain nutrients being best at slightly different level.

Fertigator Use

The automated fertigator is an automated plant feeding system that mixes, monitors, controls and applies the concentrations of soil nutrients and water as well as pH, for greenhouse and other applications.

Each room or zone consists of plants with specific nutrient and water requirements. Electronic injectors are programmed with exacting standards, to mix nutrients and water in the right proportions and with the correct pH balance for each zone, and deliver it at specified times, so that each species of plant gets exactly what it needs to thrive. The automated fertigator is programmed to dispense the unique mixture of plant nutrients and water to each individual zone.

Mother Plants

* Mother plants are selected phenotypes of seed-propagated plants that qualify for:
* Quality of finished product
* Resistance to insects and disease
* Ease of growth
* Overall vigor
* Mother plants are grown in standard containers of peat-based planting substrate.
* Fertilizer is not used in concurrence with the goal towards root and not vegetative growth.
* Mild nutrient solution is given only as plants dry out.
* After 68 months, mother plants are replaced by a clone copy of themselves since their efficiency to create successful clones decreases.
* A 24-hour vegetative light cycle yields positive foliage growth in cloning branches.
* All mother plants are treated with a specific integrated pest management with emphasis on preventive measures to fight fungal infections associated with the root system.

Early Vegetative Growth

* After transplant into grow pots, plants are numbered and tagged accordingly.
* The assigned tags are affixed to the plant and will stay with it until harvest.
* Plants are moved to the general veg area, where they receive perpetual bright direct light from LED 1,000W.
* Plants are arranged in groups of 7-12 per light, depending on the strain's overall size and predicted growth range.
* At this time, the drip irrigation outlets are installed. These lines are fed into the room's main delivery pipes, which go back to the fertigation unit.
* Irrigation water is supplied through our nutrient dosing system, which calculates nutrient values and pH ranges and waters plants at predetermined times and concentrations.

* Using a standard veg solution with a pH range of 5.5-6.0 and an Electric Conductivity of 0.5-1.0 extreme care is taken that plants don't dry out.
* This lasts for an additional 10-14 days until the plants are ready to flower.
* Plants are continually sorted and pruned to promote uniformity and prevent shading.
* This encourages tighter node structure and a more established branch set which increases single plant yields and contributes to overall health.

Late Vegetative Growth

* After 10-14 days of Veg, the disease-free plants will continue growing under 24 hours of light for 5-7 days.
* The distribution is at a density of 12-15 plants per light.
* Trellis netting is also stretched 4-5 inches over the top of the plants. This causes plants to bend and stretch into the empty spaces.
* Flowering begins when plants have reached the proper height and density.
* Plants are watered with late veg solution via the drip irrigation system 2-3 times a day.
* Water demands increase as the plants increase in size. Late vegetative nutrient mix should have a higher Electric Conductivity of 1.5-2.0 never exceeding the 2.0 level, Nitrogen (N), Phosphorous (P) & Potassium (K) a ratio of 9-7-9 and pH of 5.5-6.0 which increases single-plant yields and contributes to overall health.
* As plant growth continues and root growth warrants, the Electric Conductivity of the nutrient solution is gradually raised, and Nitrogen (N), Phosphorous (P) & Potassium (K) ratios changed to steer plants into an aggressive vegetative stage.
* Plants are pruned throughout this process by removing small undeveloped branches below the canopy and continually removing larger shading fan leaves. This encourages branching and rooting as well as increases overall vigor and individual plant yields.
* The late vegetative nutrient solution will have a higher Electric Conductivity of 1.0-2.0 and a pH of 5.5-6.0.
* Nitrogen (N), Phosphorous (P) & Potassium (K) ratios are also changed to encourage rapid growth and root development
*

Flower Stage

During all stages of flower, great attention is required to ensure the overall health of plants. Growers have daily checklists and procedures to oversee every plant every day. This enables the cultivation team to immediately address any issues that arise in any greenhouse as soon as they present themselves.

Successful indoor cultivation requires vigilant control of the environment so that it mimics the outdoors as much as possible. Temperature, humidity, airflow, CO2 and nutrient delivery must be within designated ranges in order for the plants to thrive.

The Cultivation Department uses all available tools, resources and equipment to track and record the levels of each of the environmental changes. Cleanliness is critical. Greenhouses are cleaned regularly to prevent creating a hospitable environment for pathogens. A soil pH and Electric Condustivity meter is inserted into the pots that measures the levels of PH and available nutrients. The cultivation team also checks that the temperature of the flower greenhouses remains within range (70-80 degrees.) These daily checks are to keep the environment at its optimum range.

Early Flower

* After the initial 5-7 day veg period the plants have reached proper size and density and established strong root bases in their pots.
  * Lights are switched from continuous 24-hour lighting to 12-hour interval lighting.
  * Plants set their general structure and framework for flower.
* Flowering plants are provided to a lower level of humidity than those of the vegetative state.
* Humidity levels must be below 50% in the flower rooms in order to prevent mold.
* Spindly growth and large fan leaves are pruned to encourage deeper light penetration.

* The pace and size of growth is doubled in most plants while some Sativa dominant plants can stretch even more.
* As they stretch and begin to set bud sites an additional layer of trellis netting is added.
* Timing and interval of watering cycles increase weekly as plants grow and require more water to support growth.
* Early flower nutrient mix should have an Electric Conductivity of 1.5-2.0 never exceeding 2.0, a Nitrogen (N), Phosphorous (P) & Potassium (K) ratio of 9-7-11, and a pH of 5.5-6.0.
* Nutrient solution concentrations are determined through testing of the runoff water from the plants to be watered. Electric Conductivity and pH of the drain water is measured, and nutrient solution adjusted depending on these readings, to reach or maintain desired ranges.
* At the time of flowering a 4" horticultural trellis netting is strung 6 inches above the plants.
* An additional layer of netting is then strung 6-12 inches above the first net, to provide support as the plants grow.
* The pace and size of growth is doubled in most plants while some Sativa dominant plants can stretch even more.

Mid Flower

* Plants reach their overall height and set their initial bud sites after a 14 day early- flower schedule.
* A different nutrient profile with the same Electric Conductivity and with a lower concentration of nitrogen and calcium, and higher concentration of phosphorus and potassium is used.
* At this stage, in which plants will remain for an average of 30 days, yield is established.
* Sativa varieties tend to stretch this mid-flower stage a little longer. In that case, the mid-flower schedule is continued for the additional time needed, depending on strain. Mid-flower nutrient mix should have an Electric Conductivity of 1.5-2.0, never exceeding 2.0; a Nitrogen (N), Phosphorous (P) & Potassium (K) ratio of 7-9-11; and a pH of 5.5-6.0.

Final Touch Up Steps Include

* Removing leftover lower branches that don't receive light to maximize energy efficiency.

Late Flower

* Around the sixth week of the flower cycle plants are transitioned from calcium and magnesium except for small amounts needed to facilitate uptake of other nutrients.
* As they transition into a ripening/hardening stage, plants slow the production of flowers.
* Plants will continue in this phase for an average of two weeks. Sativa dominant plants will stay in this phase longer; one should continue to maintain the same late-flower schedule until they show signs of ripening.
* Plants are ready to flush and ripen at the first signs of:
    - *change in the color of pistils from white to other colors
    - *clouding of resin glands
    - *overall swelling of plant matter
* Late flower nutrient schedule should have an Electric Conductivity of 1.5-2.0, a Nitrogen (N), Phosphorous (P) & Potassium (K) ratio of 2-11-11, and a pH of 5.5-6.0.

Ripening/Flushing

* Post ripening and after a 4-day nutrient sequencing schedule, they are ready to flush.
* The flush consists of heavy watering of pure low-Electric Conductivity water—tap water is usually acceptable. (The low Electric Conductivity helps the salts in the medium bond to the water and literally be flushed out of the bottom. This helps rid the plant of excess fertilizer and chlorophyll trapped in the plant matter by starving the plant of food and forcing it to use its small reserves and push the unwanted elements out.)
* The pH of the flush water is in the 5.5-6.0 range.

* Plants will be in this stage for 10-14 days or until ripe. Plants are ripe when 80 percent of pistils have turned and 40 percent of trichomes have gone milky or amber. At this stage, plants are ready to be cut and processed.
* Plants are ready for harvest and processing once they have been flushed and have ripened.

Training

Natural Synergy, LLC's training and continuing education programs are intended to encourage growth and career advancement.
All employees will be trained in standard operating procedures; with hands-on audit- based training conducted on an on-going basis. Employees with mandated and necessary certifications will receive any and all continuing education courses to ensure continued certification or licensure. The Head of Cultivation and Facilities Manager will identify experts and vendor trainers to hold in-house training days on a regular basis for all production employees, as well as key conferences and seminars for qualified employees.
All employees will be hired on a probationary basis. After 90 days of initial employment, team members will be evaluated by their direct supervisor. If determined that a team member is a good fit, works collaboratively with fellow team members and demonstrates the ability to perform assigned tasks, they will be hired in a permanent capacity. Evaluations of team members occur once a quarter.

Safety

Natural Synergy, LLC has a robust and strict Comprehensive Job Site Safety and Health Program designed to protect employees, and plants. This includes:

* The Integrated Pest Management plan (see attachment A)
* For the safety of all employees, only one applicator will be permitted in the area being treated. Required signage will be posted as well as appropriate warning and evacuation of all other employees in the surrounding areas.
* All applications will be logged and tracked for proper management of the Integrated Pest Management and as a reference for future data collection.
* All chemicals, dangerous or otherwise, will be kept in properly labeled original containers in a locked and secure area.
* MSDS sheets on all products, including those used for training, will be kept on file in a clearly labeled binder for the ease of accessibility of our team members.

* All employees with access to marijuana plants, applications or products will be trained in food handling
* The Cultivation Center will follow Good Manufacturing Practice.
* The facility will be properly equipped with eye wash stations, an emergency shower and mandated first aid stations.
* All team members will be trained in our Emergency Action Plan. The Emergency Action Plan will be reviewed with team members a minimum of twice a year, emphasizing protocols and location specific information. Our Emergency Action Plans include, but are not limited to:
* Hazard Communication Standard
* Fire Safety
* Chemical Safety
* Exit Routes
* Walking/Working Standards
* Medical and First Aid
* Machine Safeguarding
*Electrical Hazards
*Hearing Conservation program
*Use of Personal Protective Equipment (PPE)
*The facility's record keeping, and documents will be in full compliance with state and local regulations.
*The nearest hospital and urgent care unit will be clearly identified in case of medical emergency or injury.

Facilities Management Activities

Daily

* Walk all rooms- check for leaks, Temperature/humidity in correct range, all lights, fans, dehumidifiers, switches, pumps, all equipment is running and operating correctly.
* If a light(s) are non-functioning- work back from fixture. Check Bulb. Verify power to outlet, check contactor and breaker.
* If A/C is nonfunctioning- Check filter(s), power to unit, thermostat, condensate drain, if frozen be sure filter and condensate line is clean, turn off A/C at thermostat and put fan on continuous to thaw.
* Check CO2 levels and verify they are at proper levels.
* As you walk facility look around and verify that all equipment is working and functioning as intended such as heating/cooling/ evaporative units, pumps, fans, doors, lighting, security lighting and all doors are functioning and secure.
* Verify that all cameras are functioning and operating correctly.
* Check and empty trash cans, make sure trash pickups are completed.
* Be cognizant of what sounds machinery produces when operating correctly. This is your biggest sign of when something is starting to go bad.

Weekly

* Check equipment- batteries, fluids, grease and verify all equipment is fully operational.
* Check safety equipment and order as needed- verify that all employees have adequate quantities of safety glasses, hearing protection, dust masks, respirator filters, work gloves and protective suits.
* Check expendables and order as needed - bits, blades, rags, oil, grease, bulbs, filters and tools.
* Check back stock and order as needed - verify that you have backups for all critical

infrastructure equipment- fans, pumps, ballasts, lights, filters, electric motors, Etc.
* Check grounds- make sure vegetation is cut and trimmed, all lighting is operational, weeds are under control, and all trash is picked up.

Monthly

* Check filters in Remote Terminal Unit's and verify they are clean and functioning correctly.
* Check emergency lighting.
* Check fire extinguishers- verify correct placement and integrity.
* Verify exit signs are lit and functioning correctly.
* Check door sweeps and seals.
* Check rooms for light leaks
* Check filtration systems, pumps, and filters. Replace as necessary.
* Check exterior doors- make sure they are working properly and secure.

Quarterly

* Conduct and document fire drills

Yearly

* Sprinkler system certification
* Fire extinguisher certification
* Back flow preventer's certification

Processing Department Procedures Overview

The purpose of this manual is to define the policies and procedures for the Processing Department of this production facility. All team members working in the Processing Department must follow these policies and procedures.

Role of the Processing Department

The primary function of the Processing Department is to take harvested plants and break them down and manage them through the process to finished bud, usable by- product and waste material.

Processing Department Administration

The Processing Department has functions to perform every day. The Processing Department Manager will be responsible for staffing needs and caring for the product throughout the dry, cure and storage process.

Pre-Processing

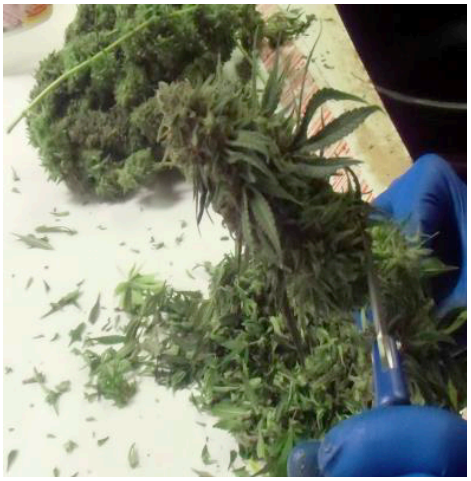
* Processing Manager calibrates all scales involved with processing on a daily basis.
* Processing Manager inspects processing area to make sure it was left in a clean and sterile state from the day before.
* Processing Manager inspects all processing tools to make sure they were sterilized properly.
* Processing Manager inspects trimming stations to make sure they are clean, sterilized and ready for the day.
* Cultivation, Processing and Inventory Manager meet weekly to consult take- down calendar consistently to ensure timely takedown.
* Processing and Cultivation Manager work together to ensure timely and efficient plant takedown, with correct plants harvested in correct order.

Staging

* Processing and Cultivation Manager perform final quality control inspection of plant. Harvest plant by cutting at the base of stem.
* Weigh plant, Write weight on tracking tags.
* Enter weight of plant into the tracking system.
* If there are any quality control issues plant is immediately isolated for final determination.

Trimming of Plant

* Processing Manager assigns plant to trimmer.
* Trimmer removes fan leaves and any excess waste and places in to waste bucket for Processing Manager to weigh and record on harvest spreadsheet.
* Trim crew trims plant according to specifications, cuts plant into 1-2 feet sections using a "V" notch



* Processing Manager enters all waste weights into plant tracking software. Print two labels.
*Affix one label to Harvest Card / Affix one label to Trim Card.
*Hang plant by strain in staging area for assignment to trimmers
*Trimmed by-product is placed in appropriate container. Processing Manager collects byproduct containers from trimmers and weighs, labels by-product card, enters weight on electronic spreadsheet and puts on drying rack along with by- product card.

*Hang plant upside-down to dry and create Bin Label corresponding with Plant Tag

* Plants are hung on racks by strain.
* Processing Manager ensures all plants are trimmed correctly, tagged/labeled correctly and are hanging together by strain.

* Plant matter that falls on the floor or is otherwise considered contaminated and is placed in designated area and labeled for final determination of destruction by Processing Manager.

Drying Room

* Once rack of trimmed plants is complete, move into curing room and store at approximately 70% humidity.
* Leave in room for 7-14 days, checking cure state twice daily.

Trimming of Dried Plant

* Processing Manager removes rack from cure room, set in staging area. Dried flowers are cut from stems.
* Dried flowers are placed in trim container. Stems are placed in waste container.
* Processing Manager weighs contents of waste container and records on electronic spreadsheet and enters into tracking software.
* After removing flower from stems, remaining by-product is removed and collected from trim area and drying racks.
* By-product is weighed, entered on by-product card and placed into by-product container. By-product card is affixed to the container.
* Flower product is placed into proper bins with the corresponding label attached to front of container.
* Bins are organized onto racks by strain and brought to appropriate area for weighing final product by Processing and Inventory Manager.

Quality Control Check #1

* Processing Manager does final Quality Control inspection of all trimmed product.
* Processing Manager ensures and oversees proper trimming, handling, labeling, hanging and storage throughout the process.

Cure/ Storage Procedure

* Processing and Inventory Managers weigh out product (by strain and day harvested). Processing and Inventory Manager record final weights on electronic spreadsheet.
* Inventory Manager/Assistant Manager enters all final weights into plant tracking software and creates batches based on strain and date of harvest.
* Batched containers are placed into cure room by Inventory Manager/Assistant Manager.
* Each container is assessed on a daily basis for Finished Product determination by Inventory Manager.
* Once a container is considered "Finished Product", it is sealed and moved to storage area.
* Product in the storage area is considered ready for distribution and is marked accordingly in tracking software.

Quality Control Check #2

* Processing Manager makes sure there is no remaining byproduct in bins or on flowers.
Processing Manager does final Quality Control inspection of dried flower in bins.

Attachment A

NATURAL SYNERGY - CULTIVATION PEST MANAGEMENT PLAN

Cultural Pest-Management Control Methods

Cultural practices will include:
Upon entering the building we will always travel from cleanest to dirtiest rooms and never backtrack to ensure there is no cross contamination between areas. Entry of buildings will be only into a common area prior to entering the canopy. Fresh gloves and shoe sterilizing pans will be in every entry and exit of the Greenhouse.

Preventative Action: Greenhouse will have ventilation system pulling in air from one end of the greenhouse and releasing air through the other end, as well as rotating fans to assist in creating a non-desirable pest environment. Climate control equipment and automatic monitoring system for the Greenhouse environment will be in place 24/7. Screens will be used in areas needed to prevent flying pest from entering. Rodent traps will also be used.

Inspections will happen naturally during normal daily interactions with the plants but also through daily scheduled inspections to review for pests or discoloration for all over plant health. The use of sticky cards will be used to help track and trap pests. Photos and documentation of findings will be kept.

A Pest ID key will be in multiple locations for easy identification of pests. If pests are discovered an analysis of the plant will be done to establish an action threshold. An evaluation of the observation notes and photos will help determine the level of action needed to move forward to eradicate the pest as soon as possible.

Physical Pest-Management Control Methods

Removing leaves or removing the entire plant to quarantine may be needed.

Biological Pest-Management Control Methods

If it is determined that the pest can be treated using a predator, a sachet releasing predator will be introduced and carefully monitored keeping observation records for future use.

Chemical Pest-Management Control Methods

This will be the last resort. If needed, will use biocontrol agent only as directed and as little as possible.

Chemical Storage

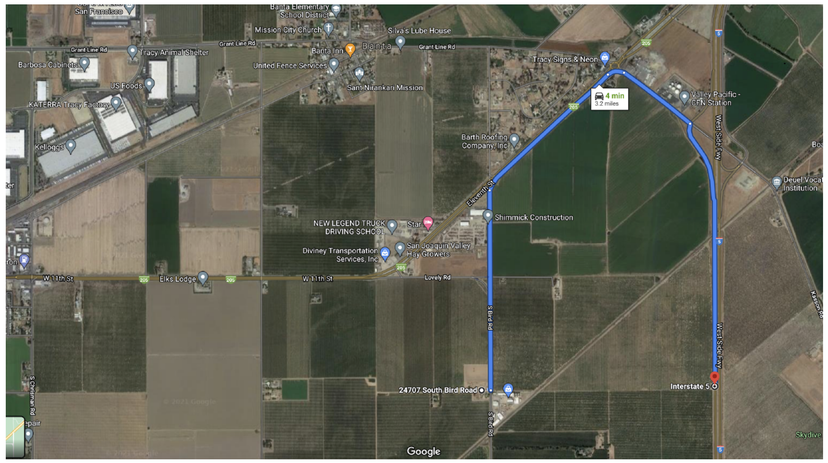
Chemicals would be kept in a restricted access area of the Cultivation Building (greenhouse) and access door shall remain locked. Chemicals would be stored with tertiary containment measures, including the original or designated mixing container, a plastic sheet or barrier under the container(s), and a metal or plastic bin in which the chemicals can be stored on, such as a product similar to the widely-used UltraTech International Inc. IBC Spill Pallets (https://www.spillcontainment.com/products/ibc-spill-pallets-plus/).
No chemicals would be stored directly on the ground, or in an area where an accidental spill could leak onto the bare ground or to a drain (either to the sewer or storm drain).

All chemical containers would be properly labeled and Material Safety Data Sheets (MSDS) would be kept within the locked area, as well as in a clearly labeled binder within the security office, and main office

PEST	Damage	IPM Practices	Pesticide
Diseases			
Powdery Mildew	Grow on leaves as white andgray powdery patches.	* Use fans to improve aircirculation	Horticultural oil, neem oil,sodium bicarbonate, potassium bicarbonate: Bacillus subtilis
Phthium Root Rot	Attacks root tips and worsens when plants growin we soil.	* Avoid Hydroponic production or wet soilconditions.	Incorporate biocontrol agents into root-growing media (Gliocladium virens,Trichoderma, harzianum, Bacillus subtilis.
Mites & Insects			
Two -Spotted spider mites	Sucks plant sap: stippleleaves	* Disinfest cuttings before introducing togrowing area. * Release predatory mites(Amblyseius app., Phytoseiulus persimillis), or lacewings (chrysoperia app.)	Neem Oil, horticulturaloil, Sulfur
Whiteflies	Sucks plant sap: Weakensplants	* Hang up yellow stickycards * Use biocontrol: Amblyseius swirskii, Eccarsia formosa, Delphastus catalinae, Steinernea feltiae.	Azadirachtin, Beauveriabassiana, cinnamon oil, horticultural oil

Thrips	Stipple and scar leaves;Vector Viruses	* Sterilize Soil and potsbefore growing. * Hang up yellow or bluesticky cards. * Use biocontrol: Stratiolaelaps scimitus,Amblyseius cucumeris, Amblyseiu swirskii, Orius insidious.	Azadirachtin, horticulturaloil, insecticidal soaps, rosemary + peppermint oils, Beauveria bassiana
Dark-Winged FungusGnats	Damage roots and stuntplant growth	* Avoid overwatering * Use growing media thatdeters gnat development. * Hang yellow sticky cards * Use biocontrol: Statiolaelaps scimitus,Dalotia coriaria, Steinernerma feltiae.	Bacillus thuringiensis israelensis

ATTACHMENT B

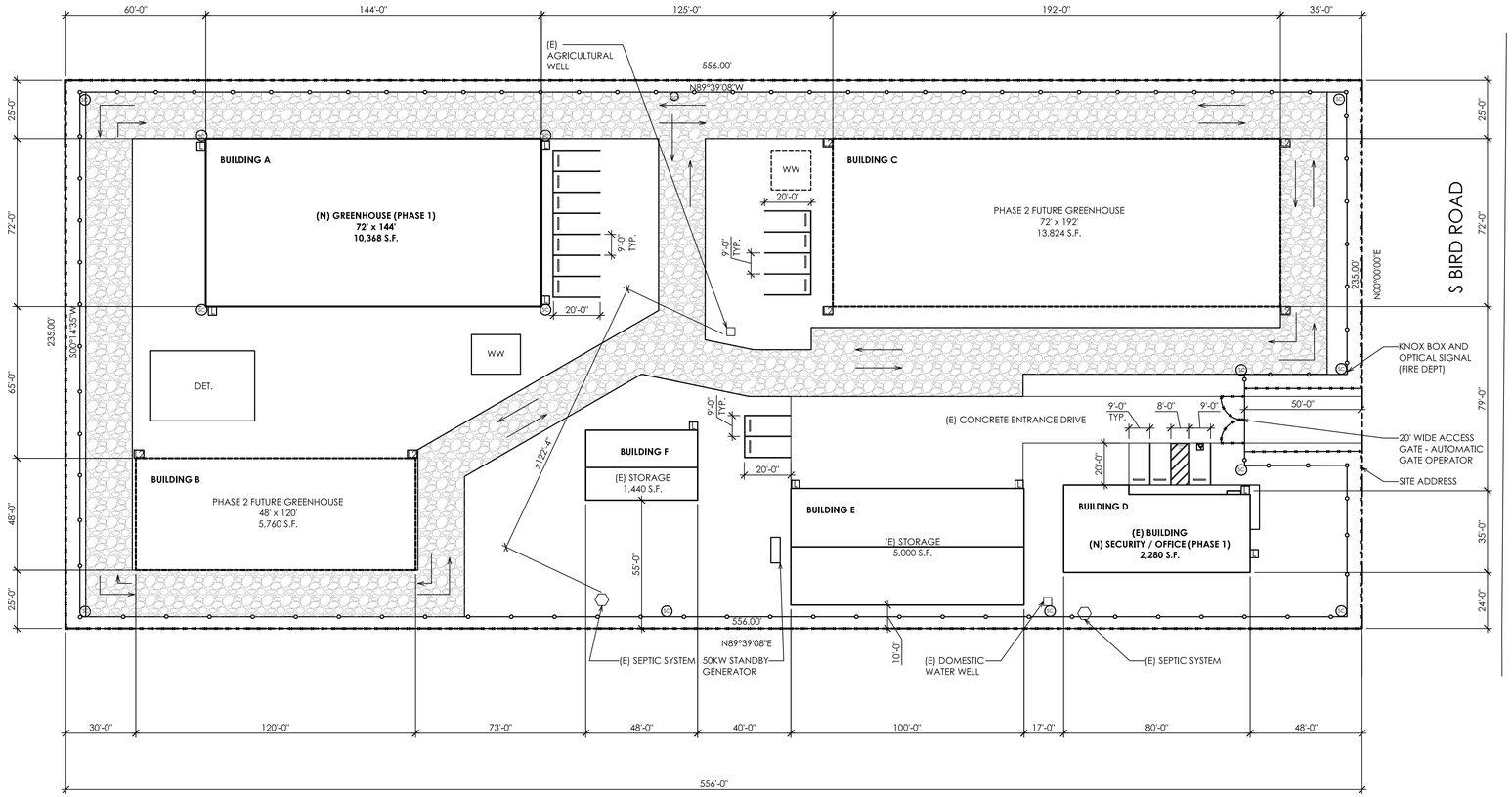


GENERAL NOTES:

1. THE PROPERTY IS RELATIVELY FLAT.
2. CIRCULATION: THERE WILL BE A 20FT WIDE BASE ROCK DRIVE PATH TO PROVIDE ACCESS FOR CULTIVATION ACTIVITIES, SECURITY MONITORING AND EMERGENCY VEHICLES. THERE IS ONE INGRESS/EGRESS POINT WITH AN AUTOMATIC GATE WITH OPTICAL SIGNAL OPERATION. THE PROPERTY ADDRESS IS LOCATED OUTSIDE OF THE GATE AND EACH BUILDING IS ALPHA LABELED. DRIVE PATH WILL BE BASE ROCK AND MAINTAINED MONTHLY.
3. PROPERTY LIGHTING: CONFINE DIRECT RAYS TO THE PREMISES WITH NO SPILL OVER LIGHTING WILL BE INSTALLED FOR PARKING AND ON EACH BUILDING.
4. PARKING: 16 STALLS (1 ACCESSIBLE) WILL BE LOCATED THROUGHOUT PROPERTY. SURFACING FOR ALL PARKING STALLS WILL BE CONCRETE.
5. SECURITY FENCE: 2-11FEET HIGH FENCES WITH A 5FT WALK SPACE BETWEEN THEM. OUTER FENCING WILL BE A 10FT METAL PANELS WITH 1FT RAZOR WIRE AT TOP. INNER FENCING WILL BE A CHAINLINK 10-FT HIGH FENCE WITH 1FT RAZOR WIRE AT TOP. BETWEEN FENCING IN WALK PATH THERE WILL BE A LASER BEAM STYLE ALARM SYSTEM.
6. INDUSTRIAL GRADE LOCKS WILL BE INSTALLED ON INGRESS/EGRESS GATES AS WELL AS ALL DOORS ON EACH BUILDING. EACH BUILDING WILL HAVE INTERNAL MOTION DETECTORS. 24 HOURS LICENSED AND ARMED SECURITY GUARD. SECURITY SYSTEM WILL BE HIGH DEFINITION WITH 24 HOURS MONITORING. CAMERAS TO BE INSTALLED TO COVER THE FENCE LINE, OUTSIDE THE FENCE LINE AND THE INTERIOR OF THE PROPERTY.

LEGEND:

- 10' HIGH METAL PANEL FENCE W/ 1' HIGH RAZOR WIRE ON TOP (PHASE 1)
- 10' HIGH CHAINLINK FENCE W/ 1' HIGH RAZOR WIRE ON TOP (PHASE 1)
- 20' WIDE FIRE ACCESS ROAD WITH COMPACTED CRUSHED BASE ROCK (TRAFFIC CAN GO EITHER DIRECTION) (PHASE 1)
- WW — UNDERGROUND WASTE WATER TANK SYSTEM (PHASE 1)
- DET. — GRADE LEVEL STORM WATER DETENTION AREA (PHASE 1)
- SC — SECURITY CAMERA (PHASE 1)
- L — BUILDING MOUNTED LIGHT FIXTURES (PHASE 1)
- L2 — BUILDING MOUNTED LIGHT FIXTURES (PHASE 2)



1 SITE PLAN
SCALE: 1"=30'

PRESSEY & ASSOCIATES
AN ARCHITECTURAL CORPORATION
2015 H ST. THIRD FLOOR
SACRAMENTO, CA 95811
TEL 916-346-4280

REVISION HISTORY

LICENSED ARCHITECT
KEVIN W. PRESSEY
No. C25741
REN. 01/31/23
STATE OF CALIFORNIA

24707 S BIRD RD TRACY CUP

24707 S BIRD RD
TRACY, CA 95304

SITE PLAN

PROJECT NO.	21104
SCALE	
DATE	NOVEMBER 04 2021
DRAWN	XFL

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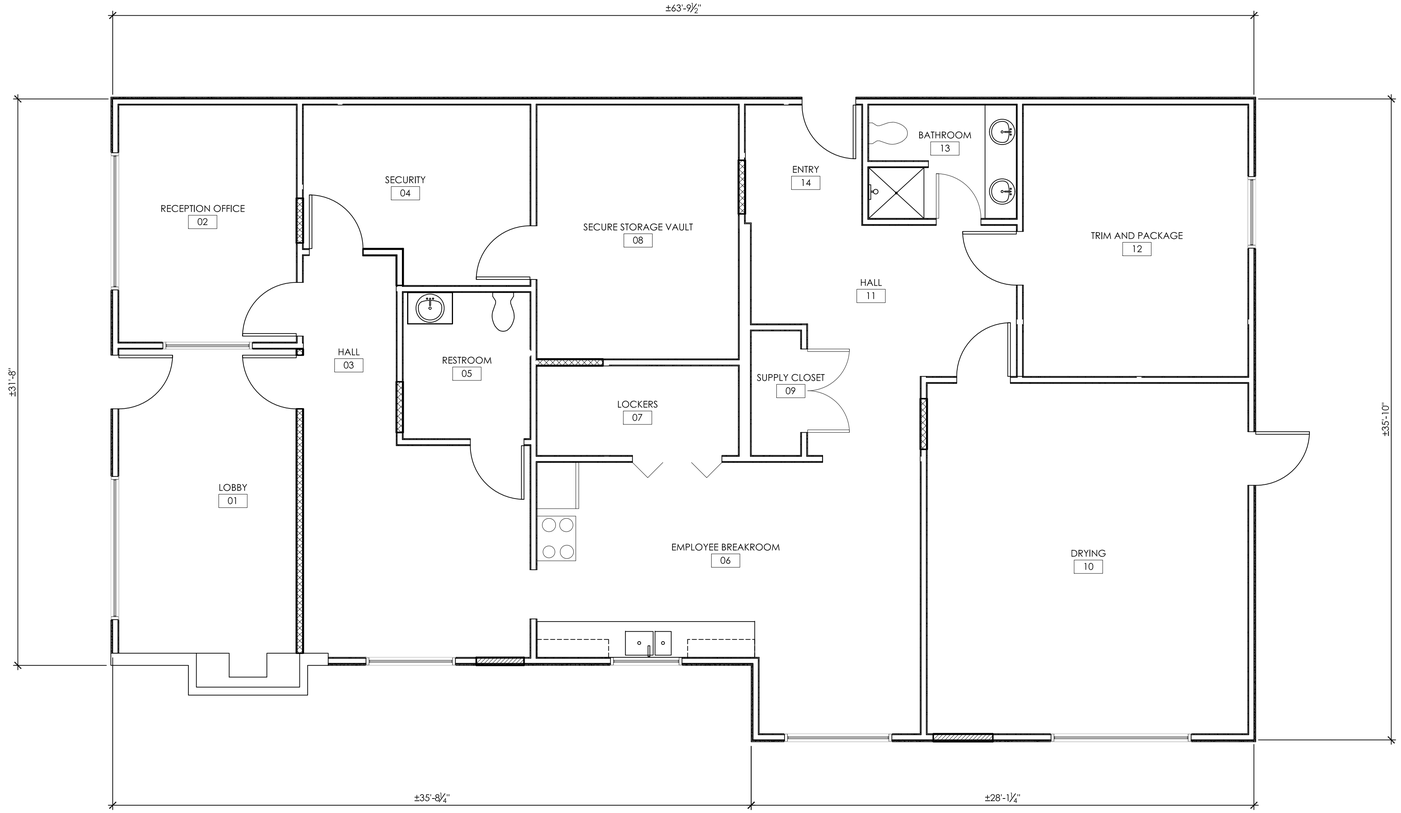

1 FLOOR PLAN
SCALE: 1/4"=1'-0"

PRESSEY & ASSOCIATES
AN ARCHITECTURAL CORPORATION
2015 H ST. THIRD FLOOR
SACRAMENTO, CA 95811
TEL 916-346-4280

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24707 S BIRD RD
TRACY, CA 95304

FLOOR PLAN

PROJECT NO.	21104
SCALE	
DATE	NOVEMBER 04 2021
DRAWN	XFL

A1.0

- OF -

ATTACHMENT B

BIOLOGICAL MEMORANDUM

MONTROSE ENVIRONMENTAL SOLUTIONS
1801 7TH STREET, SUITE 100
SACRAMENTO, CA 95811
(916) 447-3479 | FAX (916) 447-1665

BIOLOGICAL MEMORANDUM

To:	Darren Mangrum
From:	David Pfuhler, Biologist Montrose Environmental Solutions 1801 7th Street, Suite 100 Sacramento, CA 95811
Project:	South Bird Road Cannabis Cultivation Project
Date:	1/17/2022

1.0 INTRODUCTION

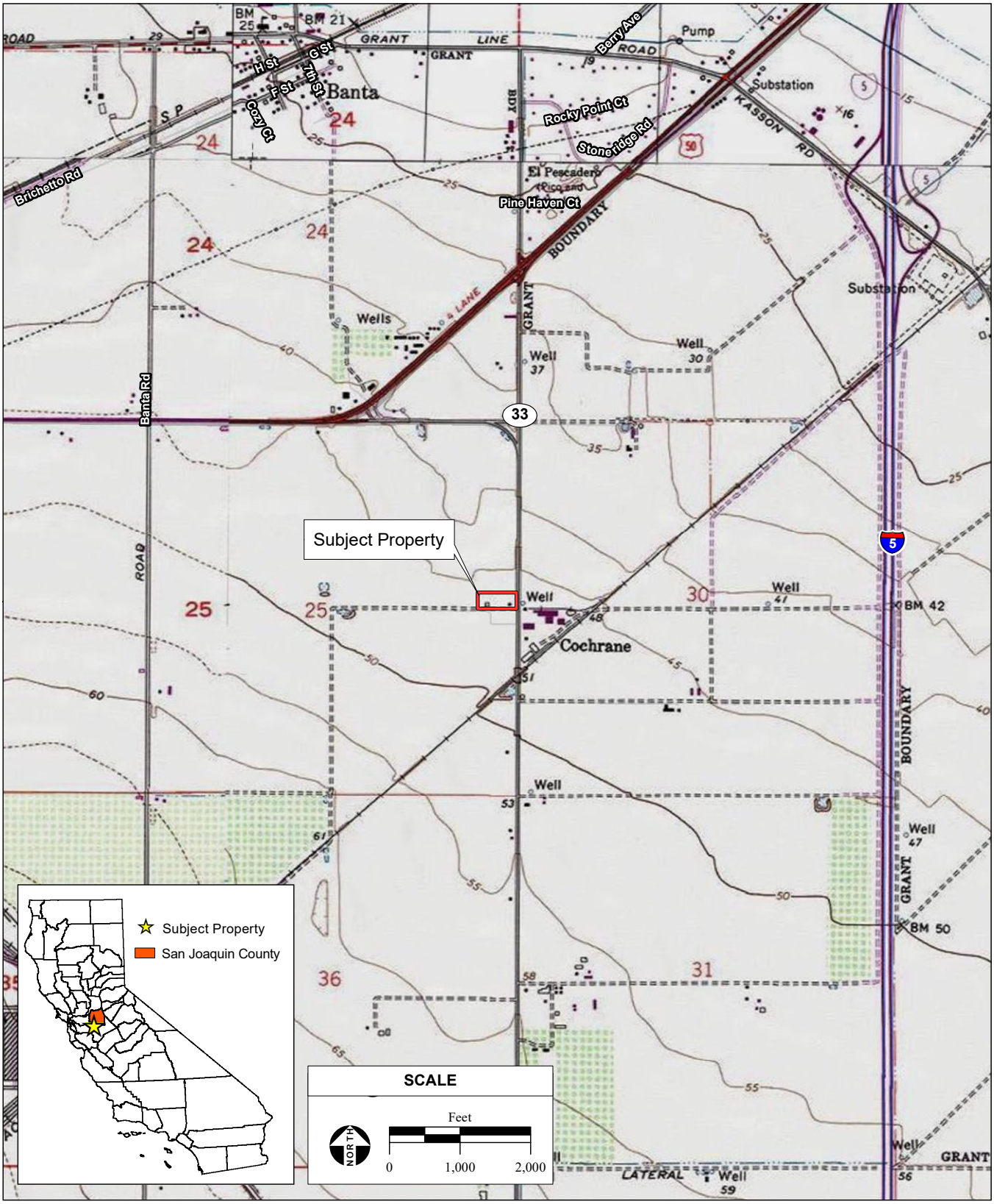
This memorandum has been prepared for Darren Mangrum (Applicant) who is seeking a use permit for commercial cannabis cultivation from the County of San Joaquin Community Development Department (Proposed Project). The Proposed Project is located at 24707 S. Bird Road in Tracy, CA on a 3-acre parcel in San Joaquin County (County) (APN: 250-100-06) (**Figure 1**). The Proposed Project is planned to be constructed in two phases over three years. Phase one includes the construction of a 10,368-sf greenhouse for cannabis cultivation, conversion of an existing 2,280-sf building for office/security purposes, a stormwater retention basin and wastewater tank, and 12 concrete parking stalls. Phase two includes the construction of a 13,824-sf and a 5,760-sf greenhouse for cannabis cultivation, the utilization of an existing 5,000-sf agricultural building for tractor/equipment storage, construction of four additional concrete parking stalls, as well as minimal underground infrastructure for water conveyance. The County's issuance of the use permit triggers the need for compliance with the California Environmental Quality Act (CEQA).

The Proposed Subject Property is located within Township 2 South, Range 6 East as depicted on the Vernalis, CA U.S. Geological Survey 7.5-minute topographic quadrangle. A topographic map and an aerial view of the Subject Property are shown in **Figures 2**. It is assumed that construction could occur up to 2 feet below current ground surface. The purpose of this memorandum is to provide a habitat assessment of the Subject Property and to identify sensitive biological resources that could occur within the grading areas.

2.0 METHODOLOGY

A biological resources survey was conducted on the Subject Property on November 19, 2021 by staff biologist David Pfuhler. The biological resources survey evaluated the entire Subject Property and was conducted by walking transects throughout the Subject Property. Prior to the survey, the following information was obtained and reviewed:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) list, dated November 18, 2021 (USFWS, 2021a; **Attachment A**);
- CNDDB list updated November 18, 2021 (CDFW 2021; **Attachment A**);
- CNPS list updated November 18, 2021 (CNPS, 2021; **Attachment A**);
- USFWS National Wetlands Inventory map dated November 18, 2021 (USFWS, 2021b;



SOURCE: "Vernalis, CA" USGS 7.5 Minute Topographic Quadrangle, T2S R5E, Sections 25, Mount Diablo Baseline & Meridian; ESRI, 2022; AES-Montrose, 1/14/2022

Figure 1
Site and Vicinity

SOURCE: Vivid Maxar aerial photograph, 3/30/2021; ESRI, 2022; AES-Montrose, 1/14/2022

Figure 2
Subject Property

- **Attachment B**); and
- Natural Resources Conservation Service soils report dated November 18, 2021 (NRCS, 2021; **Attachment B**).

Survey goals consisted of identifying vegetative communities, sensitive habitats, wetlands and waters of the U.S. or state, and special-status species. Sensitive habitats include those that are designated by CDFW, considered by local experts to be communities of limited distribution, or likely to be waters of the U.S. or State by the appropriate regulatory agencies. Species observed were identified to the lowest taxonomic level possible. Habitat requirements of regionally occurring special-status species were compared to habitats observed, which were determined based on aerial photographs, ground-truthing, and background data review. Survey methodology was conducted consistent with California Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW, 2018). Data was collected via a Trimble Geo XH hand-held GPS receiver.

3.0 ENVIRONMENTAL SETTING

3.1 SOIL TYPES

A custom soils report for the Property is included in **Attachment B**. The Subject Property is comprised of predominantly Vernalis clay loam, 0 to 2 percent slopes (86.7%) followed by Capay clay, 0 to 1 percent slopes (13.3%). These soils are moderately well drained and well drained soils respectively.

3.2 HABITAT TYPES

The Subject Property was comprised of developed land and ruderal/disturbed habitat. The ruderal/disturbed habitat type is further discussed below. The southern half of the property was predominantly developed with barn structures, vehicle storage, and an office building. Habitats surrounding the Subject Property included orchards.

Ruderal/Disturbed

The majority of the Subject Property is ruderal/disturbed. This habitat is characterized by areas of removed orchard which has been graded and partially graveled over. Cheeseweed mallow (*Malva parviflora*) was the predominant ground cover. The northern border of the Project Area was fenced and lined with cedar (*Cedrus spp.*) and interspersed with prickly Russian thistle (*Salsola tragus*). Ornamental plants including California fuscia (*Epilobium canum*), rose (*rosa sp.*), red valerian (*Caprifoliaceae ruber*), and blueberry (*Vaccinum sect. Cyanococcus*) surround the property and office building.

3.3 SPECIAL-STATUS SPECIES

Data review and special-status species searches found 17 special-status plant species and 31 special-status wildlife species with the potential to occur in the region of the Subject Property (**Attachment A**). The name, regulatory status, distribution, habitat requirements, period of identification, and potential to occur for each species are listed in Table 1 of **Attachment A**.

Based on the site-specific habitats and special-status species habitat requirements for each species that may occur within the vicinity of the Subject Property, as shown in Table 1 of **Attachment A**, the Subject Property contains suitable habitat to potentially support 2 special-status animal species. Species with no potential to occur on the Subject Property were ruled out based on lack of suitable habitat, soils,

elevation, necessary substrate, and negative results during the survey if it coincided with the identifiable bloom period for plant species. Though the survey was conducted outside the bloom window of the potentially occurring special-status plant species, the ruderal/disturbed habitat found on the property is not suitable for any of the listed plants.

Of the species with the potential to occur within the Subject Property, the Property contains suitable habitat for the following special-status animal species:

- Swainson's hawk (*Buteo swainsoni*)
- Burrowing Owl (*Athene cunicularia*)

Walnut trees (*Juglans spp.*) located within the Subject Property may provide suitable habitat for nesting birds, including Swainson's hawk, and the open field to the north of the Subject Property may serve as appropriate foraging habitat. The periphery of the property is less disturbed and the surrounding vegetation may provide cover to wildlife from predators. This area may provide suitable habitat for burrowing owls as small mammal burrows were present along the western border.

3.4 WILDLIFE MOVEMENT

The Subject Property is developed and subject to regular disturbance from ongoing agricultural activities. Existing fencing occurs around the Subject Property and adjacent vineyards. The Subject Property does not serve as a wildlife corridor or nursery.

3.5 CRITICAL HABITAT

There is designated Critical Habitat for delta smelt mapped on the Subject Property (USFWS, 2021c). There were no waterways found on the property that would serve as suitable habitat for this species.

4.0 RESULTS AND RECOMENDATIONS

4.1 SENSITIVE HABITAT

At the time of the survey, habitat types consisted of developed land and ruderal/disturbed. These areas are regularly maintained and subject to ongoing disturbance. These habitat types are not considered sensitive and offer little value to plants and wildlife. There are no aquatic habitats present on or adjacent to the Subject Property. Additionally, adjacent orchards would not be impacted by the Proposed Project. This would be a less-than-significant impact.

4.2 NESTING AND MIGRATORY BIRDS

Nesting birds are protected under California Fish and Game Code as well as the Migratory Bird Treaty Act. Additionally, Swainson's hawk (State Threatened Species) has the potential to nest in the trees on the property. Ground disturbance associated with the Proposed Project would be minimal to only level ground needed for the building pads which could result in the potential to disturb nesting birds should work commence during the nesting season (February 1 through August 31). **Mitigation Measure 1** is recommended to avoid potential impacts to nesting birds. With implementation of **Mitigation Measure 1**, potential impacts to nesting birds, including special-status bird species, would be less-than significant.

Mitigation Measure 1

Should work commence during the nesting season (February 1 through August 31), a preconstruction nesting bird survey shall be conducted by a qualified biologist no more than 7 days prior to the start of ground disturbing activities. This survey will include the assessment of areas that can be used by burrowing owl (*Athene cunicularia*), to ensure that the listed species will not be impacted. Accessible areas within 500 feet of construction shall be surveyed for active nests. Should an active nest be identified, a disturbance-free buffer shall be established by the qualified biologist based on the needs of the species identified. The buffer shall be clearly marked by high-visibility material and shall remain in place until the nest is determined to be no longer active. Ground-disturbing activities, including the removal of trees, shall not occur within the buffer. Should construction cease for a period of five days or more, an additional nesting bird survey shall be conducted.

4.3 SPECIAL-STATUS SPECIES

Based on results of the habitat assessment ruderal/disturbed areas lack suitable habitat to support regionally occurring special-status plant species (**Attachment A)**. The walnut trees located on the property may serve as suitable nesting habitat for the state threatened Swainson's hawk, and the less disturbed margins may provide suitable nesting habitat for the burrowing owl. **Mitigation Measure 1**, described above, is recommended to avoid potential impacts to these species. With implementation of **Mitigation Measure 1**, potential impacts to special-status bird species would be less-than significant.

4.4 WILDLIFE USE AND MOVEMENT

As stated above, the Subject Property has been previously developed and is subject to ongoing disturbance. No wildlife corridors, nurseries, or significant habitat were observed on the Subject Property. There would be a less-than-significant impact.

5.0 CONCLUSION

The Subject Property does not contain special-status plants or sensitive habitats. The potential for two special-status birds, Swainson's hawk and burrowing owl, exists within the Subject Property. Ground disturbance within the grading areas would include the ruderal habitat and no sensitive habitat or special-status species would be impacted. No further biological resource surveys are recommended. Should ground disturbance commence during the nesting season (February 1 – August 31), a preconstruction nesting bird survey is recommended to reduce potential impacts to special-status and nesting migratory birds.

6.0 REFERENCES

California Department of Fish and Wildlife (CDFW), 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. Available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline. Accessed November 2021.

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USFWS, 2021a. Information for Planning and Consultation. Available online at: https://ecos.fws.gov/ipac/. Accessed November 2021.

USFWS, 2021b. USFWS National Wetland Inventory. Available online at: https://www.fws.gov/wetlands/Data/Mapper.html. Last visited November 2021.

USFWS, 2021c. Critical Habitat for Threatened and Endangered Species. Available online at: https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77. Accessed November 2021.

ATTACHMENTS

ATTACHMENT A

SPECIAL STATUS SPECIES LISTS

TABLE 1
REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
PLANTS					
Amsinckia grandiflora Large-flowered fiddleneck	FE/CE/1B.1	Known to occur in Alameda, Contra Costa, and San Joaquin counties.	Cismontane woodland and Valley and foothill grasslands. Elevations; 275-550 meters.	April-May	No, habitat suitable for this species is not found on site
Atriplex minuscula Lesser saltscale	--/--/1B.1	Known to occur in Alameda, Butte, Fresno, Kern, Madera, Merced, Stanislaus*, and Tulare county.	An annual herb found in alkaline, sandy soils in chenopod scrub, playas, and valley and foothill grassland. Elevation range from 15-200 meters.	May-October	No, habitat suitable for this species is not found on site
Blepharizonia plumosa Big tarplant	--/--/1B.1	Known to occur in Alameda, Contra Costa, San Joaquin, San Luis Obispo, Solano (may be extirpated), and Stanislaus counties.	Valley and foothill grassland. Elevations: 30-505 meters	July-October	No, habitat suitable for this species is not found on site
Caulanthus lemmonii Lemmon's jewelflower	--/--/1B.2	Known to occur in Alameda*, Fresno, Kings, Kern, Merced, Monterey, Santa Barbara, San Benito, San Joaquin, San Luis Obispo, Stanislaus, and Ventura counties	Annual herb found in pinyon and juniper woodland, chaparral, scrub, valley and foothill grassland. Elevations range from 80-1,580 meters	February-May	No, habitat suitable for this species is not found on site
Cirsium crassicaule *Slough thistle*	--/--/1B.2	Known to occur in Kern, Kings, and San Joaquin counties	Chenopod scrub, marshes, swamps, and riparian scrub. Elevations: 3-100 meters	May-August	No, habitat suitable for this species is not found on site
Delphinium californicum ssp. interius Hospital Canyon larkspur	--/--/1B.2	Known to occur in Alameda, Contra Costa, Merced, San Benito, Santa Clara, San Joaquin and Stanislaus counties (CNPS, 2010).	Found in chaparral (openings), and cismontane woodland (mesic). Elevation 230-1,095 meters (CNPS, 2010).	April-June	No, habitat suitable for this species is not found on site
Eryngium racemosum Delta button-celery	--/CE/1B.1	Known to occur in Calaveras, Contra Costa, Merced, San Joaquin, and Stanislaus counties	Found in riparian scrub from elevations of 3-30 meters asml	(May) June-October	No, habitat suitable for this species is not found on site
Eschscholzia rhombipetala Diamond petal poppy	--/--/1B.1	Known to occur in Alameda, Colusa, Contra Costa, Kern, San Joaquin, San Luis Obispo, Stanislaus counties	Valley and foothill grassland. Elevations: 0-975 meters	March-April	No, habitat suitable for this species is not found on site
Lasthenia chrysantha Alkali-sink goldsfields	--/--/1B.1	Known to occur in Fresno, Kern, Kings, Madera, Merced, Sacramento, Solano, Stanislaus, Tulare counties	Vernal pools. Elevations: 0-200 meters	February-April	No, habitat suitable for this species is not found on site

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Coreopsis hamiltonii Mt. Hamilton coreopsis	--/--/1B.2	Known to occur in Alameda, Santa Clara and Stanislaus counties (CNPS, 2010).	Found in cismontane woodland (rocky). Elevation 550-1,300 meters (CNPS, 2010).	March-May	No, habitat suitable for this species is not found on site
Lilaeopsis masonii Mason's lilaeopsis	--/CR/1B.1	Known to occur in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo counties.	Found in marshes and swamps (brackish or freshwater), and riparian scrub. Elevations range from 0-10 meters.	April-November	No, habitat suitable for this species is not found on site
Madia radiate Showy golden madia	--/--/1B.1	Known to occur in Contra Costa, Fresno, Kern, Kings, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Stanislaus counties.	Cismontane woodlands and valley and foothill grasslands. Elevation: 25-1215 meters	March-May	No, habitat suitable for this species is not found on site
Malacothamnus hallii Hall's bush-mallow	--/--/1B.2	Known to occur in Contra Costa, Merced, Santa Clara, San Mateo, and Stanislaus counties.	A perennial evergreen shrub found in chaparral and coastal scrub. Elevation ranges from 10-760 meters (CNPS, 2017).	(Apr)May-September(Oct)	No, habitat suitable for this species is not found on site
Phacelia phacelioides Mt. Diablo phacelia	--/--/1B.2	Known to occur in Contra Costa, San Benito, Santa Clara, Stanislaus counties.	Chaparral and cismontane woodland. Elevation: 500-1370 meters	April-May	No, habitat suitable for this species is not found on site
Puccinellia simplex California alkali grass	--/--/1B.2	Known to occur in Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, and Yolo counties.	An annual herb found in alkaline, vernally mesic condition within sinks, flats, and lake margins. Also chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation range: 2-930 meters (CNPS, 2019).	March-May	No, habitat suitable for this species is not found on site
Trichocoronis wrightii var. wrightii Wright's trichocoronis	--/--/2B.1	Known to occur in Colusa, Merced, Riverside, San Joaquin, and Sutter counties.	Annual herb found in alkaline soils within meadows and seeps, marshes and swamps, riparian forests, and vernal pools. Elevations range from 5-435 meters.	May-September	No, habitat suitable for this species is not found on site
Tropidocarpum capparideum Caper-fruited tropidocarpum	--/--/1B.1	Known to occur in Alameda, Contra Costa, Fresno, Glenn, Monterey, Santa Clara, San Joaquin, and San Luis Obispo counties.	Valley and foothill grassland (alkaline hills). Elevations from 1-455 meters.	March-April	No, habitat suitable for this species is not found on site
ANIMALS					
Amphibians					

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Ambystoma californiense California tiger salamander	FT/CT/--	Occurs in Alameda, Butte, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Stanislaus, Tulare, and Yolo counties.	Occurs in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stockponds, in grassland and oak savannah plant communities. Elevations; 0-460 meters.	November-February (adults) March 15-May15 (larvae)	No, habitat suitable for this species is not found on site
Rana boylii foothill yellow-legged frog	--/CE, CSC/--	Known from California and Oregon.	Require shallow, flowing water in moderate sized streams with some cobble substrate.	November-March (breeding) June-August (non-breeding)	No, habitat suitable for this species is not found on site
Rana draytonii California red-legged frog	FT/CSC/--	Known to occur along the Coast from Mendocino County to Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada mountains, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley.	Occurs in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation. Elevations range from 0-1160 meters.	November – March (breeding) June - August (non-breeding)	No, habitat suitable for this species is not found on site
Spea hammondii western spadefoot toad	--/CSC/--	Known to occur from the north end of California's great central valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California.	Mostly below 3,000 feet in elevation. Their aquatic habitat is vernal pools, temporary wetlands, rivers creeks, or temporary rain pools. Their terrestrial habitat is typically lowland habitats such as washes, river floodplains, alluvial fans, playas, alkali flats, foothills, or mountains. They prefer sandy or gravelly soil with open vegetation and short grasses (often in valley and foothill grasslands, open chaparral, and pine-oak woodland)	November-March	No, habitat suitable for this species is not found on site
Birds					
Agelaius tricolor Tricolored blackbird	--/CT, CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	All Year	No, habitat suitable for this species is not found on site
Athene cunicularia Burrowing owl	--/CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year	Yes there is potential for this species to occur on site

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Buteo swainsoni Swainson's hawk	--/CT/--	In California, breeds in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, Antelope Valley, and in eastern San Luis Obispo County.	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, alfalfa, or grain fields supporting rodent populations.	March – October	Yes there is potential for this species to use trees on the site for nesting and an adjacent field for foraging.
Lanius ludovicianus loggerhead shrike	--/CSC/--	United States and western Canada.	Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting, and scattered trees.	Year Round	No, habitat suitable for this species is not found on site
Melospiza melodia song sparrow ["Modesto population"]	--/CSC/--	Known to occur in Alameda, Contra Costa, Marin, Napa, Sacramento, San Mateo, Santa Clara, Solano, Sonoma, and Stanislaus Counties.	Found in riparian or herbaceous wetland habitat among brushy, shrubby areas of grass along water courses and marshes. Nests on the ground among clumps of dead grasses or in small conifers and other shrubs.	All year	No, habitat suitable for this species is not found on site
Vireo bellii pusillus least Bell's vireo	FE/CE/--	Known to occur in Butte, Fresno, Imperial, Inyo, Kern, Los Angeles, Mariposa, Merced, Monterey, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Stanislaus, Sutter, Tehama, Ventura, Yolo, and Yuba counties. However some counties only have one occurrence.	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite. Found in riparian forest, riparian scrub, and riparian woodland.	All Year	No, habitat suitable for this species is not found on site
Xanthocephalus xanthocephalus yellow-headed blackbird	--/CSC/--	Breeds from central British Columbia eastward to very western Ontario, southward into central California, central New Mexico, and northern Illinois. Scattered small populations further east along the Great Lakes to Ohio. Winters from southern Arizona and western Texas southward to southern Mexico. Some birds winter in California (Twedt and Crawford, 1995).	Breeds in prairie wetlands and along other western lakes and marshes where tall reeds and rushes are present. Forages in the wetlands and in surrounding grasslands and croplands. In winter large flocks forage in agricultural areas (Twedt and Crawford, 1995).	All Year	No, habitat suitable for this species is not found on site
Fish					

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Hypomesus transpacificus Delta smelt	FT/CE/--	Occurs almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	No, habitat suitable for this species is not found on site
Mylopharodon conocephalus hardhead	--/CSC/--	Range is restricted to California, and includes the Sacramento -San Joaquin and Russian River drainages.	Requires deep, rocky and sandy pools of small to large rivers.	CONSULT AGENCY	No, habitat suitable for this species is not found on site
Oncorhynchus mykiss irideus pop. 11 [Steelhead-Central Valley DPS]	FT/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	CONSULT AGENCY	No, habitat suitable for this species is not found on site
Spirinchus thaleichthys Longfin smelt, Bay-Delta DPS	FC/CT/--	Range in California includes: Slightly upstream from Rio Vista (on the Sacramento River in the Delta) including the Cache Slough region and Medford Island (on the San Joaquin River in the Delta) through Suisun Bay and Suisun Marsh, San Pablo Bay, San Francisco Bay (main), South San Francisco Bay, The Gulf of the Farallones, just outside of the Golden Gate, Humboldt Bay, and Eel river estuary and local coastal areas.	Occurs in benthic habitat within medium and large low-grade river systems. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	CONSULT AGENCY	No, habitat suitable for this species is not found on site
Invertebrates					

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	The species is currently known from several disjunct populations: the Vina Plains in Tehama County, south of Chico in Butte County, the Jepson Prairie Preserve and surrounding area in Solano County, Sacramento National Wildlife Refuge in Glenn County, Mapes Ranch west of Modesto, San Luis National Wildlife Refuge and the Haystack Mountain/Yosemite Lake area in Merced County, and two locations on the Los Padres National Forest in Ventura County.	Endemic to vernal pools in the northern two-thirds of the Central Valley.	December-May	No, vernal pool habitat suitable for this species is not found on site
Branchinecta lynchi vernal pool fairy shrimp	FT/--/--	Vernal pool fairy shrimp are known from a total of 32 populations located in an area extending from Shasta County through most of the length of the Central Valley to Tulare County, and along the central coast range from northern Solano County to Pinnacles in San Benito County. Five additional, disjunctive populations exist near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, near Rancho California in Riverside County.	Vernal pools in the Central Valley, coast ranges, and a limited number of sites in the Transverse Ranges and Riverside County, California.	December-May	No, vernal pool habitat suitable for this species is not found on site

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Danus plexippus Monarch butterfly	--/FC/--	Known to occur in Mexico and north America. Populations that occur where winter conditions are not suitable travel along well-established migratory routes to overwintering areas. Overwintering sites are known to occur in Mexico and coastal California.	Migratory populations begin migration in the fall and can be found along established migratory routes where nectar sources are available. During breeding (typically February to March), monarch butterflies require milkweed to lay their eggs on. Overwintering monarchs require sites with sufficient roosts for the population (such as eucalyptus trees) that provide appropriate sunlight and shelter from the wind. Where climate is suitable for yearround habitation, monarchs are found in areas with nectar sources and milkweed as breeding can occur yearround.	Yearround	No, roosting habitat suitable for this species is not found on site
Desmocerus californicus dimorphus valley elderberry longhorn beetle (VELB)	FT/--/--	Restricted to the Central Valley from Redding to Bakersfield. Counties include Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern, Madera, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties; 0-762 meters elevation.	Riparian forest communities. Exclusive host plant is elderberry (*Sambucus* species), which must have stems $\geq$ 1-inch diameter for the beetle.	Year-round	No, Elderberry shrubs required for this species are not found on site
Lepidurus packardi vernal pool tadpole shrimp	FE/--/--	Known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, also from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont.	Life cycle within vernal pools and valley foothill grassland swales.	December-May	No, vernal pool habitat suitable for this species is not found on site
Mammals					

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Antrozous pallidus pallid bat	--/CSC/--	Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino county.	Habitats occupied include grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, under exfoliating bark, and under bridges.	Year-round	No, habitat suitable for this species is not found on site
Corynorhinus townsendii Townsend's big-eared bat	--/CSC/--	Known to occur throughout California, excluding subalpine and alpine habitats. Its range extends through Mexico to British Columbia and the Rocky Mountain states. Also occurs in several regions of the central Appalachians.	Requires caves, mines, tunnels, buildings, or other cave analog structures such as hallowed out redwoods for roosting. Hibernation sites must be cold, but above freezing.	Year-round	No, habitat suitable for this species is not found on site
Eumops perotis californicus western mastiff bat	--/CSC/--	From central California, southward to central Mexico. In California, they have been recorded from Butte County southward in the western lowlands through the southern California coastal basins and the western portions of the southeastern desert region.	Favor rugged, rocky areas where suitable crevices are available for day-roosts. Characteristically, day-roosts are located in large cracks in exfoliating slabs of granite or sandstone.	All year	No, habitat suitable for this species is not found on site
Neotoma fuscipes riparia Riparian woodrat	FE/CE/--	Along the lower portions of the San Joaquin and Stanislaus rivers in the northern San Joaquin Valley. Historical records for the riparian woodrat are distributed along the San Joaquin, Stanislaus, and Tuolumne rivers, and Corral Hollow, in San Joaquin, Stanislaus, and Merced counties.	Found where shrub cover is dense. In riparian areas, highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. They are common where there are deciduous valley oaks, but few live oaks.	All Year	No, riparian habitat suitable for this species is not found on site
Sylvilagus bachmani riparius Riparian brush rabbit	FE/CSC/--	Along the San Joaquin River and Stanislaus rivers in Stanislaus and San Joaquin counties. They probably also occupied streamside communities along the other tributaries of the San Joaquin River on the Valley floor.	Occupies areas of dense, brushy cover long streamside communities in the San Joaquin Valley of California favoring thick understory cover such as sandbar willow mixed with dense shrubs.	All Year	No, habitat suitable for this species is not found on site

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Taxidea taxus American badger	--/CSC/--	Found throughout most of California in suitable habitat.	Suitable habitat occurs in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, parklands, and cold desert areas.	All Year	No, habitat suitable for this species is not found on site
Vulpes macrotis mutica San Joaquin kit fox	FE/CT/--	Contra Costa County south to Kern County, California.	Alkali sink, valley grassland, foothill woodland. Hunts in areas with low sparse vegetation that allows good visibility and mobility.	All Year	No, habitat suitable for this species is not found on site
Reptiles					
Arizona elegans occidentalis California glossy snake	--/CSC/--	Known to occur from the eastern part of the San Francisco Bay Area south to the northwestern Baja California. Absent along the central coast.	Arid scrub, rocky washes, grasslands, and chaparral. Elevations: 0-2,200 meters.	All Year	No, habitat suitable for this species is not found on site
Emys marmorata western pond turtle	--/CSC/--	Distribution ranges from Washington to northern Baja California.	Inhabit rivers, streams, lakes, ponds, reservoirs, stock ponds, and permanent wetland habitats with basking sites.	Year-round	No, habitat suitable for this species is not found on site
Masticophis flagellum ruddocki San Joaquin coachwhip	--/CSC/--	The known range of this California endemic extends from 13 km west of Arbuckle (Colusa County) in the Sacramento Valley southward to the Grapevine in the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges. An isolated population occurs in the Sutter Buttes.	Occurs in open, dry, treeless areas, including grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation, and under surface objects. Elevation ranges from 20-900 meters.	May - August	No, habitat suitable for this species is not found on site
Masticophis lateralis euryxanthus Alameda whipsnake	FT/CT/--	Inhabits the inner coast range. Counties include Alameda, Contra Costa, San Joaquin, and Santa Clara.	Typically found in chaparral, northern coastal sage scrub, and coastal sage scrub communities. May also occur in adjacent habitats including annual grassland, oak savannah, and oak-bay woodland. Requires rock outcrops for retreat and access to prey species. Elevations; 0-153 meters.	May - August	No, habitat suitable for this species is not found on site

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE /CNPS LIST	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Phrynosoma blainvillii coast horned lizard	--/CSC/--	Found in parts of the historical range spanning from the Baja California border west of the deserts and Sierra Nevada, north to the Bay Area and inland as far north as the Shasta Reservoir. Onto the Kern Plateau east of the crest of the Sierra Nevada.	Open areas of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Also grasslands, coniferous forests, woodlands, and chaparral, with open patches of loose soil. Also lowlands along sandy washes with scattered shrubs and along dirt roads or near ant hills.	Spring-Early Fall	No, habitat suitable for this species is not found on site
Thamnophis gigas giant garter snake	FT/CT/--	Endemic to the San Joaquin and Sacramento Valley floors. Counties include Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Sacramento, San Joaquin, Solano, Sutter, Yolo, and Yuba.	Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and other soil crevices with sunny exposure along south and west facing slopes, above prevailing flood elevations when dormant.	March-October	No, habitat suitable for this species is not found on site

SOURCES:

STATUS CODES:

FEDERAL: United States Fish and Wildlife Service
FE Federally Endangered
FT Federally Threatened
FC Candidate for Federal Listing

STATE: California Department of Fish and Game
CE California Listed Endangered
CT California Listed Threatened
CSC California Species of Special Concern

CNPS: California Native Plant Society (California Rare Plant Rank [CRPR])
1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants About Which We Need More Information – A Review List
4 Plants of Limited Distribution – A Watch List

CNPS Threat Ranks:
0.1 Seriously Threatened in California (Over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 Fairly Threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3 Not Very Threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lathrop (3712173) OR Manteca (3712172) OR Solyo (3712153) OR Westley (3712152) OR Vernalis (3712163) OR Ripon (3712162) OR Union Island (3712174) OR Lone Tree Creek (3712154) OR Tracy (3712164))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAA01181	***Ambystoma californiense pop. 1*** California tiger salamander - central California DPS	Threatened	Threatened	G2G3	S3	WL
AAABF02020	***Spea hammondii*** western spadefoot	None	None	G2G3	S3	SSC
AAABH01022	***Rana draytonii*** California red-legged frog	Threatened	None	G2G3	S2S3	SSC
AAABH01050	***Rana boylii*** foothill yellow-legged frog	None	Endangered	G3	S3	SSC
ABNJB05035	***Branta hutchinsii leucopareia*** cackling (=Aleutian Canada) goose	Delisted	None	G5T3	S3	WL
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S3	
ABNKD06030	***Falco columbarius*** merlin	None	None	G5	S3S4	WL
ABNRB02022	***Coccyzus americanus occidentalis*** western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	
ABNSB10010	***Athene cunicularia*** burrowing owl	None	None	G4	S3	SSC
ABPAT02011	***Eremophila alpestris actia*** California horned lark	None	None	G5T4Q	S4	WL
ABPBR01030	***Lanius ludovicianus*** loggerhead shrike	None	None	G4	S4	SSC
ABPBW01114	***Vireo bellii pusillus*** least Bell's vireo	Endangered	Endangered	G5T2	S2	
ABPBXA3010	***Melospiza melodia*** song sparrow ("Modesto" population)	None	None	G5	S3?	SSC
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S1S2	SSC
ABPBXB3010	***Xanthocephalus xanthocephalus*** yellow-headed blackbird	None	None	G5	S3	SSC
AFCHA0209K	***Oncorhynchus mykiss irideus pop. 11*** steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	
AFCHB03010	***Spirinchus thaleichthys*** longfin smelt	Candidate	Threatened	G5	S1	
AFCJB25010	***Mylopharodon conocephalus*** hardhead	None	None	G3	S3	SSC
AMACC08010	***Corynorhinus townsendii*** Townsend's big-eared bat	None	None	G4	S2	SSC

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMACC10010	***Antrozous pallidus*** pallid bat	None	None	G4	S3	SSC
AMACD02011	***Eumops perotis californicus*** western mastiff bat	None	None	G4G5T4	S3S4	SSC
AMAEB01021	***Sylvilagus bachmani riparius*** riparian brush rabbit	Endangered	Endangered	G5T1	S1	
AMAFD01060	***Perognathus inornatus*** San Joaquin pocket mouse	None	None	G2G3	S2S3	
AMAFF08081	***Neotoma fuscipes riparia*** riparian (=San Joaquin Valley) woodrat	Endangered	None	G5T1Q	S1	SSC
AMAJA03041	***Vulpes macrotis mutica*** San Joaquin kit fox	Endangered	Threatened	G4T2	S2	
AMAJF04010	***Taxidea taxus*** American badger	None	None	G5	S3	SSC
ARAAD02030	***Emys marmorata*** western pond turtle	None	None	G3G4	S3	SSC
ARACF12100	***Phrynosoma blainvillii*** coast horned lizard	None	None	G3G4	S3S4	SSC
ARADB01017	***Arizona elegans occidentalis*** California glossy snake	None	None	G5T2	S2	SSC
ARADB21021	***Masticophis flagellum ruddocki*** San Joaquin coachwhip	None	None	G5T2T3	S2?	SSC
ARADB21031	***Masticophis lateralis euryxanthus*** Alameda whipsnake	Threatened	Threatened	G4T2	S2	
CTT52410CA	***Coastal and Valley Freshwater Marsh*** Coastal and Valley Freshwater Marsh	None	None	G3	S2.1	
CTT61410CA	***Great Valley Cottonwood Riparian Forest*** Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT61420CA	***Great Valley Mixed Riparian Forest*** Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
CTT61430CA	***Great Valley Valley Oak Riparian Forest*** Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
CTT63440CA	***Elderberry Savanna*** Elderberry Savanna	None	None	G2	S2.1	
ICBRA03010	***Branchinecta conservatio*** Conservancy fairy shrimp	Endangered	None	G2	S2	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
ICBRA10010	***Lepidurus packardi*** vernal pool tadpole shrimp	Endangered	None	G4	S3S4	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IICOL48011	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	Threatened	None	G3T2	S3	
IICOL49010	***Anthicus sacramento*** Sacramento anthicid beetle	None	None	G1	S1	
IICOL4C020	***Lytta moesta*** moestan blister beetle	None	None	G2	S2	
IIHYM24250	***Bombus occidentalis*** western bumble bee	None	None	G2G3	S1	
IIHYM24480	***Bombus crotchii*** Crotch bumble bee	None	None	G3G4	S1S2	
IMBIV19010	***Gonidea angulata*** western ridged mussel	None	None	G3	S1S2	
PDAPI0Z0S0	***Eryngium racemosum*** Delta button-celery	None	Endangered	G1	S1	1B.1
PDAPI19030	***Lilaeopsis masonii*** Mason's lilaeopsis	None	Rare	G2	S2	1B.1
PDAST1C011	***Blepharizonia plumosa*** big tarplant	None	None	G1G2	S1S2	1B.1
PDAST2E0U0	***Cirsium crassicaule*** slough thistle	None	None	G1	S1	1B.1
PDAST2L0C0	***Leptosyne hamiltonii*** Mt. Hamilton coreopsis	None	None	G2	S2	1B.2
PDAST5L030	***Lasthenia chrysantha*** alkali-sink goldfields	None	None	G2	S2	1B.1
PDAST650E0	***Madia radiata*** showy golden madia	None	None	G3	S3	1B.1
PDAST9F031	***Trichocoronis wrightii var. wrightii*** Wright's trichocoronis	None	None	G4T3	S1	2B.1
PDBOR01050	***Amsinckia grandiflora*** large-flowered fiddleneck	Endangered	Endangered	G1	S1	1B.1
PDBRA0M0E0	***Caulanthus lemmonii*** Lemmon's jewelflower	None	None	G3	S3	1B.2
PDBRA2R010	***Tropidocarpum capparideum*** caper-fruited tropidocarpum	None	None	G1	S1	1B.1
PDCHE042M0	***Atriplex minuscula*** lesser saltscale	None	None	G2	S2	1B.1
PDHYD0C3Q0	***Phacelia phacelioides*** Mt. Diablo phacelia	None	None	G2	S2	1B.2
PDMAL0Q0F0	***Malacothamnus hallii*** Hall's bush-mallow	None	None	G2	S2	1B.2
PDPAP0A0D0	***Eschscholzia rhombipetala*** diamond-petaled California poppy	None	None	G1	S1	1B.1

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PDPLM030C0	***Eriastrum tracyi*** Tracy's eriastrum	None	Rare	G3Q	S3	3.2
PDRAN0B0A2	***Delphinium californicum ssp. interius*** Hospital Canyon larkspur	None	None	G3T3	S3	1B.2
PMPOA53110	***Puccinellia simplex*** California alkali grass	None	None	G3	S2	1B.2

Record Count: 64

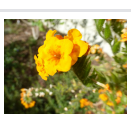
Inventory of Rare and Endangered Plants of California

California Native Plant Society

Search Results

27 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**3712172:3712173:3712153:3712152:3712163:3712162:3712174:3712154:3712164**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	No Photo Available
Amsinckia grandiflora	large-flowered fiddleneck	Boraginaceae	annual herb	(Mar)Apr-May	FE	CE	G1	S1	1B.1	 © 2015 Zoya Akulova
Atriplex coronata var. *coronata*	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	No Photo Available
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	No Photo Available
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	No Photo Available
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	None	None	G3	S3	1B.2	No Photo Available
Cirsium crassicaule	slough thistle	Asteraceae	annual/perennial herb	May-Aug	None	None	G1	S1	1B.1	No Photo Available
Clarkia breweri	Brewer's clarkia	Onagraceae	annual herb	Apr-Jun	None	None	G4	S4	4.2	No Photo Available
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2	No Photo Available
Delphinium californicum ssp. *interius*	Hospital Canyon larkspur	Ranunculaceae	perennial herb	Apr-Jun	None	None	G3T3	S3	1B.2	No Photo Available
Eriastrum tracyi	Tracy's eriastrum	Polemoniaceae	annual herb	May-Jul	None	CR	G3Q	S3	3.2	 © 2012 Neal Kramer
Eriophorum gracile	slender cottongrass	Cyperaceae	perennial rhizomatous herb (emergent)	May-Sep	None	None	G5	S4	4.3	 ©2011 Steven

										Perry
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	No Photo Available
Eschscholzia hypecoides	San Benito poppy	Papaveraceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	No Photo Available
Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	No Photo Available
Galium andrewsii ssp. *gatense*	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	Apr-Jul	None	None	G5T3	S3	4.2	No Photo Available
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	No Photo Available
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	No Photo Available
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	No Photo Available
Leptosyne hamiltonii	Mt. Hamilton coreopsis	Asteraceae	annual herb	Mar-May	None	None	G2	S2	1B.2	 ©2012 Aaron Schusteff
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	No Photo Available
Madia radiata	showy golden madia	Asteraceae	annual herb	Mar-May	None	None	G3	S3	1B.1	No Photo Available
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial deciduous shrub	(Apr)May-Sep(Oct)	None	None	G2	S2	1B.2	 © 2017 Keir Morse
Phacelia phacelioides	Mt. Diablo phacelia	Hydrophyllaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	 ©2019 Steve Matson
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G3	S2	1B.2	No Photo Available
Trichocoronis wrightii var. *wrightii*	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	None	None	G4T3	S1	2B.1	No Photo Available

Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	No Photo Available

Showing 1 to 27 of 27 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website https://www.rareplants.cnps.org [accessed 18 November 2021].

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: November 18, 2021
Consultation Code: 08ESMF00-2022-SLI-0404
Event Code: 08ESMF00-2022-E-01238
Project Name: S. Bird Cannabis

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2022-SLI-0404
Event Code: Some(08ESMF00-2022-E-01238)
Project Name: S. Bird Cannabis
Project Type: Guidance
Project Description: Development
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.7328781,-121.36277985709538,14z

Counties: San Joaquin County, California

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Riparian Brush Rabbit *Sylvilagus bachmani riparius* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6189	Endangered
Riparian Woodrat (=san Joaquin Valley) *Neotoma fuscipes riparia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6191	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* https://ecos.fws.gov/ecp/species/321#crithab	Final

Critical Habitat for Threatened & Endangered Species [USFWS]

Final Linear Features

Final Polygon Features

Proposed Linear Features

Proposed Polygon Features

A specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

U.S. Fish and Wildlife Service | The data found in this file were developed by the U.S. Fish & Wildlife Service field offices. For more information please refer to the species level metadata found with the individual shapefiles. The ECOS Joint Development Team is responsible for creating and serving this conglomerate file. No data alterations are made by ECOS. | Maxar, Microsoft

ATTACHMENT B

NRCS, NWI DATABASE QUERY

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Joaquin County, California

November 18, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:998 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Joaquin County, California
Survey Area Data: Version 15, Sep 9, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 16, 2020—Jun 19, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
118	Capay clay, 0 to 1 percent slopes, MLRA 17	0.5	13.3%
268	Vernalis clay loam, 0 to 2 percent slopes	2.9	86.7%
Totals for Area of Interest		**3.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Joaquin County, California

118—Capay clay, 0 to 1 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2xc8q
Elevation: 20 to 350 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 318 to 337 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Capay and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Capay

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 11 inches: clay
A - 11 to 20 inches: clay
Bss1 - 20 to 30 inches: clay
Bss2 - 30 to 39 inches: clay
Bk1 - 39 to 51 inches: clay
Bk2 - 51 to 60 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 1 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.2 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Stomar

Percent of map unit: 5 percent
Hydric soil rating: No

Willows

Percent of map unit: 4 percent
Landform: Valley floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Vernalis

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed, water table at 48 inches

Percent of map unit: 2 percent
Hydric soil rating: No

268—Vernalis clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhxd
Elevation: 20 to 300 feet
Mean annual precipitation: 10 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Vernalis and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vernalis

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed rock sources

Typical profile

A - 0 to 9 inches: clay loam
B - 9 to 47 inches: loam

Bk - 47 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Cortina

Percent of map unit: 3 percent
Hydric soil rating: No

Capay

Percent of map unit: 3 percent
Hydric soil rating: No

El solyo

Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed, mod coarse below 40 c

Percent of map unit: 2 percent
Hydric soil rating: No

Zacharias

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, gravelly substr below 40 c

Percent of map unit: 2 percent
Hydric soil rating: No

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U.S. Fish and Wildlife Service
National Wetlands Inventory

S. Bird Rd Cannabis

November 18, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

ATTACHMENT C

WELL DATA

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

Page ____ of ____

Owner's Well Number ____

Date Work Began 11/16/2010 Date Work Ended 11/23/2010

Local Permit Agency San Joaquin Co. Health Dept.

Permit Number 57871 Permit Date ____

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0121616

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify ____

Drilling Method mud rotary Drilling Fluid Fresh Water

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc
0	2	topsoil
2	25	clay
25	34	sand/gravel
34	165	clay
165	315	blue clay
315	325	blue sand
325	515	blue clay/shale
515	525	clay/sand streaks
525	535	sand
535	560	clay

64' WATER 1/18/11

40-45 GPM MIN

50 GPM TOTAL

Total Depth of Boring 560 Feet

Total Depth of Completed Well 540 Feet

Well Owner

Name Dale Petz

Mailing Address P.O. Box 217

City Tracy State CA Zip 95304

Well Location

Address 24707 S. Bird Rd.

City Tracy County San Joaquin

Latitude ____ Deg. ____ Min. ____ Sec. N Longitude ____ Deg. ____ Min. ____ Sec. W

Datum ____ Decimal Lat. ____ Decimal Long. ____

APN Book 250 Page 100 Parcel 05

Township ____ Range ____ Section ____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

◉ New Well

○ Modification/Repair

○ Deepen

○ Other ____

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

◉ Water Supply

☑ Domestic ☐ Public

☐ Irrigation ☐ Industrial

○ Cathodic Protection

○ Dewatering

○ Heat Exchange

○ Injection

○ Monitoring

○ Remediation

○ Sparging

○ Test Well

○ Vapor Extraction

○ Other ____

Water Level and Yield of Completed Well

Depth to first water ____ (Feet below surface)

Depth to Static Water Level 100 (Feet) Date Measured ____

Estimated Yield * ____ (GPM) Test Type ____

Test Length ____ (Hours) Total Drawdown ____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Well Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	510	14	blank	PVC	SDR21	8		
510	540	14	screen	PVC	SDR21	8		0.045

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	100		quik grout
100	540		No 8 sand

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other ____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Hennings Bros. Drilling Co., Inc.
Person, Firm or Corporation

Address 3525 Pelandale Ave. City Modesto State CA Zip 95356

Signed Madeleine J. Hennings
C-57 Licensed Water Well Contractor

Date Signed 12/03/2010 C-57 License Number 290813

DWR 188 REV. 1/2005

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Modesto
(209) 529-2020

509 Tully Rd, Modesto, Ca 95350
State License #276660 **www.ijlarsenpumps.com**

Hilmar
(209) 634-7276

August 29, 2022

To Whom It May Concern:

Thank you for the opportunity to provide you with our excellent service from I.J Larsen Pumps, Inc. I have inspected the pressure system at 24707 S Bird Rd. I have found the system to be operational as of the time of inspection. The pump system should be able to support the 2 duplexes. At the time of inspection, the pump was pumping at 22 gpm on a 1 1/2hp pump and motor.

Regards,

Mark Crist
Shop Foreman/ Inspector
I.J. Larsen Pumps, Inc

4382

APPLICATION FOR PERMIT

SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
P O BOX 2009, STOCKTON, CA 95201
(209) 468-3447

RECEIVED
SEP 30 1992
ENVIRONMENTAL HEALTH
PERMIT/SERVICES

PERMIT EXPIRES 1 YEAR FROM DATE ISSUED
(Complete in Triplicate)

Application is hereby made to San Joaquin County for a permit to construct and/or install the work herein described. This application is made in compliance with San Joaquin County Ordinance No. 549 and 1862 and the Rules and Regulations of San Joaquin County Public Health Services.

Job Address 24707 So Bird Rd City Tracy Lot Size/Acreage

Owner's Name Dale Petz Address same Phone

Contractor Freitas Elect Address PO B416 Banta Ca 95304 License No 453962 Phone 835-2814

TYPE OF WELL/PUMP: NEW WELL ☐ WELL REPLACEMENT ☐ DESTRUCTION ☐ Out of Service Well ☐
PUMP INSTALLATION ☐ SYSTEM REPAIR ☑ OTHER ☐ Monitoring Well ☐

DISTANCE TO NEAREST: SEPTIC TANK ____ SEWER LINES ____ DISPOSAL FLD. ____ PROP. LINE ____
FOUNDATION ____ AGRICULTURE WELL ____ OTHER WELL ____ PITS/SUMPS ____

INTENDED USE	TYPE OF WELL	PROBLEM AREA	CONSTRUCTION SPECIFICATIONS	
☐ Industrial	☐ Open Bottom	☐ Manteca	Dia. of Well Excavation	Dia. of Well Casing
☑ Domestic/Private	☐ Gravel Pack	☐ Tracy	Type of Casing	Specifications
☐ Public	☐ Other	☐ Delta	Depth of Grout Seal	Type of Grout
☐ Irrigation	Approx. Depth	☐ Eastern	Surface Seal Installed by	

Repair Work Done ☑ Type of Pump sub H.P. One State Work Done Replaced pump
Well Destruction ☐ Well Diameter ____ Sealing Material & Depth ____
Depth ____ Filler Material & Depth ____

24707 S. Bird

TYPE OF SEPTIC WORK: NEW INSTALLATION ☐ REPAIR/ADDITION ☐ DESTRUCTION ☐ (No septic system permitted if public sewer is available within 200 feet.)

Installation will serve: Residence ____ Commercial ____ Other ____
Number of living units: ____ Number of bedrooms ____
Character of soil to a depth of 3 feet: ____ Water table depth ____

SEPTIC TANK ☐ Type/Mfg ____ Capacity ____ No. Compartments ____
PKG. TREATMENT PLT. ☐ Method of Disposal ____
Distance to nearest: Well ____ Foundation ____ Property Line ____

LEACHING LINE ☐ No. & Length of lines ____ Total length/size ____
FILTER BED ☐ Distance to nearest: Well ____ Foundation ____ Property Line ____

SEEPAGE PITS ☐ Depth ____ Size ____ Number ____
SUMPS ☐ Distance to nearest: Well ____ Foundation ____ Property Line ____
DISPOSAL PONDS ☐

I hereby certify that I have prepared this application and that the work will be done in accordance with San Joaquin county ordinances, state laws, and rules and regulations of the San Joaquin County
Home owner or licensed agent's signature certifies the following: "I certify that in the performance of the work for which this permit is issued, I shall not employ any person in such manner as to become subject to workman's compensation laws of California." Contractor's hiring or sub-contracting signature certifies the following: "I certify that in the performance of the work for which this permit is issued, I shall employ persons subject to workman's compensation laws of California."

The applicant must call for all required inspections. Complete drawing on reverse side.

Signed X Freitas Title: Pres Date: 9-6-92

FOR DEPARTMENT USE ONLY

Application Accepted by [signature] Date 10-1-92 Area 0216

Pit or Grout Inspection by ____ Date ____ Final Inspection by [signature] Date 10/9/92

Additional Comments: ____

Applicant - Return all copies to: SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION PERMIT/SERVICES
445 N SAN JOAQUIN, P O BOX 2009, STOCKTON, CA 95201

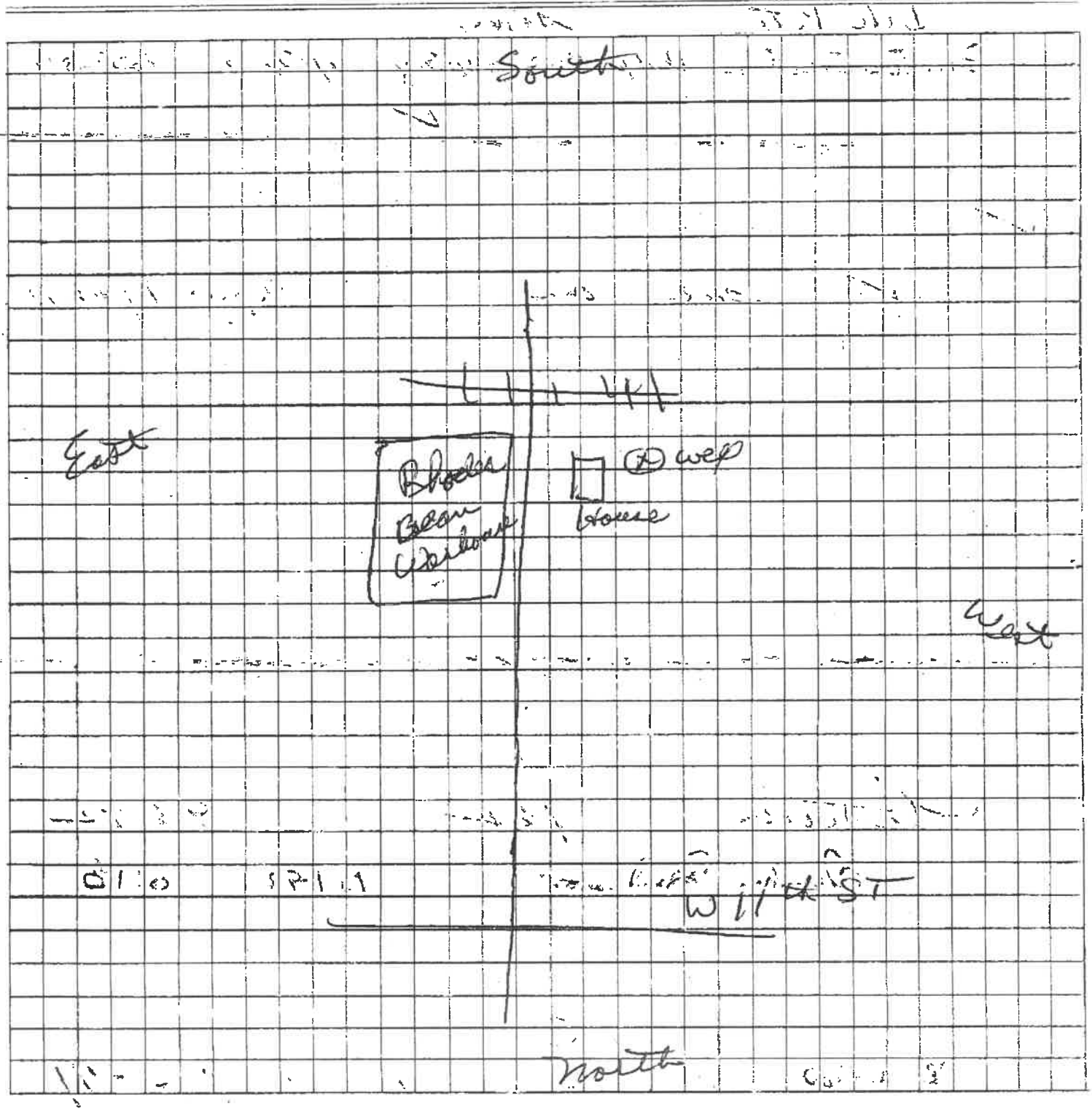
FEE INFO	AMOUNT DUE	AMOUNT REMITTED	CK # CASH	RECEIVED BY	DATE	PERMIT NO.
PR	45.00	45.00	3179	Caroline	10/1	92-3371

EH 13-24 (REV. 1/85)
EH 14-26

PLOT PLAN
(Draw To Scale)

SCALE _____" TO _____

1. Names of streets or roads nearest to or bounding the property.
2. Outline of the property, giving dimensions and North direction.
3. Dimensioned outlines and locations of all existing and proposed structures, including covered areas such as patios driveways and walks.
4. Location of house sewer outlet, public sewer, sewage disposal system or proposed sewage disposal system, proposed expansion of sewage disposal system, or any other possible source of contamination.
5. Location of other wells within radius of 150 feet on the property or adjoining property.
6. Location of sewage disposal system on adjoining property or within a radius of 150 feet.



APPLICATION FOR WELL/PUMP PERMIT
SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
P O BOX 388, 445 N. SAN JOAQUIN ST., STOCKTON, CA 95201-388
(209) 468-3420

NON-REFUNDABLE PERMIT EXPIRES 1 YEAR FROM DATE ISSUED

(Complete in Triplicate)

APPLICATION IS HERE BY MADE TO THE SAN JOAQUIN COUNTY FOR A PERMIT TO CONSTRUCT AND/OR INSTALL THE WORK DESCRIBED. THIS APPLICATION IS MADE IN COMPLIANCE WITH SAN JOAQUIN COUNTY DEVELOPMENT TITLE, CHAPTER 9-1115.3 AND THE STANDARDS OF SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES, ENVIRONMENTAL HEALTH DIVISION.

JOB ADDRESS/OR APN# 24707 S Bird Rd CITY Tracy PARCEL SIZE/APN# /

OWNER'S NAME Dale Petz ADDRESS Same PHONE #

CONTRACTOR Freitas Electric, Inc. ADDRESS PO Box 1k, Bonta LIC# 453162 PHONE # 836-2814

SUB CONTRACTOR N/A ADDRESS LIC# PHONE #

TYPE OF WELL/PUMP: ☐ NEW WELL ☐ REPLACEMENT WELL ☐ MONITORING WELL # ☐ OTHER

☐ INSTALLATION ☑ WELL SYSTEM REPAIR ☐ CROSS-CONNECT REPAIR ☐ VAPOR EXTRACTION WELL # J

Sub (TYPE OF PUMP) ☐ New ☐ Repair H.P. 1 DEPTH PUMP SET 150 FT. FIRST WATER LEVEL 104 O

☐ OUT-OF-SERVICE WELL ☐ GEOPHYSICAL WELL # ☐ SOIL BORING B

☐ DESTRUCTION:

INTENDED USE	TYPE OF WELL	CONSTRUCTION SPECIFICATIONS		
☐ INDUSTRIAL	☐ OPEN BOTTOM	DIA. OF WELL EXCAVATION	DIA. OF CONDUCTOR CASING	A
☑ DOMESTIC/PRIVATE	☐ GRAVEL PACK/SIZE	TYPE OF CASING/STEEL/PVC	DIA. OF WELL CASING	D
☐ PUBLIC/MUNICIPAL	☐ DRIVEN	DEPTH OF GROUT SEAL	SPECIFICATION	D
☐ IRRIGATION/AG	☐ OTHER	GROUT SEAL INSTALLED BY	GROUT BRAND NAME	R
☐ MONITORING		GROUT SEAL PUMPED: ☐ Yes ☐ No	CONCRETE PEDESTAL BY DRILLER: ☐ Yes ☐ No	E
APPROX. DEPTH		LOCKING CHESTER BOX/STOVE PIPE		S

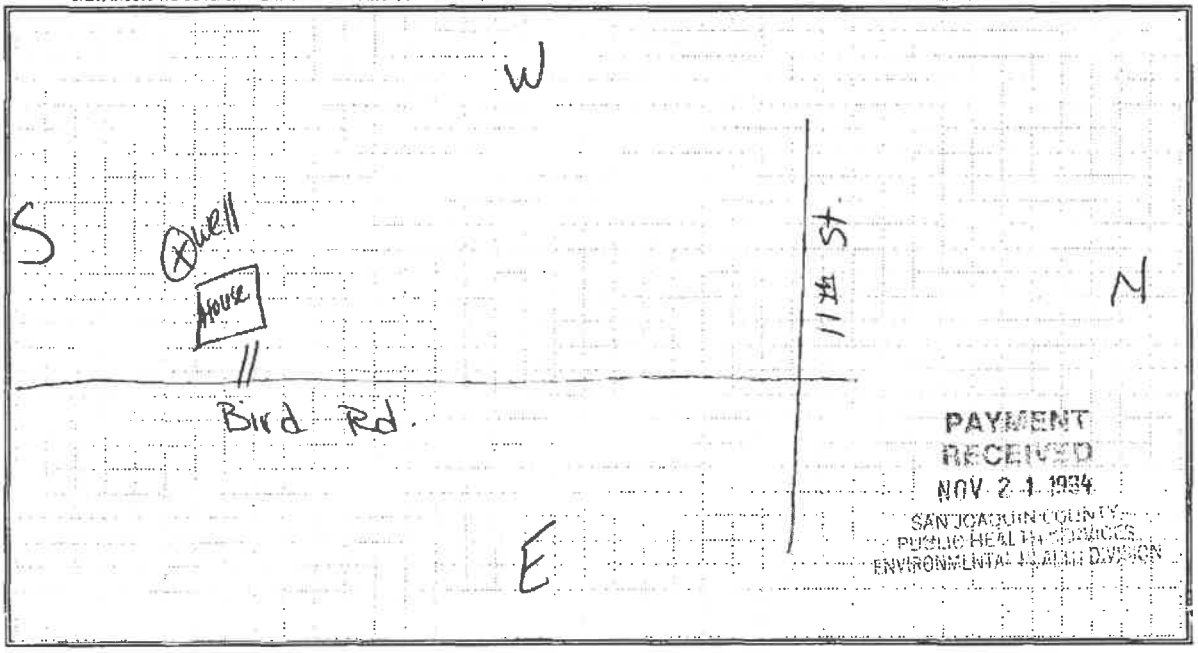
PROPOSED CONSTRUCTION/DRILLING METHOD: MUD ROTARY AIR ROTARY AUGER CABLE OTHER

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH SAN JOAQUIN COUNTY ORDINANCES, STATE LAWS, AND RULES AND REGULATIONS OF THE SAN JOAQUIN COUNTY. HOME OWNER OR LICENSED AGENT'S SIGNATURE CERTIFIES THE FOLLOWING: "I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS PERMIT IS ISSUED, I SHALL NOT EMPLOY PERSONS SUBJECT TO WORKMAN'S COMPENSATION LAWS OF CALIFORNIA." CONTRACTOR'S HIRING OR SUB-CONTRACTING SIGNATURE CERTIFIES THE FOLLOWING: " I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS PERMIT IS ISSUED, I SHALL EMPLOY PERSONS SUBJECT TO WORKMAN'S COMPENSATION LAWS OF CALIFORNIA." THE APPLICANT MUST CALL 24 HOURS IN ADVANCE FOR ALL REQUIRED INSPECTIONS AT (209) 468-3420. COMPLETE DRAWING AT LOWER AREA PROVIDED.

Signed X Les Freitas Title Pres. Date 10-4-94

PLOT PLAN (Draw to Scale) Scale " to "

1. NAMES OF STREETS OR ROADS NEAREST TO OR BOUNDING THE PROPERTY.
2. OUTLINE OF THE PROPERTY, GIVING DIMENSIONS AND NORTH DIRECTION.
3. DIMENSIONED OUTLINES AND LOCATION OF ALL EXISTING AND PROPOSED STRUCTURES, INCLUDING COVERED AREAS SUCH AS PATIOS, DRIVEWAYS, AND WALKS.
4. LOCATION OF HOUSE SEWAGE DISPOSAL SYSTEM OR PROPOSED EXPANSION OF SEWAGE DISPOSAL SYSTEMS.
5. LOCATION OF WELLS WITHIN RADIUS OF ONE HUNDRED FIFTY FT. ON THE PROPERTY OR ADJOINING PROPERTY.



24707 S Bird Rd.

DEPARTMENT USE ONLY

Application Accepted By C. Borgma Date 11/21/94 Area 2/6

Grout Inspection By Date Pump Inspection By J. Carrasco Date 12/27/94

Destruction Inspection By Date

Comments:

ACCOUNTING ONLY:	AID#	FAC#

PE CODES	FEE INFO	AMOUNT REMITTED	CHECK/CASH	RECEIVED BY	DATE	PERMIT/SERVICE REQUEST NUMBER	INVOICE
4380	45	540.46	4349	SR	11.8.94	002174X	015497
						SR0004748	

ATTACHMENT D

CULTURAL RESOURCES LETTER REPORT

ATTACHMENT D

Cultural Resources Report for the
South Bird Cannabis Cultivation Project
San Joaquin County, California

CONFIDENTIAL

Sensitive archaeological material may have been removed from this Initial Study. The legal authority to restrict cultural resource information can be found in California Government Code sections 6254.10 and 6254®; California Code of Regulations Section 15120(d); and Section 304 of the National Historic Preservation Act of 1966.

ATTACHMENT E

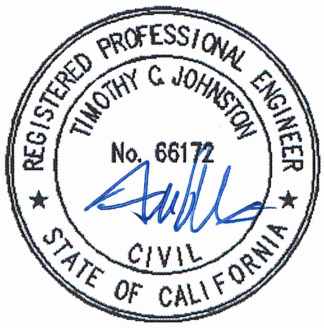
NITRATE LOADING STUDY AND SOIL SUITABILITY REPORT

Nitrate Loading Study and Soil Suitability Report

Location of property:
24707 South Bird Road, Tracy, San Joaquin County
APN: 250-100-060

Prepared By:

Acorn Onsite, Inc.
2288 Buena Vista Avenue
Livermore, CA 94550
(925) 447-5200



MAR - 2 2022

March 2, 2022

Introduction/Purpose of Report:

The purpose of this report is to describe proposed site use and present what type and level, if any, mitigation concerns exist for a septic system design considering the hydraulic capacity and nutrient level.

The subject parcel is nominally 3 acres. There are several relatively similar size neighboring parcels within the general vicinity and the balance of parcels comprised of many relatively larger (40 to 70 acres) parcels. Uses of the general area are agricultural planting consisting primarily of nut trees and agriculture related uses, such as a bean co-op nearby.

The current planting of the vicinity appearing to have been planted withing the last 10 years, The subject parcel appears to have contained one or more dwelling for at least the last four decades. A metal framed building is on the property, which appears to have been constructed during 2007 or 2008.

Vicinity location map is shown in Appendix A.

Site Maps is shown in Appendix B and Appendix C.

Present and Past Uses:

Past use was likely housing for owners and/or workers of agricultural use nearby or residential use for people working in other locations. There is currently a 3 bedroom main house and a 2 bedroom second dwelling.

According to records found at San Joaquin website with GIS type mapping, the current zoning is AG-40. This zone is established to preserve agricultural lands for the continuation of commercial agriculture enterprises. Minimum parcel sizes within the AG Zone are 20, 40, 80 or 160 acres, as specified by the precise zoning. This zone replaces the previous AG zone.

With the parcel sized at nominally 3 acres, but not 20 or more acres as recognized in the zoning description, and if the parcel use was accepted for prior construction by the then current zoning review then the current parcel use is likely legal, non-conforming.

Proposed use will be cannabis growing including growing, processing, and storage. A total of up to three shifts each of up to 3 employees, for an equivalent of 9 employees is proposed to operate the facility.

No housing or dwelling use is proposed.

Septic System History:

Review of repair records for neighboring parcels in SJEH records revealed no unusual extensive repairs or operational issues of notable concern. Installation and repair records, as available from SJEH records are included in appendix.

Proposed use of the parcel, consisting of employees using restroom and breakroom facility, will have a sewage design flow (measured in gallons per day) in an amount less than a sewage design flow based on the current two dwellings on the property.

Summary table of septic system permits included in Appendix D.

Groundwater Information:

Groundwater historically has been at depth exceeding 25 feet below ground surface according to Water Data Library from California Department of Water Resources Station Map[1].

The soil profile observation supported that groundwater is not at the depth of soil profile observation.

General agriculture use, including use of fertilizers, and septic systems from the relatively low-density housing units appear to be the only potential groundwater contamination sources that exist on the parcels at time of this report.

A total of two water wells currently exists on the subject parcel. Individual water samples were taken from a hose bib near the well heads of each well. These water samples, under proper chain of custody, were collected, placed on ice, and delivered to a testing laboratory. Water was tested for Nitrate. Chain of Custody and specimen test results are included in Appendix E.

Well data, from EH records are included in Appendix F.

[1] https://wdl.water.ca.gov/Map.aspx

Soil Profile Information:

To gain an understanding of the site-specific soils, the subsurface soil profile was recently observed and was logged in the general vicinity of the reported existing leach field.

Using a rubber tire backhoe, excavation was made to determine the soil characteristics and general suitability for an onsite sewage treatment system. Samples were collected from within the excavations. Soils were analyzed and logs were recorded using field textural methods and other soil characteristics were recorded according to accepted USDA soil classification methods. Overall, the soil was found to generally be a loam underlain with a sandy loam.

Soil profile log is presented in Appendix G.

The soil characteristics, as described on the soil logs, appears conducive with the anticipated use to serve restrooms and breakrooms for the proposed facility.

Percolation Testing:

The design flow from the proposed use, specifically consisting of up to 9 employee 8 hour shifts per day will be a relatively light use as compared with the assumed design follow for the existing dwellings based on bedroom counts.

Based on the soil profile characteristics observed in the soil profiles, a percolation rate is anticipated to be in a range of 15 to 30 minutes per inch.

Dispersal Field Hydraulics:

Proposed Use:

9 employees x 20 GPD/employee = 180 GPD design flow

Existing dwellings design flow (based on bedroom count)

3 bedroom main dwelling X 120 GPD = 360 GPD

2 Bedroom trailer x 120 GPD = 240 GPD

Total for current dwelling arrangement = 600 GPD

Considering just the main house for design capacity since a septic system currently services this main house is the only septic system proposed to continue to serve the proposed building use.

Indeed 180 gallons per day is well under the design flow of 360 GPD.

Based on the proposed use being well under the current design flow, there is hydraulic design capacity in the current septic system to serve he proposed use.

Nitrate Loading:

Nutrient loading, specifically nitrate to ground water, is a to be considered since there potential for nitrate contribution to groundwater from the sewage entering the onsite wastewater treatment system.

Nitrate level in the groundwater was determined by drawing samples and testing from two wells on the subject property.

Mass transport consideration: Since there currently exist an active and in-use for long term septic system, analyses in such scenario is appropriate. A nitrate loading consideration often considers an increase in loading of potential nitrates due to a new septic system and as such a calculation to balance the existing steady state with new load from aseptic system and potential dilution from rainwater recharge.

In this situation at hand, there is, and has been for decades, an active septic system; therefore, considerations of the current conditions are appropriate. If there is a basis to determine that the proposed use will not exceed the current use and if the current use does not exceed the nutrient loading concerns, then it is reasonable to deduce that the proposed use will not provide higher nutrient load then as now exists.

1. Groundwater

Depth and direction of flow is described in previous soil discussions.
Any groundwater contamination source in the general location of this project appears to be what can result for general agricultural uses, including use of fertilizer and resulting leaching, and septic systems from relatively low number and low density of dwellings in the general vicinity.

Any groundwater contamination from the site uses of the continued use of the current septic system for restrooms and breakroom of employees will not exceed historical use of the site service one or more dwellings. The sewage design from of the proposed facility is less than sewage design flow of currently permitted use.

2. Sources of nitrate to groundwater.

Agricultural uses of offsite land adjacent to the subject parcel are expected to remain as they currently exist and therefore there is anticipated to be no change of nitrate loading from offsite uses.

Generally, rainfall and corresponding recharge of groundwater is anticipated to reduce nitrate load from the septic system use at the subject parcel.

Nitrate loading to groundwater from past and current use of the subject site appears to have been limited to any loading from septic systems and other typical residential use, such as fertilizes leaching from nominal landscaping.

Any future nitrate loading to groundwater from proposed facility will be from septic systems, nominal fertilizer leaching from possible landscape uses, and possibly process water from proposed facility. Process water and excess irrigation water is planned to be off hauled and therefore is not to be dispersed to the soil at the site.

3. Mass balance for Nitrate loading

Calculated nitrate loading to groundwater as a result of conversion of site to employee use only, and ceasing of dwelling uses, shows in nitrate loading to not exceed any existing nitrate loading.

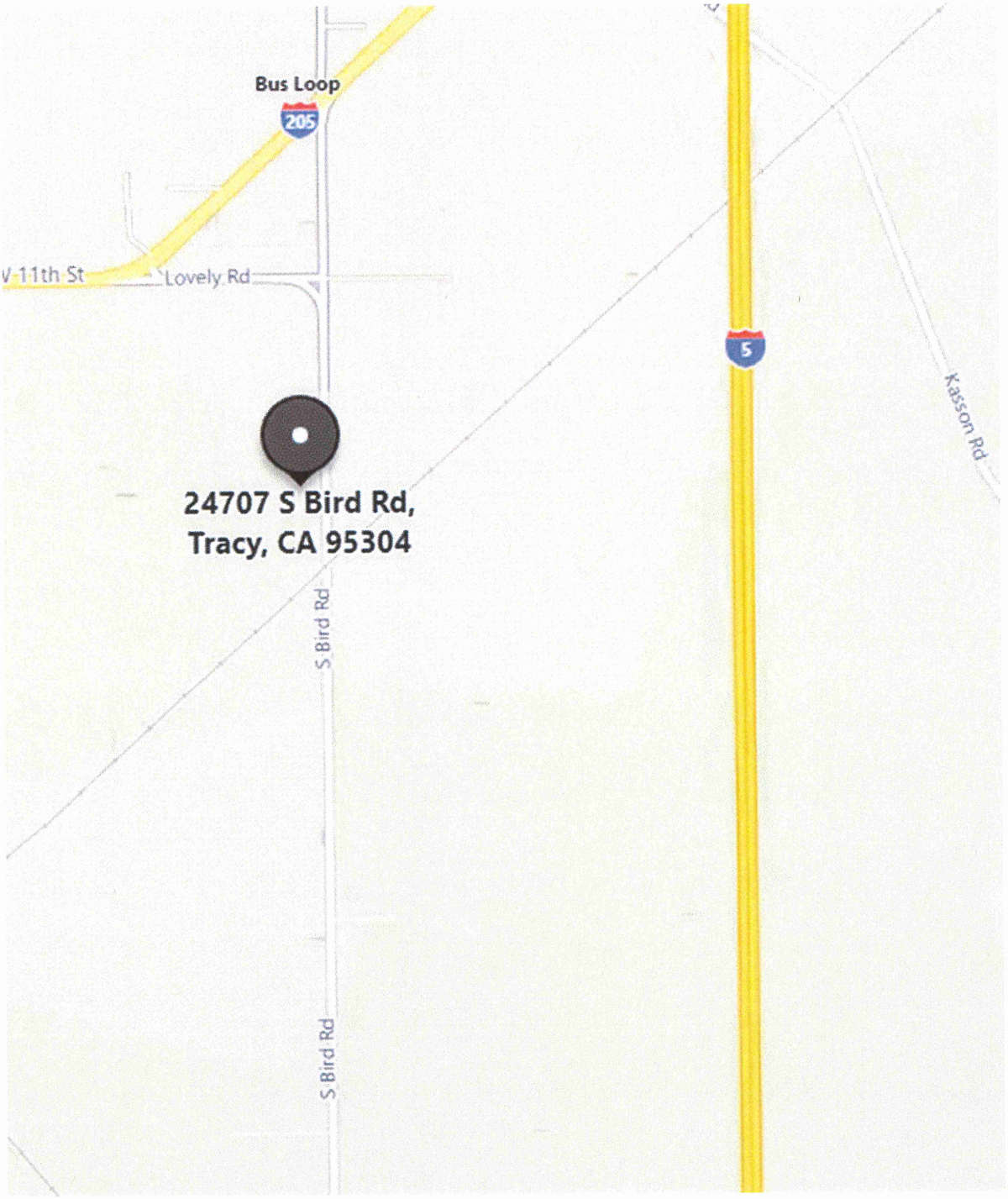
Conclusion:

Overall with the conversion of the use of the site to simply restrooms and the light uses, in terms of sewage volumes and nitrate loading to groundwater, will result in less hydraulic loading of a septic system and less calculated nitrate loading.

Hydraulic loading to the current septic system is quantitatively analyzed to be less than a design flow from the existing dwelling.

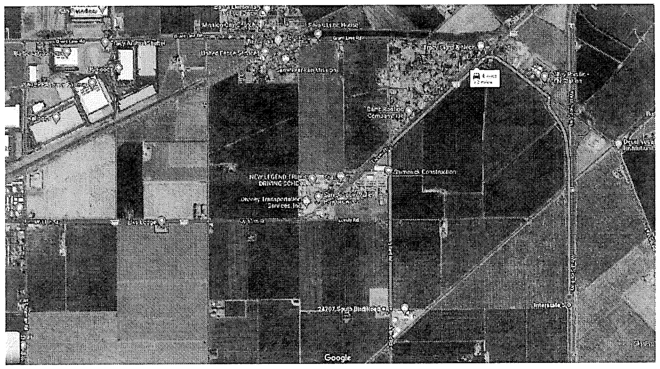
Nitrate loading to groundwater from restroom of the proposed facility is determined to less than nitrate loading from the currently existing dwellings.

Appendix A - Site vicinity sketch



Appendix B – Existing Site Map

Appendix C – Proposed Site Map

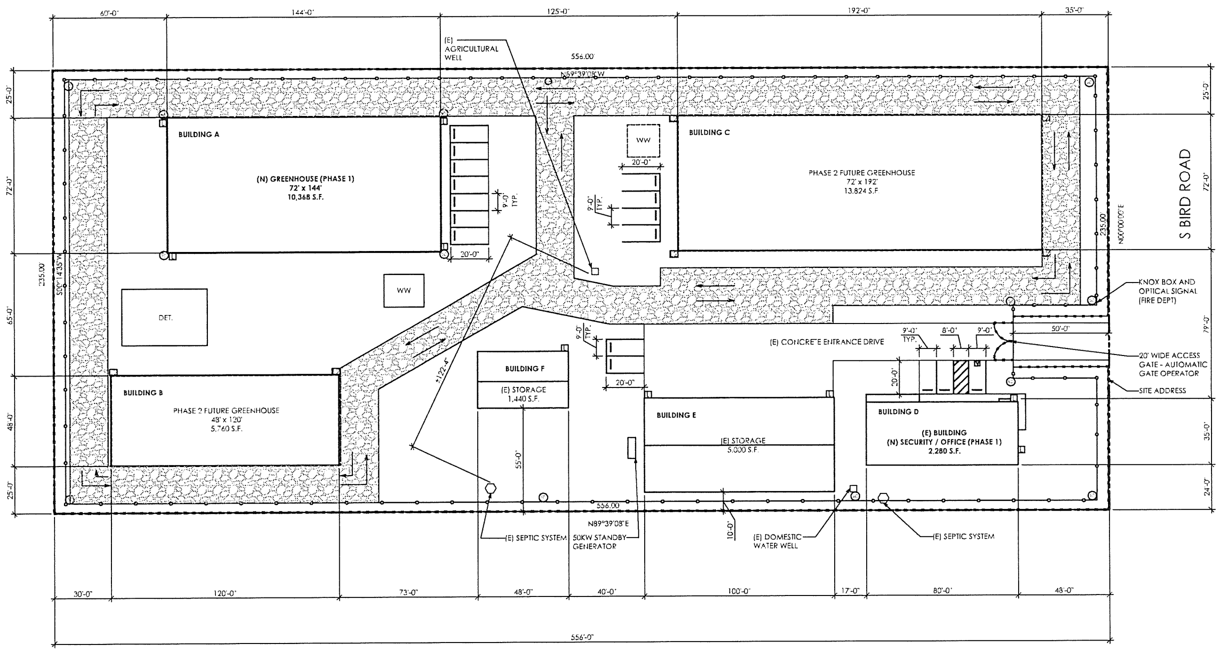


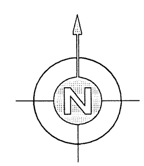
GENERAL NOTES:

1. THE PROPERTY IS RELATIVELY FLAT.
2. CIRCULATION: THERE WILL BE A 20FT WIDE BASE ROCK DRIVE PATH TO PROVIDE ACCESS FOR CULTIVATION ACTIVITIES, SECURITY MONITORING AND EMERGENCY VEHICLES. THERE IS ONE INGRESS/EGRESS POINT WITH AN AUTOMATIC GATE WITH OPTICAL SIGNAL OPERATION. THE PROPERTY ADDRESS IS LOCATED OUTSIDE OF THE GATE AND EACH BUILDING IS ALPHA LABELED. DRIVE PATH WILL BE BASE ROCK AND MAINTAINED MONTHLY.
3. PROPERTY LIGHTING: CONFINE DIRECT RAYS TO THE PREMISES WITH NO SPILL OVER LIGHTING WILL BE INSTALLED FOR PARKING AND ON EACH BUILDING.
4. PARKING: 16 STALLS (1 ACCESSIBLE) WILL BE LOCATED THROUGHOUT PROPERTY. SURFACING FOR ALL PARKING STALLS WILL BE CONCRETE.
5. SECURITY FENCE: 2-11FEET HIGH FENCES WITH A 5FT WALK SPACE BETWEEN THEM. OUTER FENCING WILL BE A 10FT METAL PANELS WITH 1FT RAZOR WIRE AT TOP. INNER FENCING WILL BE A CHAINLINK 10-FT HIGH FENCE WITH 1FT RAZOR WIRE AT TOP. BETWEEN FENCING IN WALK PATH THERE WILL BE A LASER BEAM STYLE ALARM SYSTEM.
6. INDUSTRIAL GRADE LOCKS WILL BE INSTALLED ON INGRESS/EGRESS GATES AS WELL AS ALL DOORS ON EACH BUILDING. EACH BUILDING WILL HAVE INTERNAL MOTION DETECTORS. 24 HOURS LICENSED AND ARMED SECURITY GUARD. SECURITY SYSTEM WILL BE HIGH DEFINITION WITH 24 HOURS MONITORING. CAMERAS TO BE INSTALLED TO COVER THE FENCE LINE. OUTSIDE THE FENCE LINE AND THE INTERIOR OF THE PROPERTY.

LEGEND:

- 10' HIGH METAL PANEL FENCE W/ 1' HIGH RAZOR WIRE ON TOP (PHASE 1)
- 10' HIGH CHAINLINK FENCE W/ 1' HIGH RAZOR WIRE ON TOP (PHASE 1)
- 20' WIDE FIRE ACCESS ROAD WITH COMPACTED CRUSHED BASE ROCK (TRAFFIC CAN GO EITHER DIRECTION) (PHASE 1)
- WW — UNDERGROUND WASTE WATER TANK SYSTEM (PHASE 1)
- DET. — GRADE LEVEL STORM WATER DETENTION AREA (PHASE 1)
- SC — SECURITY CAMERA (PHASE 1)
- L — BUILDING MOUNTED LIGHT FIXTURES (PHASE 1)
- L2 — BUILDING MOUNTED LIGHT FIXTURES (PHASE 2)





(1) SITE PLAN
SCALE: 1"=30'

PRESSEY ASSOCIATES
2015 H ST. THIRD FLOOR
SACRAMENTO, CA 95811
TEL 916-346-4280

REVISION HISTORY

24707 S BIRD RD TRACY CUP

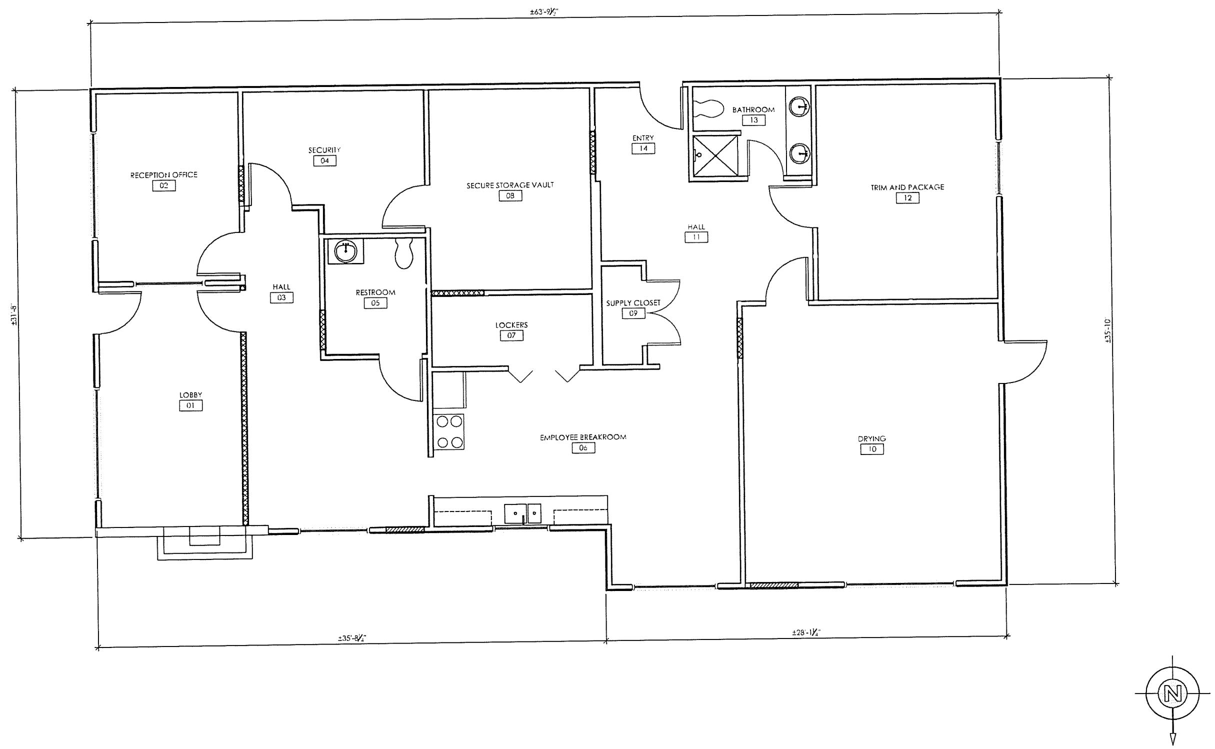
24707 S BIRD RD
TRACY, CA 95304

SITE PLAN

PROJECT NO.	21104
SCALE	
DATE	NOVEMBER 04 2021
DRAWN	XFL

AS1.0

- OF -



1 FLOOR PLAN
SCALE: 1/4"=1'-0"

PRESSEY ASSOCIATES
2015 H ST. THIRD FLOOR
SACRAMENTO, CA 95811
TEL 916-346-4280

REVISION HISTORY

24707 S BIRD RD TRACY CUP

24707 S BIRD RD
TRACY, CA 95304

FLOOR PLAN

PROJECT NO.	21104
SCALE	
DATE	NOVEMBER 04 2021
DRAWN	XFL

A1.0

- OF -

Appendix D – Septic System Permit Summary

Permit Number	Date	Description
87-4061	November 4, 1987	Install septic tank and dispersal field for 3 bedroom dwelling
SR0016324	July, 20, 1998	Install septic tank and dispersal field for 2 bedroom dwelling
SR0067697	August 1, 2013	Install septic tank and dispersal field for 3 bedroom dwelling

4210

APPLICATION FOR PERMIT
SAN JOAQUIN LOCAL HEALTH DISTRICT
1601 E. HAZELTON AVE., STOCKTON, CA
Telephone (209) 466-6781

PERMIT EXPIRES 1 YEAR FROM DATE ISSUED

(Complete in Triplicate)

Application is hereby made to the San Joaquin Local Health District for a permit to construct and/or install the work herein described. This application is made in compliance with San Joaquin County Ordinance No. 549 for sewage or No. 1862 for well/pump and the Rules and Regulations of the San Joaquin Local Health District.

Job Address 24707 S. Bird City Tracy Lot Size _____ PM _____

Owner's Name Dale Petty Address S.A Phone ~~858-4251~~

Contractor Larry Folk Address P.O. Box 149 License No. 275582 Phone 858-4251

TYPE OF WELL/PUMP: NEW WELL ☐ WELL REPLACEMENT ☐ DESTRUCTION ☐
PUMP INSTALLATION ☐ SYSTEM REPAIR ☐ OTHER ☐

DISTANCE TO NEAREST: SEPTIC TANK _____ SEWER LINES _____ DISPOSAL FLD. _____ PROP. LINE _____
FOUNDATION _____ AGRICULTURE WELL _____ OTHER WELL _____ PITS/SUMPS _____

INTENDED USE	TYPE OF WELL	PROBLEM AREA	CONSTRUCTION SPECIFICATIONS
☐ Industrial	☐ Open Bottom	☐ Manteca	Dia. of Well Excavation _____ Dia. of Well Casing _____
☐ Domestic/Private	☐ Gravel Pack	☑ Tracy	Type of Casing _____ Specifications
☐ Public	☐ Other	☐ Delta	Depth of Grout Seal _____ Type of Grout _____
☐ Irrigation	____Approx. Depth	☐ Eastern	Surface Seal Installed by _____
Repair Work Done ☐	Type of Pump _____		H.P. _____ State Work Done _____
Well Destruction ☐	Well Diameter _____		Sealing Material (top 50') _____
	Depth _____		Filler Material (Below 50') _____

TYPE OF SEPTIC WORK: NEW INSTALLATION ☐ REPAIR/ADDITION ☒ DESTRUCTION ☐ (No septic system permitted if public sewer is available within 200 feet.)

Installation will serve: Residence ✓ Commercial ____ Other _____
Number of living units: ____ Number of bedrooms 3
Character of soil to a depth of 3 feet: Loam Water table depth 10'

SEPTIC TANK ☐ Type/Mfg 1200 Ptk Capacity 1200 No. Compartments 2
PKG. TREATMENT PLT. ☐ Method of Disposal Leach
Distance to nearest: Well 55 Foundation 10' Property Line _____

LEACHING LINE ☐ No. & Length of lines 3 Total length/size 90' - 270
FILTER BED ☐ Distance to nearest: Well 56 Foundation 22' Property Line 65'

SEEPAGE PITS ☐ Depth _____ Size _____ Number _____
SUMPS ☐ Distance to nearest: Well _____ Foundation _____ Property Line _____
DISPOSAL PONDS ☐

I hereby certify that I have prepared this application and that the work will be done in accordance with San Joaquin county ordinances, state laws, and rules and regulations of the San Joaquin Local Health District.
Home owner or licensed agent's signature certifies the following: "I certify that in the performance of the work for which this permit is issued, I shall not employ any person in such manner as to become subject to workman's compensation laws of California." Contractor's hiring or sub-contracting signature certifies the following: "I certify that in the performance of the work for which this permit is issued, I shall employ persons subject to workman's compensation laws of California."

The applicant must call for all required inspections. Complete drawing on reverse side.

Signed X Mike Fuller Title: ~~11/4/87~~ Agent Date: 11/4/87

FOR DEPARTMENT USE ONLY

Application Accepted by Mark Nagy Date 11-4-87 Area 13

Pit or Grout Inspection by _____ Date _____ Final Inspection by Mark Nagy Date 11-4-87

Additional Comments: _____

☐ Stk 466-6781 ☐ Lodi 369-3621 ☐ Manteca 823-7104 ☐ Tracy 835-6385

Applicant - Return all copies to: Environmental Health Permit/Services 1601 E. Hazelton Ave., P.O. Box 2009, Stk., CA 95201

FEE INFO	AMOUNT DUE	AMOUNT REMITTED	CK # CASH	RECEIVED BY	DATE	PERMIT NO.
	70.00	Chg			11/9/87	87-4061

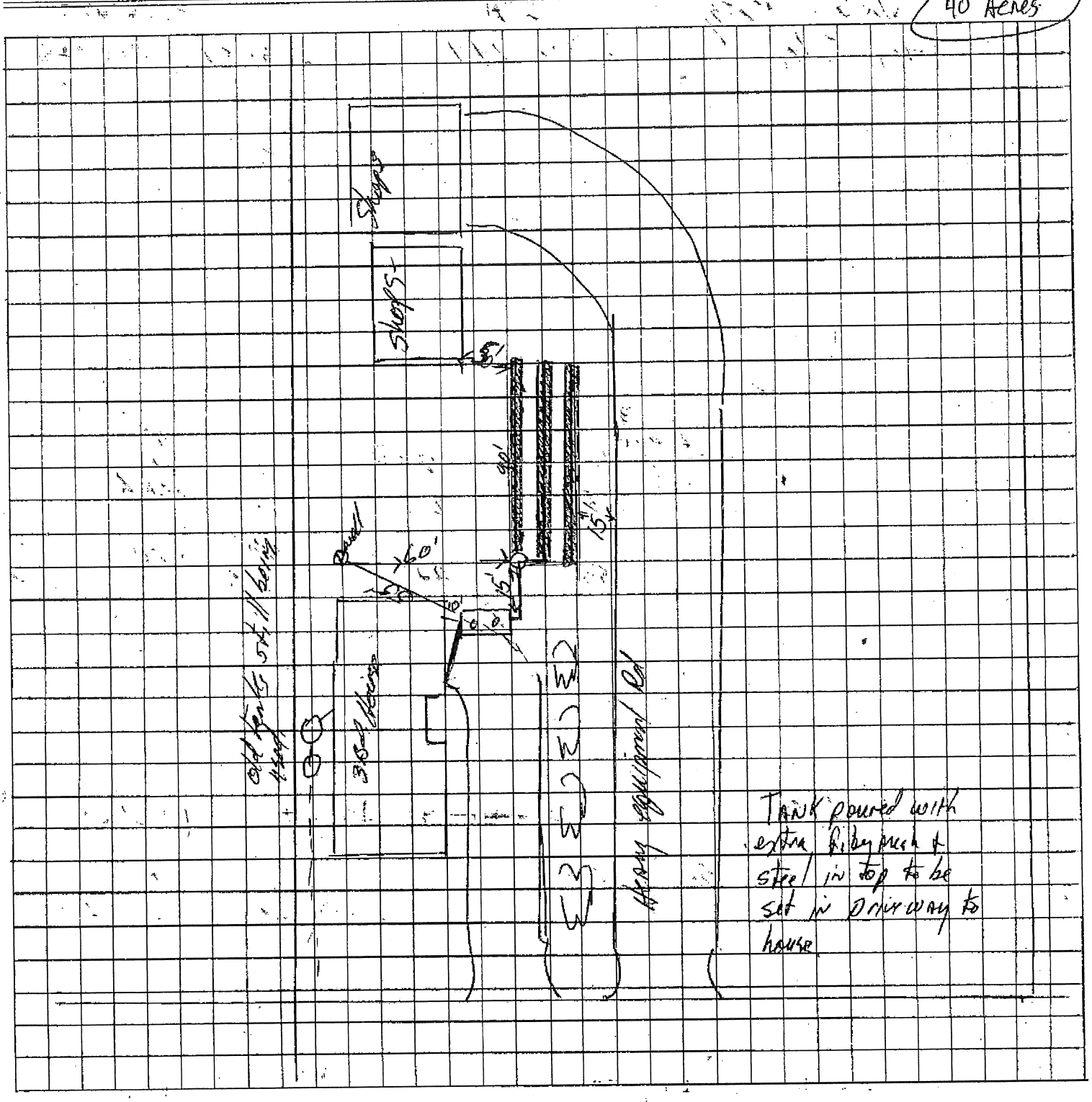
+ EH 13-24 (REV. 1/85)
EH 14-26

24707 S. Bird

PLOT PLAN
(Draw To Scale)

SCALE _____" TO _____

1. Names of streets or roads nearest to or bounding the property.
2. Outline of the property, giving dimensions and North direction.
3. Dimensioned outlines and locations of all existing and proposed structures, including covered areas such as patios, driveways and walks.
4. Location of house sewer outlet, public sewer, sewage disposal system or proposed sewage disposal system, proposed expansion of sewage disposal system, or any other possible source of contamination.
5. Location of other wells within radius of 150 feet on the property or adjoining property.
6. Location of sewage disposal system on adjoining property or within a radius of 150 feet.



000226

APPLICATION FOR LIQUID WASTE PERMIT
SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
304 EAST WEBER AVENUE, STOCKTON, CA 95202
(209) 468-3420

5-D-98-35

NON-REFUNDABLE PERMIT EXPIRES 1 YEAR FROM DATE ISSUED
(Complete in Triplicate)

APPLICATION IS HEREBY MADE TO THE SAN JOAQUIN COUNTY FOR A PERMIT TO CONSTRUCT AND/OR INSTALL THE WORK DESCRIBED. THIS APPLICATION IS MADE IN COMPLIANCE WITH SAN JOAQUIN COUNTY DEVELOPMENT TITLE, CHAPTER 9-1110.3 AND THE STANDARDS OF SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES, ENVIRONMENTAL HEALTH DIVISION.

JOB ADDRESS/OR APN# 24707 BIRD RD CITY TRACY LOT SIZE 57 AC

OWNER'S NAME DALE DETZ ADDRESS 24707 BIRD TRACY PHONE 836-0253

CONTRACTOR A.L. FULLER ADDRESS PO. 220 LATHROP LIC# 275582 PHONE 858425

SUB CONTRACTOR ______ ADDRESS ______ LIC# ______ PHONE ______

TYPE OF SEPTIC WORK: NEW INSTALLATION ☒ REPAIR/ADDITION ☐ DESTRUCTION ☐

(NO SEPTIC SYSTEM PERMITTED IF PUBLIC SEWER IS AVAILABLE WITHIN 200 FEET OF BUILDING.)

PERC TEST(s) ( ) HOW MANY ______
Application # ______

INSTALLATION WILL SERVE: RESIDENCE ☒ COMMERCIAL ☐ OTHER ☐ ______

NUMBER OF LIVING UNITS: 1 NUMBER OF BEDROOMS: 2 NUMBER OF EMPLOYEES: ______

CHARACTER OF SOIL TO A DEPTH OF 3 FEET: ______ PIT/SUMP SOIL CHARACTER: ______ WATER TABLE DEPTH ______

SEPTIC TANK/GREASE TRAP ☐ TYPE/MFG P.L.L. CAPACITY 1200 NO. COMPARTMENTS 2

PKG TREATMENT PLANT ☐ DISTANCE TO NEAREST: WELL 50 FT FOUNDATION 5 FT PROPERTY LINE 20 FT

LIFT STATION ☐ SIZE ______ TYPE OF PUMP ______ SAND OIL SEPARATOR (ENCLOSED SYSTEM) ______

LEACHING LINE (INFILTRATOR)	☐ NO. & LENGTH OF LINES 2 - 40'			DISTANCE TO NEAREST: WELL 100 FT	FOUNDATION 55'	PROPERTY LINE 20 FT
FILTER BED	☐ WIDTH	LENGTH	DEPTH	DISTANCE TO NEAREST: WELL	FOUNDATION	PROPERTY LINE
MOUNDED	☐ WIDTH	LENGTH	DEPTH	DISTANCE TO NEAREST: WELL	FOUNDATION	PROPERTY LINE
SEEPAGE PITS	☐ DEPTH	SIZE	NUMBER	DISTANCE TO NEAREST: WELL	FOUNDATION	PROPERTY LINE
SUMPS	☐ WIDTH 8'	LENGTH 12'	DEPTH 80	DISTANCE TO NEAREST: WELL 100 FT	FOUNDATION 20 FT	PROPERTY LINE 20 FT
DISPOSAL PONDS	☐ WIDTH	LENGTH	DEPTH	DISTANCE TO NEAREST: WELL	FOUNDATION	PROPERTY LINE

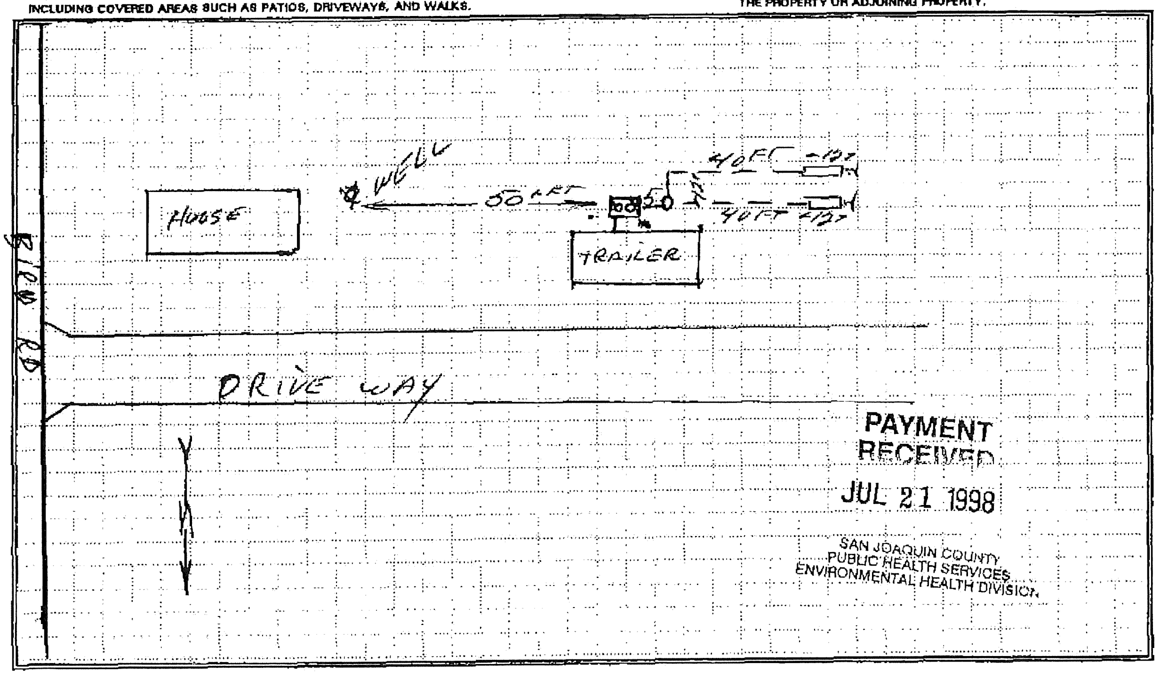
I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH SAN JOAQUIN COUNTY ORDINANCES AND STATE LAWS, AND RULES AND REGULATIONS OF THE SAN JOAQUIN COUNTY. HOME OWNER OR LICENSED AGENT'S SIGNATURE CERTIFIES THE FOLLOWING: "I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS PERMIT IS ISSUED, I SHALL NOT EMPLOY ANY PERSON IN SUCH A MANNER AS TO BECOME SUBJECT TO WORKMAN'S COMPENSATION LAWS OF CALIFORNIA." CONTRACTOR'S HIRING OR SUB-CONTRACTING SIGNATURE CERTIFIES THE FOLLOWING: "I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS PERMIT IS ISSUED, I SHALL EMPLOY PERSONS SUBJECT TO WORKMAN'S COMPENSATION LAWS OF CALIFORNIA." THE APPLICANT MUST CALL 24 HOURS IN ADVANCE FOR ALL REQUIRED INSPECTIONS. COMPLETE DRAWING BELOW.

SIGNED X A.L. Fuller TITLE: Contractor DATE: 7-20-98

24707 Bird Rd.

PLOT PLAN (DRAW TO SCALE) SCALE ______ " to ______

1. NAMES OF STREETS OR ROADS NEAREST TO OR BOUNDING THE PROPERTY.
2. OUTLINE OF THE PROPERTY, WITH DIMENSIONS AND NORTH DIRECTION.
3. DIMENSIONED OUTLINES AND LOCATION OF ALL EXISTING AND PROPOSED STRUCTURES, INCLUDING COVERED AREAS SUCH AS PATIOS, DRIVEWAYS, AND WALKS.
4. LOCATION OF HOUSE SEWAGE DISPOSAL SYSTEM OR PROPOSED EXPANSION OF SEWAGE DISPOSAL SYSTEMS.
5. LOCATION OF WELLS WITHIN RADIUS OF ONE HUNDRED FIFTY FT. ON THE PROPERTY OR ADJOINING PROPERTY.



PAYMENT RECEIVED
JUL 21 1998
SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES ENVIRONMENTAL HEALTH DIVISION

FOR DEPARTMENT USE ONLY

APPLICATION ACCEPTED BY [signature] DATE: 7-21-98 AREA: 216

TANK, PIT OR SUMP INSPECTION BY ______ DATE / / FINAL INSPECTION BY [signature] DATE 7, 22, 98

ADDITIONAL COMMENTS: CK sumps for water 7-21 no water

ACCOUNTING ONLY:	AID#	FAC#				
PE CODE	FEE INFO	AMOUNT REMITTED	CHECK#/CASH	RECEIVED BY	DATE	SR / PERMIT NUMBER	INVOICE #
42.11	4180	180	4102	Nora	7/21/98	016324 SR0016324	

Pub. Health Serv. - Enviro. 174 (3/96)

ONSITE WASTEWATER TREATMENT SYSTEM PERMIT

SAN JOAQUIN COUNTY ENVIRONMENTAL HEALTH DEPARTMENT — 1868 E. HAZELTON AVENUE - STOCKTON CA 95205 - (209) 468-3420

NON-REFUNDABLE PERMIT S. CALL (209) 953-7697 FOR INSPECTIONS EXPIRES 1 YEAR FROM DATE ISSUED

SITE ADDRESS:

JOB ADDRESS 24707 Bird Rd CITY/ZIP Tracy 95304
CROSS STREET Lovely APN 250 10006 PARCEL SIZE 3
OWNER NAME Dale Petz PHONE
OWNER ADDRESS CITY/STATE/ZIP
CONTRACTOR Applegate Septic & Sewer PHONE
CONTRACTOR ADDRESS 1404 Fernview Dr CITY/STATE/ZIP Mod. CA. 95355
LICENSE ☐C-42 ☐C-36 OTHER A NUMBER 715453 EXPIRATION DATE 11/30/13

WATER TABLE DEPTH: 10 ft GEOGRAPHICAL INFORMATION: Coordinates X Y

☐ PERC TEST # BUILDING PERMIT # LAND USE APPLICATION #

TYPE OF WORK: ☐ NEW INSTALLATION ☐ REPAIR/ADDITION ☐ ENGINEER DESIGNED /ALTERNATIVE
☐ REPLACEMENT ☐ OUT-OF-SERVICE SEPTIC SYSTEM ☐ DESTRUCTION pound in place

INSTALLATION WILL SERVE: ☑ RESIDENCE ☐ COMMERCIAL ☐ OTHER Septic Tank
NUMBER OF LIVING UNITS: 1 NUMBER OF BEDROOMS: 3 NUMBER OF EMPLOYEES:

☑ SEPTIC TANK TYPE/MFG P&L Concrete CAPACITY 1200 gal # OF COMPARTMENTS 2
☐ GREASE TRAP TYPE/MFG CAPACITY gal # OF COMPARTMENTS

DISTANCE TO NEAREST: WELL ft FOUNDATION ft PROPERTY LINE ft

☐ LIFT STATION SIZE TYPE OF PUMP ☐ PKG TX PLANT ☐ SAND OIL SEPARATOR (ENCLOSED SYSTEM)

☐ LEACH LINES ☒ LEACHING CHAMBERS Stanjoaq. # OF LINES LENGTH OF LINES ft
DISTANCE TO NEAREST WELL ft FOUNDATION ft PROPERTY LINE ft

☒ FILTER BED WIDTH 13 ft LENGTH 25 ft DEPTH 1 ft
DISTANCE TO NEAREST WELL 50+ ft FOUNDATION 10 ft PROPERTY LINE 5 ft

☐ MOUNDED WIDTH ft LENGTH ft DEPTH ft
DISTANCE TO NEAREST WELL ft FOUNDATION ft PROPERTY LINE ft

☐ SUMPS WIDTH ft LENGTH ft DEPTH ft
DISTANCE TO NEAREST WELL ft FOUNDATION ft PROPERTY LINE ft

☐ DISPOSAL PONDS WIDTH ft LENGTH ft DEPTH ft
DISTANCE TO NEAREST WELL ft FOUNDATION ft PROPERTY LINE ft

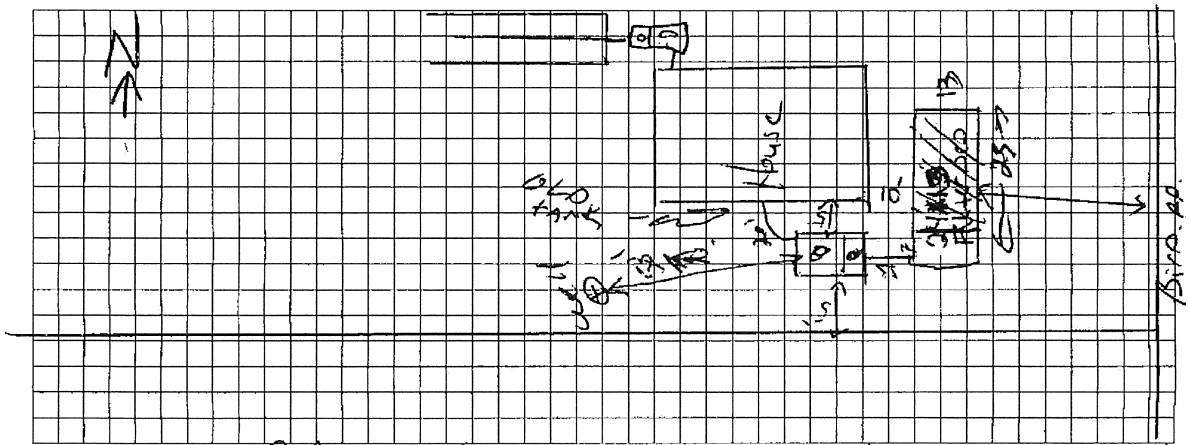
☐ SEEPAGE PITS NUMBER WIDTH ft DEPTH ft
DISTANCE TO NEAREST WELL ft FOUNDATION ft PROPERTY LINE ft

PAYMENT RECEIVED
AUG 01 2013
SAN JOAQUIN COUNTY ENVIRONMENTAL HEALTH DEPARTMENT

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THE WORK WILL BE DONE IN ACCORDANCE WITH SAN JOAQUIN COUNTY ORDINANCES, STATE LAWS AND RULES AND REGULATIONS OF SAN JOAQUIN COUNTY.

MINIMUM 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTIONS - PLEASE CALL (209) 953-7697

SIGNED TITLE Contractor DATE 8-1-13



DEPARTMENT USE ONLY

Application Accepted By Date 8/1/13 Area 5/99 Employee ID# TASiropoulos
Final Inspection By Date 8/2/13 ☐ SPECIAL PERMIT - Approved by
Character of Soil to Depth of 3 Ft: Pit/Sump Soil Character:
COMMENTS old lot of record — system is for 1 restroom

PE Code	SC INFO	Received By	Check#/ Cash	Amount Remitted	Date	Permit/ Service Request #	Invoice #	Permit ID#
4214	115	~~DHH~~	12246	242	8/1/13	SR0067697		

Appendix E – Well Water Testing

Pace Analytical
ENVIRONMENTAL SCIENCES

Date of Report: 12/21/2021

Kevin Johnston

Acorn Onsite, Inc
2288 Buena Vista Avenue
Livermore, CA 94550

Client Project:	210770947
BCL Project:	Water
BCL Work Order:	2137516
Invoice ID:	B437881

Enclosed are the results of analyses for samples received by the laboratory on 12/3/2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Eli Velazquez
Client Service Rep

Stuart Buttram
Technical Director

Pace Analytical®
ENVIRONMENTAL SCIENCES

Table of Contents

BC LABORATORIES, INC.
4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.bclabs.com

Chain of Custody Form

Page 1 of 1

Report To	
Client: Acorn Onsite, Inc	Project #: 210770947
Attn: Kevin Johnston	Project Name: 247075 Blvd
Street Address: 2288 Buena Vista Ave	
City, State, Zip: Livermore CA 94550	Sampler(s): KCJ
Phone: 925-447-5200 Fax: 925-447-0975	
Email: kevin@acornonsite.com	
Work Order #: 21-37516	

Analysis Requested: Nitrate

Comments: 2 samples Nitrate testing requested

Result Request **Surcharge: ☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**

Sample #	Description	Date Sampled	Time Sampled	Nitrate	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
-1	DOM well	12/1/21	4pm	x				x			
-2	AG well	12/1/21	4pm	x							

CHK BY: GA DISTRIBUTION SUB OUT ☐

SHORT HOLDING TIME: Cr+6, NO_2, NO_3 (circled), OP, SS, DO, Cl_2, BOD, MBAS, COT

Billing ☒ Same as above
Client:
Address:
City: State Zip
Attn:
P.O. #:

*Send Copy to State of CA? (EDT) ☐ Yes ☐ No
System # (Needed for EDT)

EDF Required Geotracker ☐ Yes ☐ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1.			1. A Marquez	12-3-21	953
2.			2.		
3.			3.		

*For Drinking Water, mark "EDT - yes or no." If marked no, BCL will not upload at a future date.

Pace Analytical®
ENVIRONMENTAL SCIENCES

Chain of Custody and Cooler Receipt Form for 2137516 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 21-37516

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☒ Hand Delivery ☐ BC Lab Field Service ☐ Other ☐ (Specify)________	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)________	YES ☒ NO ☐ (W) S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ (Intact? Yes ☐ No ☐) Containers ☐ (Intact? Yes ☐ No ☐) None ☒ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☐ No ☑

COC Received			
☑ YES ☐ NO	Emissivity: 0.95 Container: PE Thermometer ID: 274	Temperature: (A) 0.2 °C / (C) 0.1 °C	Date/Time 12-3-21 Analyst Init SMH 953

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	A	A								
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664B										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: (NO time on Sample)

Sample Numbering Completed By: SMH Date/Time: 12/3/21 1222

A = Actual / C = Corrected

Rev 22 04/13/21

[S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 22]

Pace Analytical®
ENVIRONMENTAL SCIENCES

Acorn Onsite, Inc	**Reported:** 12/21/2021 20:15
2288 Buena Vista Avenue	Project: Water
Livermore, CA 94550	Project Number: 210770947
	Project Manager: Kevin Johnston

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2137516-01	**COC Number:**	---	**Receive Date:**	12/03/2021 09:53
	Project Number:	---	**Sampling Date:**	12/01/2021 16:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	DOM Well	**Lab Matrix:**	Water
	Sampled By:	KCJ	**Sample Type:**	Groundwater
2137516-02	**COC Number:**	---	**Receive Date:**	12/03/2021 09:53
	Project Number:	---	**Sampling Date:**	12/01/2021 16:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	AG Well	**Lab Matrix:**	Water
	Sampled By:	KCJ	**Sample Type:**	Groundwater

Pace Analytical
ENVIRONMENTAL SCIENCES

Acorn Onsite, Inc
2288 Buena Vista Avenue
Livermore, CA 94550

Reported: 12/21/2021 20:15
Project: Water
Project Number: 210770947
Project Manager: Kevin Johnston

Water Analysis (General Chemistry)

BCL Sample ID: 2137516-01 | **Client Sample Name:** DOM Well, 12/1/2021 4:00:00PM, KCJ

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Nitrate as NO3	26	mg/L	0.88	0.22	EPA-300.0	ND	A10	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-300.0	12/03/21 13:00	12/03/21 14:52	KB1	IC8	2	B126625	No Prep

Pace Analytical
ENVIRONMENTAL SCIENCES

Acorn Onsite, Inc
2288 Buena Vista Avenue
Livermore, CA 94550

Reported: 12/21/2021 20:15
Project: Water
Project Number: 210770947
Project Manager: Kevin Johnston

Water Analysis (General Chemistry)

BCL Sample ID: 2137516-02 | **Client Sample Name:** AG Well, 12/1/2021 4:00:00PM, KCJ

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Nitrate as NO3	39	mg/L	0.88	0.22	EPA-300.0	ND	A10	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-300.0	12/03/21 13:00	12/03/21 16:14	KB1	IC8	2	B126625	No Prep

Pace Analytical
ENVIRONMENTAL SCIENCES

Acorn Onsite, Inc 2288 Buena Vista Avenue Livermore, CA 94550	**Reported:** 12/21/2021 20:15 Project: Water Project Number: 210770947 Project Manager: Kevin Johnston

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B126625						
Nitrate as NO3	B126625-BLK1	ND	mg/L	0.44	0.11	

Pace Analytical
ENVIRONMENTAL SCIENCES

Acorn Onsite, Inc
2288 Buena Vista Avenue
Livermore, CA 94550

Reported: 12/21/2021 20:15
Project: Water
Project Number: 210770947
Project Manager: Kevin Johnston

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B126625										
Nitrate as NO3	B126625-BS1	LCS	23.077	22.134	mg/L	104		90 - 110		

Pace Analytical
ENVIRONMENTAL SCIENCES

Acorn Onsite, Inc	**Reported:** 12/21/2021 20:15
2288 Buena Vista Avenue	Project: Water
Livermore, CA 94550	Project Number: 210770947
	Project Manager: Kevin Johnston

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B126625	Used client sample: Y - Description: DOM Well, 12/01/2021 16:00										
Nitrate as NO3	DUP	!137516-01RE'	21.891	21.891		mg/L	0		10		
	MS	!137516-01RE'	21.891	149.66	111.79	mg/L		114		80 - 120	
	MSD	!137516-01RE'	21.891	150.85	111.79	mg/L	0.8	115	10	80 - 120	

Pace Analytical
ENVIRONMENTAL SCIENCES

Acorn Onsite, Inc 2288 Buena Vista Avenue Livermore, CA 94550	**Reported:** 12/21/2021 20:15 Project: Water Project Number: 210770947 Project Manager: Kevin Johnston

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A10	Detection and quantitation limits were raised due to matrix interference.

Appendix F – Historic Well Information

Permit record summary:

Permit Number	Date	Description
92-3371	September 30, 1992	Well pump repair
SR0004748	October 4, 1994	Well system repair
SR0057871	July 2, 2009	New well install

APPLICATION FOR PERMIT

SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
P O BOX 2009, STOCKTON, CA 95201
(209) 468-3447

RECEIVED
SEP 30 1992
ENVIRONMENTAL HEALTH
PERMIT/SERVICES

4382

PERMIT EXPIRES 1 YEAR FROM DATE ISSUED
(Complete in Triplicate)

Application is hereby made to San Joaquin County for a permit to construct and/or install the work herein described. This application is made in compliance with San Joaquin County Ordinance No. 549 and 1862 and the Rules and Regulations of San Joaquin County Public Health Services.

Job Address 24707 So Bird Rd City Tracy Lot Size/Acreage

Owner's Name Dale Petz Address same Phone

Contractor Preston Electric Address PO Box 16 Banta Ca 95304 License No. 453962 Phone 835-2814

TYPE OF WELL/PUMP: NEW WELL ☐ WELL REPLACEMENT ☐ DESTRUCTION ☐ Out of Service Well ☐
PUMP INSTALLATION ☐ SYSTEM REPAIR ☑ OTHER ☐ Monitoring Well ☐

DISTANCE TO NEAREST: SEPTIC TANK ___ SEWER LINES ___ DISPOSAL FLD. ___ PROP. LINE ___
FOUNDATION ___ AGRICULTURE WELL ___ OTHER WELL ___ PITS/SUMPS ___

INTENDED USE	TYPE OF WELL	PROBLEM AREA	CONSTRUCTION SPECIFICATIONS
☐ Industrial	☐ Open Bottom	☐ Manteca	Dia. of Well Excavation ___ Dia. of Well Casing ___
☑ Domestic/Private	☐ Gravel Pack	☐ Tracy	Type of Casing ___ Specifications ___
☐ Public	☐ Other	☐ Delta	Depth of Grout Seal ___ Type of Grout ___
☐ Irrigation	Approx. Depth	☐ Eastern	Surface Seal Installed by ___
Repair Work Done ☑	Type of Pump Sub		H.P. one State Work Done Replaced pump
Well Destruction ☐	Well Diameter ___		Sealing Material & Depth ___
	Depth ___		Filler Material & Depth ___

TYPE OF SEPTIC WORK: NEW INSTALLATION ☐ REPAIR/ADDITION ☐ DESTRUCTION ☐ (No septic system permitted if public sewer is available within 200 feet.)

Installation will serve: Residence ___ Commercial ___ Other ___
Number of living units: ___ Number of bedrooms ___
Character of soil to a depth of 3 feet: ___ Water table depth ___

SEPTIC TANK ☐ Type/Mfg ___ Capacity ___ No. Compartments ___
PKG. TREATMENT PLT. ☐ Method of Disposal ___
Distance to nearest: Well ___ Foundation ___ Property Line ___

LEACHING LINE ☐ No. & Length of lines ___ Total length/size ___
FILTER BED ☐ Distance to nearest: Well ___ Foundation ___ Property Line ___

SEEPAGE PITS ☐ Depth ___ Size ___ Number ___
SUMPS ☐ Distance to nearest: Well ___ Foundation ___ Property Line ___
DISPOSAL PONDS ☐

I hereby certify that I have prepared this application and that the work will be done in accordance with San Joaquin county ordinances, state laws, and rules and regulations of the San Joaquin County
Home owner or licensed agent's signature certifies the following: "I certify that in the performance of the work for which this permit is issued, I shall not employ any person in such manner as to become subject to workman's compensation laws of California." Contractor's hiring or sub-contracting signature certifies the following: "I certify that in the performance of the work for which this permit is issued, I shall employ persons subject to workman's compensation laws of California."

The applicant must call for all required inspections. Complete drawing on reverse side.

Signed X [signature] Title: Pres Date: 9-6-92

FOR DEPARTMENT USE ONLY

Application Accepted by [signature] Date 10/1/92 Area 0216

Pit or Grout Inspection by ___ Date ___ Final Inspection by [signature] Date 10/9/92

Additional Comments: ___

Applicant - Return all copies to: SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION PERMIT/SERVICES
445 N SAN JOAQUIN, P O BOX 2009, STOCKTON, CA 95201

FEE INFO	AMOUNT DUE	AMOUNT REMITTED	CK # CASH	RECEIVED BY	DATE	PERMIT NO.
PR	45.00	45.00	3179	[signature]	10/1	92-3571

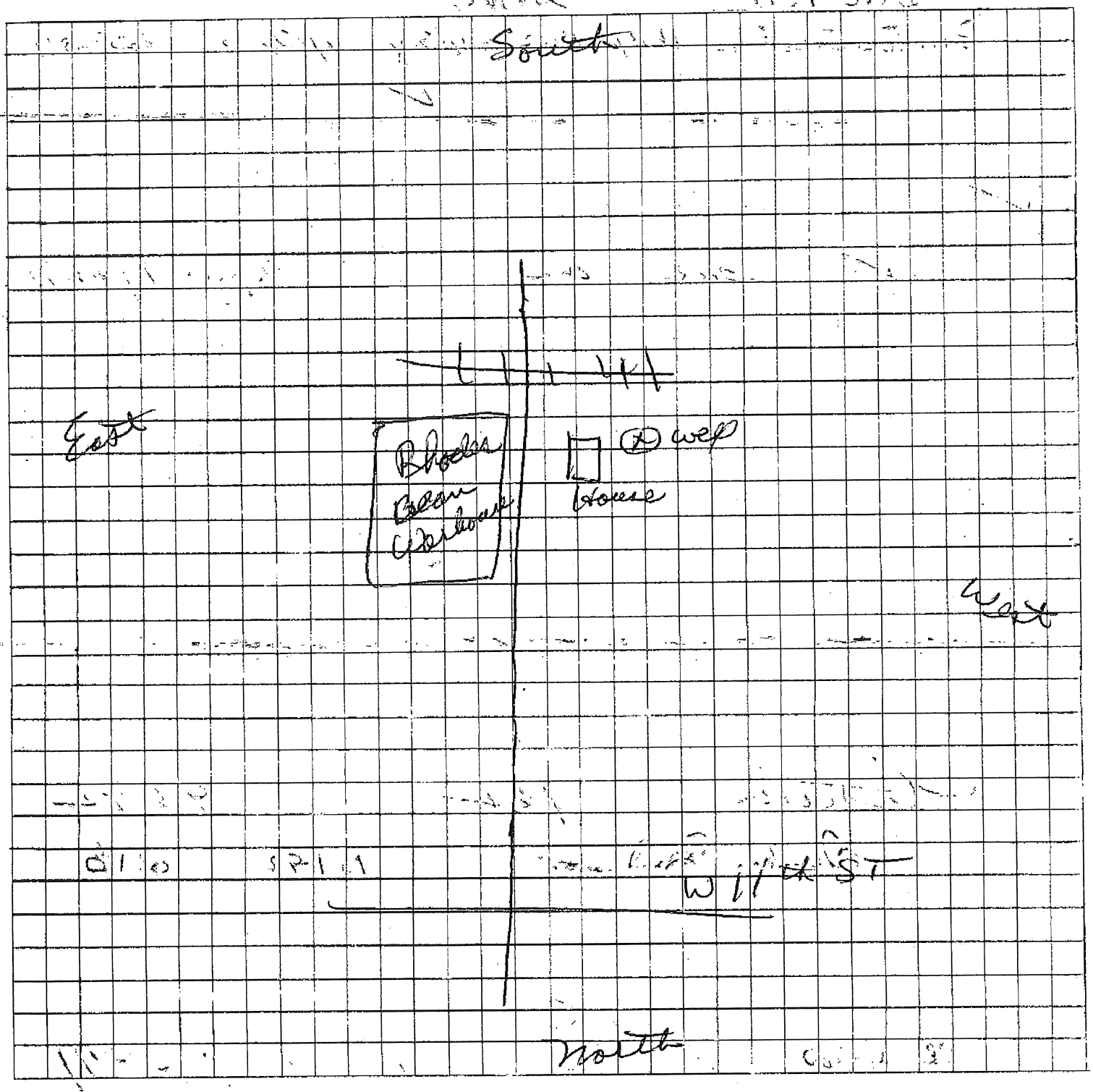
EH 13-24 (REV. 1/81)
EH 14-28

24707 S. Bird

PLOT PLAN
(Draw To Scale)

SCALE _____" TO _____

1. Names of streets or roads nearest to or bounding the property.
2. Outline of the property, giving dimensions and North direction.
3. Dimensioned outlines and locations of all existing and proposed structures, including covered areas such as patios, driveways and walks.
4. Location of house sewer outlet, public sewer, sewage disposal system or proposed sewage disposal system, proposed expansion of sewage disposal system, or any other possible source of contamination.
5. Location of other wells within radius of 150 feet on the property or adjoining property.
6. Location of sewage disposal system on adjoining property or within a radius of 150 feet.



APPLICATION FOR WELL/PUMP PERMIT
SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
P O BOX 388, 445 N. SAN JOAQUIN ST., STOCKTON, CA 95201-388
(209) 468-3420

NON-REFUNDABLE PERMIT EXPIRES 1 YEAR FROM DATE ISSUED

(Complete in Triplicate)

APPLICATION IS HERE BY MADE TO THE SAN JOAQUIN COUNTY FOR A PERMIT TO CONSTRUCT AND/OR INSTALL THE WORK DESCRIBED. THIS APPLICATION IS MADE IN COMPLIANCE WITH SAN JOAQUIN COUNTY DEVELOPMENT TITLE, CHAPTER 9-1115.3 AND THE STANDARDS OF SAN JOAQUIN COUNTY PUBLIC HEALTH SERVICES, ENVIRONMENTAL HEALTH DIVISION.

JOB ADDRESS/OR APN# 24707 S Bird Rd. CITY Tracy PARCEL SIZE/APN# /

OWNER'S NAME Dale Petz ADDRESS Same PHONE #

CONTRACTOR Freitas Electric, Inc. ADDRESS PO Box 16, Ripon LIC# 453462 PHONE # 836-2614

SUB CONTRACTOR N/A ADDRESS LIC# PHONE #

TYPE OF WELL/PUMP:
- ☐ NEW WELL
- ☐ INSTALLATION ☐ New ☐ Repair
- ☐ REPLACEMENT WELL
- ☒ WELL SYSTEM REPAIR
- H.P. 1
- ☐ OUT-OF-SERVICE WELL
- ☐ MONITORING WELL #
- ☐ CROSS-CONNECT REPAIR
- DEPTH PUMP SET 150 FT.
- ☐ GEOPHYSICAL WELL #
- ☐ OTHER
- ☐ VAPOR EXTRACTION WELL #
- FIRST WATER LEVEL 104
- ☐ SOIL BORING

Sub (TYPE OF PUMP)

☐ DESTRUCTION:

INTENDED USE	TYPE OF WELL	CONSTRUCTION SPECIFICATIONS	
☐ INDUSTRIAL	☐ OPEN BOTTOM	DIA. OF WELL EXCAVATION	DIA. OF CONDUCTOR CASING
☒ DOMESTIC/PRIVATE	☐ GRAVEL PACK/SIZE	TYPE OF CASING/STEEL/PVC	DIA. OF WELL CASING
☐ PUBLIC/MUNICIPAL	☐ DRIVEN	DEPTH OF GROUT SEAL	SPECIFICATION
☐ IRRIGATION/AG	☐ OTHER	GROUT SEAL INSTALLED BY	GROUT BRAND NAME
☐ MONITORING		GROUT SEAL PUMPED: ☐ Yes ☐ No	CONCRETE PEDESTAL BY DRILLER: ☐ Yes ☐ No
APPROX. DEPTH		LOCKING CHESTER BOX/STOVE PIPE	

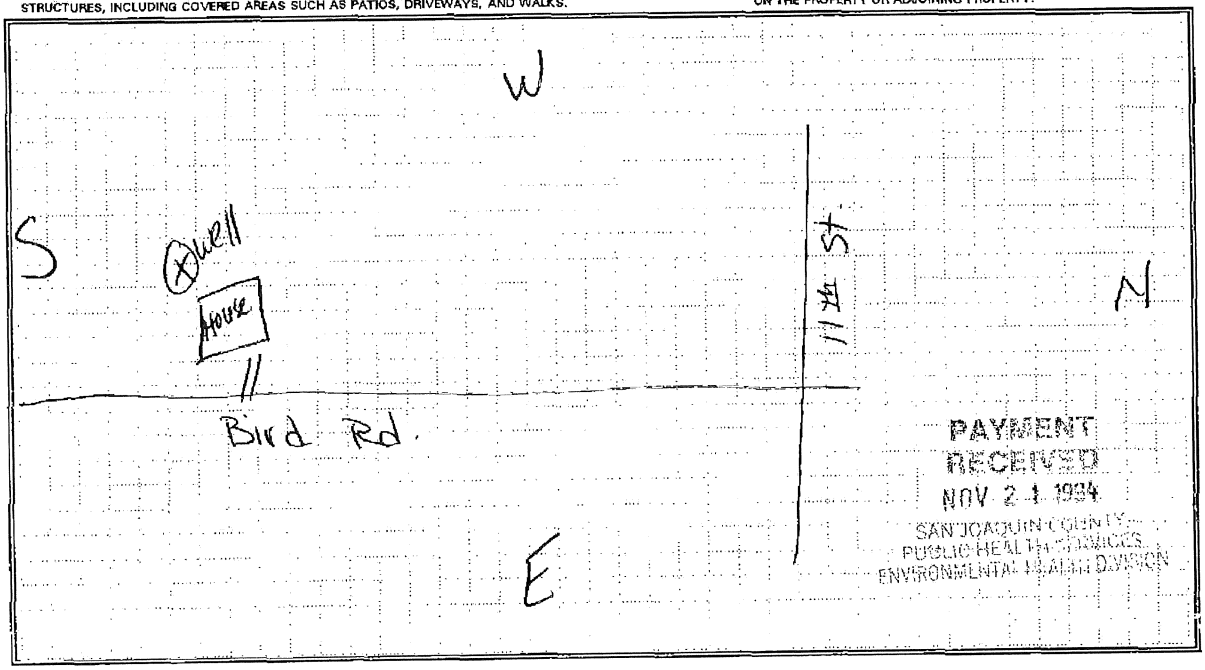
PROPOSED CONSTRUCTION/DRILLING METHOD: MUD ROTARY AIR ROTARY AUGER CABLE OTHER

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH SAN JOAQUIN COUNTY ORDINANCES, STATE LAWS, AND RULES AND REGULATIONS OF THE SAN JOAQUIN COUNTY. HOME OWNER OR LICENSED AGENT'S SIGNATURE CERTIFIES THE FOLLOWING: "I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS PERMIT IS ISSUED, I SHALL NOT EMPLOY PERSONS SUBJECT TO WORKMAN'S COMPENSATION LAWS OF CALIFORNIA." CONTRACTOR'S HIRING OR SUB-CONTRACTING SIGNATURE CERTIFIES THE FOLLOWING: " I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS PERMIT IS ISSUED, I SHALL EMPLOY PERSONS SUBJECT TO WORKMAN'S COMPENSATION LAWS OF CALIFORNIA." **THE APPLICANT MUST CALL 24 HOURS IN ADVANCE FOR ALL REQUIRED INSPECTIONS AT (209) 468-3423.** COMPLETE DRAWING AT LOWER AREA PROVIDED.

Signed X Ron Freitas Title Pres. Date 10-4-94

PLOT PLAN (Draw to Scale) Scale " to "

1. NAMES OF STREETS OR ROADS NEAREST TO OR BOUNDING THE PROPERTY.
2. OUTLINE OF THE PROPERTY, GIVING DIMENSIONS AND NORTH DIRECTION.
3. DIMENSIONED OUTLINES AND LOCATION OF ALL EXISTING AND PROPOSED STRUCTURES, INCLUDING COVERED AREAS SUCH AS PATIOS, DRIVEWAYS, AND WALKS.
4. LOCATION OF HOUSE SEWAGE DISPOSAL SYSTEM OR PROPOSED EXPANSION OF SEWAGE DISPOSAL SYSTEMS.
5. LOCATION OF WELLS WITHIN RADIUS OF ONE HUNDRED FIFTY FT. ON THE PROPERTY OR ADJOINING PROPERTY.



PAYMENT RECEIVED
NOV 21 1994
SAN JOAQUIN COUNTY
PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION

24707 S Bird Rd.

DEPARTMENT USE ONLY

Application Accepted By C. Borgma Date 11/21/94 Area 2.16

Grout Inspection By Date Pump Inspection By D. Carrasco Date 12/27/94

Destruction Inspection By Date

Comments:

ACCOUNTING ONLY:	AID#	FAC#

PE CODES	FEE INFO	AMOUNT REMITTED	CHECK/CASH	RECEIVED BY	DATE	PERMIT/SERVICE REQUEST NUMBER	INVOICE
4380	45	540.46	4349	SR	11-21-94	0024748	015497
						SR0004748	

WELL / PUMP PERMIT

SAN JOAQUIN COUNTY ENVIRONMENTAL HEALTH DEPARTMENT — 304 E WEBER AVE 3RD FL - STOCKTON CA 95202 - (209) 468-3420

NON-REFUNDABLE PERMIT — CALL (209) 953-7697 FOR INSPECTIONS — EXPIRES 1 YEAR FROM DATE ISSUED

SITE ADDRESS: 24707 S. Bird Rd. Tracy

JOB ADDRESS 24707 S. BIRD RD. CITY/ZIP TRACY 95304

CROSS STREET 11th STREET APN 250-100-06 PARCEL SIZE 3 ac. LAND USE APPLICATION #

OWNER NAME DALE PETZ PHONE 836-0253

OWNER ADDRESS P.O. BOX 217 CITY/STATE/ZIP TRACY, CA 95378

CONTRACTOR HENNINGS BROS. DRILLING CO., INC. PHONE 545-1185

CONTRACTOR ADDRESS 3525 PELANDALE AVE., CITY/STATE/ZIP MODESTO, CA 95356

SUBCONTRACTOR PHONE

SUBCONTRACTOR ADDRESS CITY/STATE/ZIP

LICENSE ☒ C-57 ☐ C-61 ☐ D-09 ☐ Other NUMBER 290813 EXPIRATION DATE 5-31-10

GEOGRAPHICAL INFORMATION: Coordinates X Y Township Range Section

INTENDED USE ☒ Domestic/Private ☐ Irrigation/Agricultural ☐ Industrial ☐ Water Quality Monitoring ☐ Soil Sampling/Characterization
☐ Public Water System If different from Owner: Water System Name Contact Name or Phone Number

TYPE OF WORK ☒ New Well ☐ Replacement Well ☐ Well Alteration/Modification ☐ Other
☐ Monitoring Well(s) # of wells ☐ Soil Boring(s) # of borings ☐ Geotechnical # of borings
☐ Out-Of-Service Well ☐ Out-Of-Service Well Renewal ☐ Cross-Connection Repair
☐ New Pump ☐ Pump Replacement ☐ Pump Repair

WELL CONSTRUCTION

Drilling Method ☒ Mud Rotary ☐ Air Rotary ☐ Auger ☐ Cable Tool ☐ Push Point ☐ Other

Proposed Well Depth 200 ~~340~~ ft Excavation 14" in diameter ☐ Open Bottom ☒ Gravel Pack / Gravel Size in diameter
☐ Conductor Casing in diameter / Conductor Casing Depth ft

Well Casing Diameter 8 in Thickness/Gauge/ASTM Sched 160CL ☐ Steel ☒ Plastic ☐ Stainless Steel ☐ Other

Grout Seal Depth 100 ✓ ft ☐ Neat Cement *(94 lb bag / 5-10 gal water)* ☐ Sand Cement *sack mix / 7 gal water*
☒ Bentonite (20% solids) ☐ Manufacturer Spec % solids % Name ☐ Specs on File ☐ Specs Submitted

Grout Placement Method ☒ Pumped ☐ Free Fall ☐ Other ☐ Retardant / Accelerator (name)

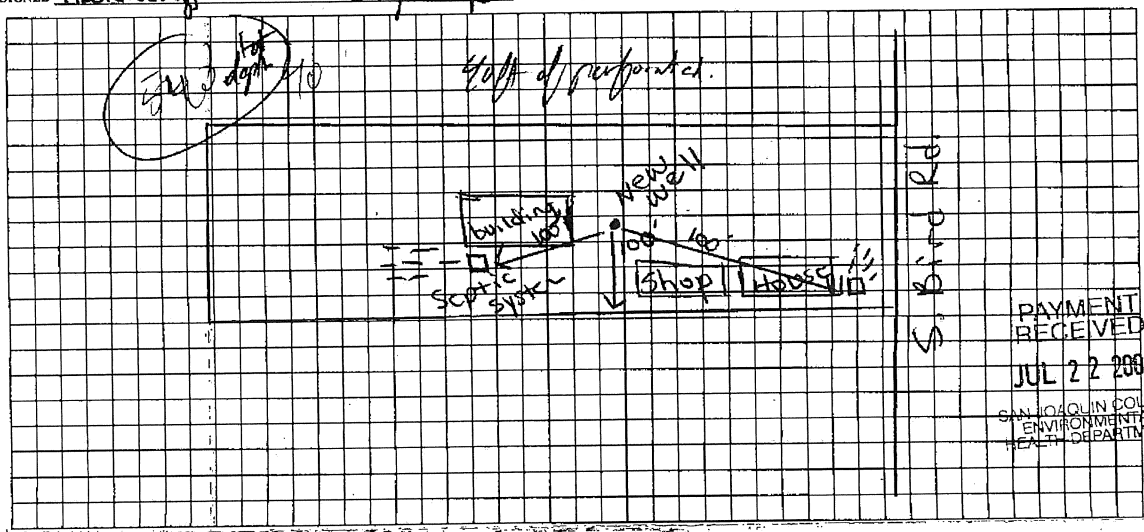
PEDESTAL Installed By ☐ Driller ☒ Pump Contractor ☐ Other
☐ Concrete Pedestal Dimensions: Width ft Length ft Thick in ☐ Christy Box ☐ Stove Pipe

PUMP ☐ Submersible ☐ Turbine ☐ Other HP Pump Set ft Standing Water Level ft

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH SAN JOAQUIN COUNTY ORDINANCES, STATE LAWS, AND RULES AND REGULATIONS. I ALSO CERTIFY THAT MY REQUIRED LICENSE IS CURRENT AND ACTIVE WITH THE CALIFORNIA CONTRACTORS STATE LICENSE BOARD AND THAT I AM IN COMPLIANCE WITH ALL WORKERS COMPENSATION LAWS.

MINIMUM 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTIONS

SIGNED Hennings Bros Drilling by/see reverse TITLE SUPERVISOR DATE 7-2-09



DEPARTMENT USE ONLY

Application Accepted By Ted Tasiopoulos Date 7/22/09 Area Employee ID# 4045 05/99

Grout Inspection By Date 11/19/10 ☐ SPECIAL Well Permit

Pump Inspection By Date ☐ WAIVER Received

Constructed Well Depth ft

COMMENTS New Old lot of record. 50 ft setbacks to septic tank, 100 ft setback to Leachfield.
8/17/10 OK to extend 6 months (expires) 11/19/10 Grout seal OK

PE Codes	SC Info	Received By	Check#/ Cash	Amount Remitted	Date	Permit/ Service Request #	Invoice #	Well ID#
4306	180	Jd	22323	$323.00	7/22/09	SR0057871		WP0034224

EHD 43-02-006 1/27/2005

WELL PUMP PERMIT

JOB ADDRESS: 24707 S. BIRD RD. TRACY PERMIT #: _____

LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License # 290813 Expiration Date 5-31-10

Date 7-2-09 Contractor HENNINGS BROS. DRILLING CO., INC.

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Section 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt herefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500)):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Section 7044, Business and Professions Code: The contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Section 7044, Business and Professions Code (B&PC): The Contractor's License Law does not apply to an owner of property who builds or improves hereon, and who constructs for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Section _____, B&PC for this reason _____

Date: _____ Owner _____

WORKERS' COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Section 3800, Labor Code).

Expiration Date 1-1-10 Company STATE COMPENSATION INS. FUND

☐ Certified copy is hereby furnished

☒ Certified copy is filed with the Environmental Health Department

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) or less)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date: _____ Applicant _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Section 3097, Civil Code).

Lender's Name _____

Lender' Address _____

DIVISION OF INDUSTRIAL SAFETY PERMIT CERTICATION

☐ I hereby certify that no excavation five (5) or more feet in depth into which a person is required to descend, will be made in connection with work authorized by the permit, and that no building structure, scaffolding, falsework, or demolition or dismantling thereof, will be more than thirty-six (36) feet high. (Chapter 3.2, Group 2, Article 2, Section 341, Title 8, California Administrative Code).

☐ As owner-builder, I will not employ anyone to do work which would require a permit from the Division of Industrial Safety, as noted above, unless such person has a permit to do such work from the division.

☐ Division of Industrial Safety Permit # _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to well construction and or sewage system construction, and hereby authorize representatives of this county to enter upon the above-mentioned property for inspection purposes.

Date _____ Applicant _____

Appendix G – Soil Profile Log

Date of Observation: December 1, 2021

Excavation Method: Rubber tire backhoe

Weather, lighting: bright clear

Profile 1:

0-24": Yellowish brown (10YR5/6) color; loam; moderate medium subangular blocky structure; friable consistence; common fine roots; common fine pores; moist.

24-40": Dark yellowish brown (10YR4/4) color; clay loam; moderate medium subangular blocky structure; friable consistence; few fine roots; common fine pores; moist.

40-80": Yellowish brown (10YR5/6) color; loam; strong medium subangular blocky structure; few fine roots; few fine pores; moist.

80-150": Yellowish brown (10YR5/6) color; sandy loam; moderate medium subangular blocky structure; few fine pores; moist.

No redoximorphic features observed.

Profile backfilled with loose spoils.

ATTACHMENT F

GEOTECHNICAL ENGINEERING REPORT

WallaceKuhl & ASSOCIATES | A Universal Engineering Sciences Company

Geotechnical Engineering Report

GREENHOUSE FACILITY

Tracy, California

WKA No. 4730.2200005.0000

April 07, 2022

Prepared for:

Mr. Darren Mangrum

Dynamic Generator Service, Inc.

24707 South Bird Road

Tracy, California 95304

Geotechnical Engineering Report

GREENHOUSE FACILITY

24707 South Bird Road

Tracy, California

WKA No. 4730.2200005.0000

TABLE OF CONTENTS

FIGURES

APPENDIX A – General Information, Field Exploration and Laboratory Testing

WallaceKuhl & ASSOCIATES
A Universal Engineering Sciences Company

Corporate Office
3050 Industrial Boulevard
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

Stockton Office
3422 West Hammer Lane, Suite D
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

Geotechnical Engineering Report
GREENHOUSE FACILITY
24707 South Bird Road
Tracy, California
WKA No. 4730.2200005.0000
April 7, 2022

INTRODUCTION

We have completed a geotechnical engineering study for the proposed Greenhouse Facility to be constructed near Tracy, California. The purpose of our study has been to explore the existing site, soil and groundwater conditions, and to provide geotechnical engineering conclusions and recommendations for the design and construction of the proposed development. This report presents the results of our study.

Scope of Services

Our scope of services for this project included the following tasks:

1. A site reconnaissance;
2. Review of geologic maps, historical aerial photographs, and available groundwater information;
3. Review of previous geotechnical studies completed by Wallace-Kuhl and Associates (WKA) within the project area;
4. Subsurface exploration, including the excavation of eight test pits to a maximum depth of approximately eight feet below existing site grade;
5. Laboratory testing of selected soil samples to determine engineering properties of the soil;
6. Engineering analyses; and,
7. Preparation of this report.

Figures and Attachments

This report contains a Vicinity Map as Figure 1; a Site Plan showing the test pit locations as Figure 2; and the Logs of Test Pits as Figures 3 through 10. An explanation of the symbols and classification system used in developing the boring logs is contained as Figure 11. Appendix A contains general information regarding project concepts, the exploratory methods used during our field investigation, and the laboratory test results that are not included on the logs.

Proposed Development

We understand the proposed facility will be constructed in two phases. The first phase will include a 10,368 square foot greenhouse (Building A), while phase two will include a 5,760 square foot addition (Building B) and an independent 13,824 square foot greenhouse (Building C). The buildings will be surrounded by a 20-foot wide, aggregate base covered fire access road, which will all be enclosed by a security fence. Structural details regarding the proposed buildings were unknown at the time this proposal was prepared. Based on previous experience, we anticipate the greenhouses will be tall, steel and aluminum framed structures supported on slab foundations that are thickened at the edges and column locations. Column loads are anticipated to be less than 25 kips (dead-plus-live).

Grading plans were not available at the time this proposal was prepared. However, as the existing site topography appears to be essentially level, cuts and fills during earthwork are anticipated to be minimal (two feet or less in vertical extent) and limited to providing vehicular access and level building pads with positive site drainage. Excavations for underground utilities are not anticipated to exceed 5 feet below final site grade.

FINDINGS

Site Description

The rectangular-shaped project site lies west and adjacent South Bird Road at the Dynamic Generator Services, Inc., facility, about 0.45 miles south of Lovely Road near Tracy, California. A vicinity map is provided as Figure 1. The property is bounded to the north by immature trees and a plowed fallow field; to the south by an office building, a larger metal frame office/repair structure, a single-family home, various outbuildings, irrigated landscaping, and stockpiled materials; to the east by fence, South Bird Road, and an orchard beyond; and to the west by an orchard.

At the time of our field explorations, the property was generally vacant and covered by gravel, exposed soil, scattered vegetation, and various equipment. The adjacent flatwork and buildings appeared to be in good condition with no apparent distress noted. Topographically, the site was essentially level with a mean elevation of about 51 feet relative to mean sea level (msl) according to Google Earth Pro software (Google, 2022).

Historical Aerial Photograph Review

Several historical aerial photographs available on Google Earth Pro software (Google, 2018) and the website HistoricalAerials.com between 1967 through 2020 were reviewed.

In the 1967 to 2005 aerial photographs, the project area appears to have been used primarily for agriculture. No structures are visible. In the next available photograph (2005), the southern one-third of the project area appears to be an unpaved driveway extending from South Bird Road. The remainder of the project area continues to be used for agriculture. The project area appears to have remained essentially unchanged until a 2010 photograph where the entire project area appears to be vacant. Between 2016 and the most recent 2020 aerial photographs, an orchard with immature trees appears to have been planted. The orchard appears to have been abandoned, with the trees never maturing to full size.

General Site Geology

The project site is located near the western margin of the Great Valley geologic province, which is bound by the Sierra Nevada Mountains to the east, the Coast Ranges to the west, the Mojave Desert and Transverse Ranges to the south, and the Klamath Mountains to the north. The Great Valley is a large north-westward trending, asymmetric structural trough with a long, gently sloping eastern shelf underlain by the subsurface extension of the Sierran granitic rocks and a shorter more steeply sloping western margin where the basin sediments have been upturned and dip eastward back toward the valley axis. The Central Valley has been filled with more than 50,000 feet of sediment (Bertoldi and others, 1991; Harwood and Helley, 1985) derived primarily from erosion of the adjacent Sierra Nevada and Coast Range Mountains. The sediment ranges in age from the Jurassic to recent (approximately 210 to 1.6 million years old) while bedrock underlying the sediment are predominantly marine deposits of siltstone, claystone, and sandstone.

The local geology has been mapped by various authors. The maps reviewed differ in scale and detail but agree that the site is underlain by alluvial fan deposits consisting of unconsolidated clay, sand, silt, and gravel of Holocene (less than 11,700-year-old) to Pleistocene (about 11,700- to 2.6-million-year-old) age derived from the high lands surrounding the Great Valley (Rogers, 1966).

The United States Department of Agriculture, Natural Resources Conservation Service website (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx), maps the project area as being underlain by alluvial Vernalis clay (Map Unit Symbol 268) to a depth of about four feet, followed by fine sandy loam to a depth of five feet. The Vernalis clay is described as moderately plastic (CL) with a moderate shrink-swell potential.

Subsurface Soil Conditions

The subsurface conditions at the site were explored on March 17, 2022, by excavating eight test pits to depths of about eight feet below the existing ground surface (bgs). The approximate boring locations are presented as Figure 2.

The soil conditions encountered appear to be generally consistent with the mapped geology described above. Based on our findings, the surface and near-surface soil conditions at the site generally consisted of very stiff, low to moderately plastic sandy clay to depths ranging from about one to six feet bsg, underlain by clayey and poorly graded sand with silt to the depths explored. At two test pit locations (TP-4 and TP-5), the sandy clay extended the entire depth of explorations.

The subsurface conditions described above are a generalized interpretation of the conditions encountered. For specific information regarding the soil conditions encountered at each exploration location, please refer to the exploration logs presented as Figures 3 through 10.

Groundwater

Groundwater was not encountered during our explorations. It is possible that our test pits may not have been left open long enough for groundwater to reach static equilibrium. To supplement this data, we reviewed available groundwater information at the California Department of Water Resources (DWR, 2018) website. The DWR periodically monitors groundwater levels (typically once in the spring and again in the fall) in wells across the state. Their website shows a monitored well (State Well No. 02S05E25J002M) located about 170 feet southeast of the project area. A summary of the recorded groundwater levels is presented below:

Well No.	Data Range		Highest Groundwater		Lowest Groundwater	
	From	To	Elev. (ft)[1]	Depth (ft)	Elev. (ft)[1]	Depth (ft)
02S05E25J002M	1962	1990	18.6	30.8	-69.9	109.3

1. NAVD 88

Based on the data reviewed, it appears that groundwater elevations in the project area can and will fluctuate widely and that the recorded high groundwater elevation in the project area was about 18.6 feet (NGVD 88), which is equivalent to about 31 feet below the lowest portions of the project site. This geotechnical evaluation assumes that high groundwater at the project site will not exceed this elevation.

CONCLUSIONS

We believe that the project is feasible from a geotechnical standpoint, provided the conclusions and recommendations presented in this report are incorporated into the project design and specifications. The principal geotechnical considerations are discussed in the following subsections.

Seismic Design Criteria

The 2019 California Building Code (CBC) references the American Society of Civil Engineers (ASCE) Standard 7-16 for seismic design. This year, ASCE 7-22 was published to supersede the previous ASCE 7-16 standard. At the time this report was prepared, the specific version governing design was unknown. Therefore, seismic design parameters are provided in Tables 2 and 3, based on both ASCE 7-16 and ASCE 7-22, respectively. Given the subsurface conditions encountered at the site and our previous experience in the project area, it is our judgement and opinion the soil at the project site can be designated as Site Class D in determining seismic design forces for this project.

The seismic design parameters provided in Table 2 were determined based on the latitude and longitude for the central portion of the site using the web interface developed by the *Structural Engineers Association of California* (SEAOC) and *California's Office of Statewide Health and Development* (OSHPD).

Table 2

2019 CBC SEISMIC DESIGN PARAMETERS				
Latitude: 37.733° N Longitude: -121.363° W	ASCE 7-16 Table/Figure	2019 CBC Table/Figure	Factor/ Coefficient	2019 CBC Value
Short-Period MCE_R at 0.2 second	Figure 22-1	Figure 1613.2.1(1)	S_S	1.03 g
1.0 second Period MCE_R	Figure 22-2	Figure 1613.2.1(2)	S_1	0.37 g
Soil Class	Table 20.3-1	Section 1613.2.2	Site Class	D
Site Coefficient	Table 11.4-1	Table 1613.2.3(1)	F_a	1.09
Site Coefficient	Table 11.4-2	Table 1613.2.3(2)	F_v	1.93*
	Equation 11.4-1	Equation 16-36	S_{MS}	1.12 g

2019 CBC SEISMIC DESIGN PARAMETERS				
Latitude: 37.733° N Longitude: -121.363° W	ASCE 7-16 Table/Figure	2019 CBC Table/Figure	Factor/ Coefficient	2019 CBC Value
Adjusted MCE Spectral Response Parameters	Equation 11.4-2	Equation 16-37	S_{M1}	0.71 g*
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation 16-38	S_{DS}	0.75 g
	Equation 11.4-4	Equation 16-39	S_{D1}	0.48 g*
Seismic Design Category	Table 11.6-1	Table 1613.2.5(1)	Risk Category I to IV	D
	Table 11.6-2	Table 1613.2.5(2)	Risk Category I to IV	D

Notes: MCE = Maximum Considered Earthquake
g = gravity
* = The value is valid provided the requirements in Exception Note No. 2 in Section 11.4.8 of ASCE 7-16 are met. If not, a site-specific ground motion hazard analysis is required.

The seismic design parameters provided in Table 3 have been determined based on the site location and the web interface developed by ASCE (https://asce7hazardtool.online/).

Table 3

2022 CBC SEISMIC DESIGN PARAMETERS			
Latitude: 37.733° N Longitude: -121.363° W	ASCE 7-22 Table/Figure	Factor/Coefficient	ASCE 7-22 Values
0.2-second Period MCE_R	N/A	S_S	1.18 g
1.0 second Period MCE_R	N/A	S_1	0.36 g
Soil Class	Table 20.2-1	Site Class	D
Adjusted MCE_R Spectral Response Parameters	N/A	S_{MS}	1.51 g
	N/A	S_{M1}	0.93 g
Design Spectral Acceleration Parameters	Equation 11.4-1	S_{DS}	0.63 g
	Equation 11.4-2	S_{D1}	1.01 g*

2022 CBC SEISMIC DESIGN PARAMETERS			
Latitude: 37.733° N Longitude: -121.363° W	ASCE 7-22 Table/Figure	Factor/Coefficient	ASCE 7-22 Values
Seismic Design Category	Table 11.6-1	Short Period Seismic Design Category I to IV	D
	Table 11.6-2	1-s Period Seismic Design Category I to III	D

Notes: MCE_R = Risk-Targeted Maximum Considered Earthquake; g = gravity

Soil Expansion Potential

Laboratory tests performed on representative samples of the near-surface soils show that the site is underlain predominately by moderately plastic clay that has a "medium" potential for expansion[1] with increases in soil moisture content. These results are generally consistent with our previous findings in the Tracy area and poses a risk for future heave and cracking of concrete slabs, as well as lightly loaded foundations and pavements. Approaches to reduce the potential influence of expansive soil on the proposed improvements are presented in the *Recommendations* section.

Foundation Support

Based on the native subsurface conditions encountered, the proposed slab foundation or shallow spread foundations should provide adequate support for the anticipated light structural loads provided the recommendations presented in this report are incorporated into the project design and specifications. In areas of fill, the compacted native soils and/or an approved import soil should also provide adequate support for foundations provided they are placed and compacted in accordance recommendations provided in this report.

[1] The terms expansion or expansive soil generally apply to any soil that has a potential for swelling or heaving with seasonal or man-made increases in moisture content and shrinking or settling due to decreases in soil moisture content or drying.

Groundwater and Seasonal Moisture

Near-by well data and our current findings suggests that groundwater levels should not encroach near-surface or impede grading operations at the site. However, if site grading is performed during or following extended periods of rainfall (winter and spring months), the moisture content of the near-surface soils may be significantly above optimum and unstable.

Typical remedial measures include discing and aerating the soils during dry weather, mixing the soils with dryer materials, removing and replacing the soils with an approved fill material, stabilization with a geotextile fabric or grid, or mixing the soils with an approved hydrating agent such as a lime or cement product. Our firm should be consulted prior to implementing any remedial measure to observe the unstable subgrade condition and provide site-specific recommendations.

Soil Suitability for Engineered Fill Construction

The soils encountered are considered suitable for use in engineered fill construction provided these materials do not contain rubble, rubbish, significant organic concentrations and are at a moisture content appropriate for compaction. Imported materials, if necessary, should be granular and approved by our office prior to importing the materials to the site.

Excavation Conditions

The surface and near-surface soils at the site should be readily excavated using conventional earthmoving and trenching equipment. Shallow excavations (less than 5-feet deep) in the native clay or clay fill should stand vertically for a period long enough for typical foundation and utility excavations unless they become wet or are disturbed. The sand encountered, however, is cohesionless and may cave and/or slough soon after it is exposed in the excavation. Where encountered, the contractor should be prepared to brace or shore the excavations, as necessary.

Seismic Hazards

The general project area is characterized by recurring seismic activity. During the design life of the proposed development, it is probable that at least one earthquake will cause moderate ground shaking in the vicinity of the project. However, when compared to other areas of California, such as the Bay area and Southern California, the project area is seismically quiescent. No active faults which displace valley alluvium are known to exist at or near the

project site nor does the site lie within or adjacent to any Fault-Rupture Hazard Zones (formerly Alquist-Priolo Special Studies Zones) (Hart, 1990).

Soil liquefaction results from loss of soil strength during cyclic loading, such as those imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded fine-grained sands deposited during the Holocene age (present to 11,700 years ago). Although the evaluation of potential liquefaction hazards was not within the scope of this study; given the anticipated groundwater depth and that the sands encountered in our borings were generally deposited during the Pleistocene age (about 11,700 to 2.6 million years ago), in our professional opinion the potential for liquefaction at the site is low.

Soil Corrosion Potential

One sample of near-surface soil was submitted to Sunland Analytical Lab of Rancho Cordova, California, for testing to determine pH, chloride and sulfate concentrations, and minimum resistivity to help evaluate the potential for corrosive attack upon buried concrete. The results of the corrosivity testing are summarized in Table 4. A copy of the test report is presented on Figure A4.

Table 4

SOIL CORROSIVITY TESTING		
Analyte	Test Method	Sample Identification
		TP2 (0'-2')
pH	CA DOT 643 Modified*	7.34
Minimum Resistivity	CA DOT 643 Modified*	1210 Ω-cm
Chloride	CA DOT 422	34.9 ppm
Sulfate	CA DOT 417	37.4 ppm

Notes: * = Small cell method, Ω-cm = Ohm-centimeters, ppm = Parts per million, mg/kg= milligrams per kilogram

The California Department of Transportation (Caltrans) 2018 Corrosion Guidelines (Version 3.0), considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil sample taken: the soil has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2,000 ppm, or the pH is 5.5 or less. Based on this criterion, the on-site soils tested are not considered

corrosive to concrete or steel reinforcement properly embedded within Portland cement concrete (PCC).

The California Amendments to Section 10.7.5 of the American Association of State Highway and Transportation Officials (AASHTO) bridge design specifications, 6th Edition (AASHTO 2012) considers soils to be corrosive to buried metals if the minimum resistivity is 1,000 ohm-cm or less. Based on this criterion, the on-site soils tested are also not considered significantly corrosive to buried metal.

Table 19.3.1.1 – Exposure Categories and Classes, of American Concrete Institute (ACI) 318-14, Section 19.3 – Concrete Design and Durability Requirements, as referenced in Section 1904.1 of the 2019 CBC, indicates the severity of sulfate exposure for the sample tested is Exposure Class S0 (water-soluble sulfate concentration in contact with concrete is low and injurious sulfate attack is not a concern). The project structural engineer should evaluate the requirements of ACI 318-14 and determine their applicability to the site.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, if it is desired to further define the soil corrosion potential at the site, a corrosion engineer should be consulted.

RECOMMENDATIONS

The recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils typically become very moist and wet following rainfall in the winter and early spring months, and often are not be suitable for earthwork without drying by aeration, chemical treatment, or geogrid stabilization. Should the construction schedule require work to start or continue during the wet months, additional recommendations can be provided as conditions warrant.

A representative of the Geotechnical Engineer should be present during all earthwork and ground improvement construction operations to evaluate compliance with the recommendations presented in this report and the project plans and specifications. The Geotechnical Engineer of Record referenced herein should be considered the Geotechnical Engineer that is retained to provide geotechnical engineering observation and testing services during construction.

Site Clearing

Construction areas should be cleared of any existing surface and subsurface structures to expose firm and stable soils, as determined by the Geotechnical Engineer's representative. The area to be cleared should extend at least five feet beyond the edge of all exterior foundations and at least five feet beyond any exterior flatwork or gravel roads, where practical. Demolition debris should be removed from the site, or used as engineered fill, provided it is processed per the recommendations included in this report.

Any existing underground utilities designated to be removed or relocated should include all trench backfill and bedding materials. The resulting excavations should be restored with engineered fill placed and compacted in accordance with the recommendations included in this report. On-site wells, septic systems, or below-grade tanks were not noted at the site during the time our field exploration was performed. If any of these items are discovered, they should be properly abandoned in accordance with State and local requirements.

Existing surface vegetation/organics, organically laden soil, and gravel within construction areas should be stripped from the site. Organic debris from the stripping should not be used as general fill within structure, concrete slab, or gravel road areas. With prior approval from the Geotechnical Engineer, the existing gravel may be used as fill provided it is thoroughly mixed with the native or import soil prior to placement.

Any trees, bushes and other vegetation designated for removal should include the entire root-ball and roots larger than ½-inch in diameter. Adequate removal of debris and roots may require laborers and handpicking to clear the subgrade soils to the satisfaction of the Geotechnical Engineer's representative.

Depressions resulting from site clearing operations, as well as any loose, soft, disturbed, wet, or organically contaminated soils, as identified by the Geotechnical Engineer's representative, should be cleaned out to firm, undisturbed soils and backfilled with engineered fill placed and compacted in accordance with the recommendations in this report. It is important that the Geotechnical Engineer's representative be present during site clearing operations to verify adequate removal of the surface and subsurface items, as well as the proper backfilling of resulting excavations.

Subgrade Preparation

The near-surface soils are relatively loose, and we anticipate that clearing operations will likely cause additional disturbance to the upper soils. Therefore, in all areas that will support concrete slabs, engineered fill or gravel roads, should be thoroughly scarified to a depth of at least 12 inches, brought to a uniform moisture content at least two percentage point above the optimum moisture content, and compacted to not less than 90 percent relative compaction[2] per ASTM D1557 specifications. In gravel road areas, the relative compaction of the upper 6 inches of final soil subgrade should be increased to 95 percent relative compaction.

Due to the moderately expansive clay conditions encountered at the site, the proposed buildings should be underlain by at least 12-inches of non-expansive fill. The non-expansive soil pads could be prepared by removing and replacing the native clay, raising the building pads above existing site grade, or a combination of both. A capillary break, aggregate base, or other slab support system placed directly below the floor slabs should not replace in whole or part the non-expansive fill layer. The zone of non-expansive soil should extend laterally at least three feet outside the perimeter of the structures. Prior to placement of the non-expansive fill, the exposed clay subgrade soil to a minimum depth of 12 inches should be scarified and compacted as discussed above. The moisture content of the clay should be maintained until placement of the non-expansive fill. A representative of the Geotechnical Engineer should perform a field check of the soil moisture content and relative compaction prior to placement of the non-expansive fill.

As an alternative to non-expansive fill, the upper 12-inches of native subgrade soil and/or clay fill within the proposed building areas could be mixed with dolomitic or high calcium quick lime (lime-treatment) and compacted to at least 90 percent relative compaction. Recommendations for lime-treatment are provided in the *Lime Treatment* section.

The final subgrade preparation (i.e., scarification, moisture conditioning and compaction) in gravel road areas should be performed after underground utility construction is completed and just prior to gravel or aggregate base placement.

If construction begins during the summer or fall, there is a potential that the surface clayey soils may be desiccated deeper than the recommended depth of scarification. Should this condition

[2] As used in this report, relative compaction refers to the in-place dry unit weight of soil expressed as a percentage of the maximum dry unit weight of the same soil as determined by the ASTM D1557 specification, latest edition.

exist, the site should be continuously watered for a sufficient period of time to close the desiccation cracks.

The prepared subgrade soils should be protected from disturbance until covered by capillary break material or aggregate base. Disturbed subgrade soils may require additional processing and recompaction just prior to construction of these improvements, depending on the level of disturbance.

All subgrade preparation must be performed in the presence of the Geotechnical Engineer's representative who will evaluate the performance of the subgrade under compaction loads and identify any loose or unstable soil conditions that could require remediation. Construction bid documents should contain a unit price (price per cubic foot) for additional excavation due to unsuitable materials and replacement with engineered fill.

Engineered Fill

From a geotechnical standpoint, the on-site soils are considered suitable for use as engineered fill provided that they do not contain significant quantities of organics, rubble and deleterious debris, and are at a proper moisture content to achieve the desired degree of compaction.

Engineered fill consisting of imported materials or native on-site sand should be placed in lifts not exceeding six inches in compacted thickness, with each lift being thoroughly moisture conditioned to at least the optimum moisture content and uniformly compacted to at least 90 percent relative compaction. All engineered fill consisting of clay should be placed in maximum 6-inch lifts and moisture conditioned to at least 2 percentage points above the optimum moisture content and uniformly compacted to at least 90 percent relative compaction.

Imported fill materials should be compactable, well-graded, granular soils with a Plasticity Index not exceeding 15 when tested in accordance with ASTM D4318; an Expansion Index of 20 or less when tested in accordance with ASTM D4829; and, should not contain particles greater than three inches in maximum dimension. In addition, except for imported aggregate base and bedding/initial fill materials for underground utility construction, the contractor should provide appropriate documentation for all imported fill materials that designates the import materials do not contain known contaminants per Department of Toxic Substances Control's guidelines for clean imported fill material (DTSC, 2001), and have corrosion characteristics within acceptable limits. Imported soils should be approved by the Geotechnical Engineer prior to being transported to the site.

Lime Treatment

Lime treatment consists of mixing the subgrade soils with dolomitic or high calcium quick lime and compacting the soil as engineered fill. The subgrade preparation, spreading, mixing, compacting and lime type should meet the requirements outlined in Section 24 of the Caltrans Standard Specifications. The zone of lime-treated soil should extend laterally at least three feet outside the perimeter of the structures and at least one foot outside the perimeter of gravel roads. Based on our previous experience, four percent quick lime by dry weight of the soil may be assumed for planning purposes based on dry soil unit weight of 110 pcf. The lime treated subgrade soils should be compacted to at least 90 percent relative compaction.

At least 2 to 3 days prior to spreading or mixing the lime, the moisture content of the underlying, untreated clay soil should be checked. If the soil moisture content is found to be dry of optimum, the soil moisture content should be raised using liberal sprinkling, flooding, or another suitable method. A representative of the Geotechnical Engineer should be on-site during treatment operations to document spreading, mixing and compaction operations and provide supplemental/revised recommendations, if warranted, based on the soil conditions observed.

Following lime treatment, the treated soil should be properly cured by continual sprinkling with water to keep the surface damp, combined with light rolling to keep the surface knitted together. We suggest that the subgrade soils be covered with Class 2 aggregate base or crushed rock within 2 to 3 days of lime treatment to reduce drying. Periodic sprinkling is still required to keep the surface damp. As an alternative, the treated soil could be cured as discussed in Section 24 of the Caltrans Standard Specifications.

Lime treatment increases the pH of the soil and may not promote plant growth. Accordingly, the Landscape Architect should be consulted prior to construction to verify that future landscaping is suitable for lime treated soils. If the landscaping is not suitable, the lime-treated soils should be completely removed and replaced prior to planting.

Temporary Excavations

Temporarily sloped and/or shored excavations less than 20 feet in depth should be constructed in accordance with federal, local and OSHA standards (29 CFR Part 1926) under the guidance of the Contractors qualified “competent person.” For preliminary evaluation, the clay encountered would classify as Cal-OSHA Type B soil, while the sand would classify as Type C soils. In no case should the information provided be interpreted to mean that Wallace-Kuhl & Associates is assuming responsibility for site safety or the Contractor’s activities.

Excavated materials should not be stockpiled directly adjacent to an open excavation to prevent surcharge loading of the excavation sidewalls. Heavy or frequent truck and equipment traffic should also be avoided near excavations. If material is stored or heavy equipment is stationed and/or operated near an excavation, a shoring system must be designed to resist the additional pressure due to the superimposed loads.

Utility Trench Backfill

Utility trench backfill should be mechanically compacted as engineered fill. Bedding of utilities and initial backfill around and over the pipe should conform to the pipe manufacturer's recommendations and the governing jurisdictional standards. If open-graded, crushed rock is used as bedding or initial backfill, an approved geotextile filter fabric should be used to separate the crushed rock from finer-grained soils. The intent of geotextile filter fabric is to prevent soil from migrating into the crushed rock (piping), which could result in trench settlement.

The on-site clay (in lieu of select sand/gravel/crushed rock backfill) should be used as utility trenches backfill within the building footprints, and extending at least five feet horizontally beyond perimeter foundations, to reduce water transmission beneath the buildings. Utility trench backfill should be placed as discussed in the *Engineered Fill* section. The lift thickness will be dependent of the type of compaction equipment used.

Underground utility trenches that are aligned nearly parallel with shallow foundations should be at least 3-feet from the outer edge of foundations, wherever possible. As a general rule, trenches should not encroach into the zone extending outward at one horizontal to one vertical (1H:1V) inclination below the bottom of shallow foundations. Additionally, trenches parallel to shallow foundations should not remain open longer than 72 hours. The intent of these recommendations is to prevent loss of both lateral and vertical support of shallow foundations, resulting in possible settlement.

Slab Foundations

We anticipate the proposed greenhouse's may be supported by slab foundations that are thickened at the edges and column locations. Due to expansive soil considerations, the thickened slab edges and column locations should extend at least 18 inches below lowest adjacent soil grade. Lowest adjacent soil grade is defined as the grade upon which the capillary break material is placed or exterior soil grade, whichever is lower. The thickened slab edges should be continuous around the perimeter of the building to reduce moisture variations beneath

the structures. If shrinkage cracks appear in the foundation excavations, the excavations should be thoroughly moistened to close all cracks prior to placement of concrete.

Slab foundations bearing on undisturbed native soils, engineered fill, or a combination of those materials may be sized for using an average allowable "net" soil bearing pressure of 1,000 pounds per square foot (psf) for dead plus live loads with a maximum localized bearing pressure of 1,500 psf at column and wall loads. A one-third increase in the allowable bearing pressure may be applied when considering short-term loading due to wind or seismic forces.

A modulus of subgrade reaction of 150 pounds per cubic inch (pci) may be utilized for design of slab foundations supported on compacted non-expansive fill. A modulus of subgrade reaction of 250 pci may be utilized for design of slab foundations supported on lime-treated clay. The design criteria presented above were developed using published correlations. If slab foundations are critical or sensitive to loading and deflection, field plate load tests could be performed to better define the subgrade reaction.

Total settlement of a slab foundation adequately reinforced to internally resist cracking and offset between the slab and the thickened column locations, or other concentrated loads, should be nominal. The potential for cracking and offset will vary depending on the plan dimensions of the foundation and the actual load supported. The project Structural Engineer should determine final slab foundation thickness, reinforcement and joint spacing. As a guide only, ½-inch differential movement would be expected between the slab and column foundation if they were structurally independent.

Resistance to lateral foundation displacement may be computed using an allowable friction factor of 0.30, which may be multiplied by the effective vertical load on each slab foundation. Additional lateral resistance may be computed using an allowable passive earth pressure equivalent to a fluid pressure of 300 psf per foot of depth, acting against the vertical projection of the foundation. These two modes of resistance should not be added together unless the frictional component is reduced by 50 percent since full mobilization of the passive resistance requires some horizontal movement, effectively reducing the frictional resistance. All foundation excavations be observed by the Geotechnical Engineer's representative prior to placement of reinforcement and concrete to verify firm bearing materials are exposed.

Shallow Spread Foundations

In lieu of slab foundations, the proposed greenhouses may be supported upon continuous and isolated spread foundations. Due to expansive soil considerations, the foundations should

extend at least 18 inches below lowest adjacent soil grade. Lowest adjacent soil grade is defined as the grade upon which the capillary break material is placed or exterior soil grade, whichever is lower. Continuous foundations should maintain a minimum width of 12 inches; while isolated spread foundations should be at least 24 inches in plan dimension. Foundations should be continuous around the perimeter of the building to reduce moisture variations beneath the structures. If shrinkage cracks appear in the foundation excavations, the excavations should be thoroughly moistened to close all cracks prior to placement of concrete.

Foundations bearing on undisturbed native soils, engineered fill, or a combination of those materials may be sized using a maximum allowable "net" soil bearing pressure of 2,000 pounds per square foot (psf) for dead plus live load. A one-third increase in the allowable bearing pressure may be applied when considering short-term loading due to wind or seismic forces. The weight of the foundation concrete extending below lowest adjacent soil grade may be disregarded in sizing computations.

Total settlement of an individual foundation will vary depending on the plan dimensions of the foundation and the actual load supported. Based on the foundation criteria discussed above and the assumed foundation loads, foundations are anticipated to experience a maximum total static settlement on the order of about ½-inch, and differential settlement on the order of about ½-inch for 50 lineal feet or the shortest distance of the structure, whichever is less.

All foundations should be adequately reinforced to provide structural continuity, mitigate cracking, and permit spanning of local soil irregularities. As a minimum, continuous foundations should be reinforced with at least four No. 4 reinforcement bars, placed two top and two bottom, to reduce the effects of potentially expansive soil by allowing the foundations the ability to span isolated soil irregularities. Continuous foundations should also be provided with No. 4 slab tie reinforcement bars, positioned at least every 54 inches, and penetrating at least two feet horizontally into the interior floor slab. The structural engineer should determine the need for additional reinforcement and the final detailing of the reinforcement.

Resistance to lateral foundation displacement may be computed using criteria presented in the *Slab Foundations* section above.

Conventional Floor Slabs

Conventional floor slabs in combination with shallow spread foundations may be used for support of the proposed structures. The interior concrete slabs should be at least four inches thick, however, the project structural or civil engineer should determine final floor slab thickness,

reinforcement and joint spacing. Temporary loads exerted during construction from vehicle traffic, cranes, forklifts, other construction equipment, storage of palletized construction materials, etc. should be considered in the design of the thickness and reinforcement of the interior concrete slabs-on-grade.

Moisture Penetration Resistance

It is likely that the subgrade soils below floor slabs will become very moist or wet at some time during the life of the structures. This is a certainty if the subgrade soils are constructed during the wet season or poor drainage conditions exist adjacent to structures. For this reason, it should be assumed that interior floor slabs with moisture-sensitive floor coverings or coatings will require protection against moisture or moisture vapor penetration through the slabs.

Interior floor slabs for the planned buildings should, as a minimum, be underlain by a layer of free-draining crushed rock/gravel, serving as a deterrent to migration of capillary moisture. The crushed rock/gravel layer should be between four- and six-inches-thick and graded such that 100 percent passes a one-inch sieve and less than five percent passes a No. 4 sieve. Additional moisture protection may be provided by placing a vapor retarder membrane (at least 10-mils thick) directly over the crushed rock/gravel. The water vapor retarder membrane should meet or exceed the minimum specifications as outlined in ASTM E1745 and be installed in strict conformance with the manufacturer's recommendations.

Where interior concrete slabs are not be covered with moisture-sensitive floor coverings or coatings and will support forklift traffic, machinery, storage loads, etc., the crushed rock/gravel should be replaced with at least 4 inches of Class 2 aggregate base. The aggregate base would provide a leveling coarse and a stable, uniform bearing surface below the slabs. The aggregate base should be compacted to at least 95 percent relative compaction. The vapor retarder membrane should be placed directly over the compacted aggregate base.

Floor slab construction practice over the past 30 years or more has included placement of a thin layer of dry sand or pea gravel over the vapor retarder membrane. The intent of the sand/pea gravel is to aid in the proper curing of the slab concrete. During the wet seasons, however, moisture can become trapped in the sand or pea gravel, which can lead to excessive moisture vapor emissions from floor slabs. As a consequence, we consider use of the sand/pea gravel layer as optional. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

It is emphasized that the crushed rock/grave and the vapor retarder membrane suggested above provides only a limited, first line of defense against soil-related moisture issues and will not "moisture proof" the slab. Nor do these measures provide an assurance that slab moisture transmission levels will be within tolerable levels to prevent damage to floor coverings or other building components. If increased protection against moisture vapor penetration is desired, a concrete moisture protection specialist should be consulted. The design team should consider all available measures for slab moisture protection. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs.

Ancillary Foundations

Foundations for lightly loaded, ancillary structures not structurally connected to the proposed buildings, such as sound walls, landscape walls, light poles, monuments, trash enclosures, or similar structures, may be supported upon conventional spread foundations or drilled, cast-in-place reinforced concrete piers (drilled piers).

Conventional Spread Foundations

Conventional spread foundations should bear on firm, undisturbed ground, engineered fill, or a combination of these materials, as confirmed by the Geotechnical Engineer or his representative. The spread foundations should be at least 12 inches wide and extend at least 18 inches below the lowest adjacent soil grade. The foundations may be sized using a maximum allowable soil bearing pressure of 2,000 psf, with a one-third increase for wind or seismic forces. Lateral foundation resistance may be determined using the factors presented in the *Slab Foundation* section. The upper 12 inches of subgrade soil should be disregarded when estimating lateral resistance.

Drilled, Cast-in-Place Concrete Piers

Drilled piers should be at least 18 inches in diameter, extend at least five feet below lowest adjacent soil grade, and sized using a maximum allowable end-bearing capacity of 3,000 psf or an allowable skin friction of 250 psf for dead plus live loads, which may be applied over the surface area of the pier. These values may be increased by one-third to include short-term wind or seismic forces. The weight of foundation concrete below grade may be disregarded in sizing computations.

Uplift resistance of drilled pier foundations may be computed using the following resisting forces, where applicable: 1) weight of the pier concrete and, 2) the allowable skin friction of 250 psf applied over the shaft area of the drilled pier. Increased uplift resistance can be achieved by increasing the diameter of the drilled pier or increasing the depth.

The upper 18 inches of skin friction should be neglected for axial capacity or uplift resistance unless the drilled pier is surrounded by slab concrete or pavements for a distance of at least three feet from the edge of the foundation.

Sizing of drilled piers to resist lateral loads can be evaluated using Section 1807.1 of the 2019 CBC. An allowable lateral soil bearing pressure of 200 psf per foot of depth may be used for the CBC parameters S_1 (equation 18-1) and S_3 (equations 18-2 and 18-3). If a deflection of ½ inch at the ground surface is acceptable, this value may be doubled. The upper 18 inches of the subgrade should be neglected when determining lateral resistance.

Reinforcement and concrete should be placed in the pier excavations as soon as possible after excavation is completed to reduce the potential for caving. In no case should the elapsed time between completion of the pier excavation and the start of concrete placement exceed 48 hours. If the piers are designed using the allowable vertical bearing pressure, the bottom of the pier excavations should be free of loose or disturbed soils prior to placement of the concrete. Cleaning of the bearing surface should be verified by the Geotechnical Engineer prior to concrete placement.

If drilled piers are designed using end-bearing capacity and seepage or groundwater is encountered, the water should be pumped from the pier excavation to allow inspection and concrete placement. If water is present during concrete placement, the concrete should be placed using tremie methods from the bottom of the hole, while always keeping the tremie pipe below the surface of the concrete.

Exterior Flatwork

The final subgrade for exterior concrete flatwork (i.e., sidewalks, patios, etc.) should be prepared and constructed in accordance with recommendation provided in the *Subgrade Preparation* section. The zone of non-expansive fill or lime-treated soils can be reduced to at least 1 foot laterally outside the perimeter of the flatwork.

The exterior flatwork concrete should be at least four inches thick and underlain by at least four inches of aggregate base compacted to at least 95 percent relative compaction to provide

stability during slab construction and to protect the soils from disturbance during construction. Consideration should be given to thickening the edges of the slabs at least twice the slab thickness where wheel traffic is expected over the slabs. Expansion joints should be provided to allow for minor vertical movement of the flatwork. Exterior flatwork should be constructed independent of other structural elements by the placement of a layer of felt material between the flatwork and the structural element. The slab designer should determine the final thickness, strength and joint spacing of exterior slab-on-grade concrete. The slab designer should also determine if slab reinforcement for crack control is required and determine final slab reinforcing requirements.

Because of seasonal wetting and drying or irrigation of the soil, isolated differential movement and cracking sometimes forms along the outside edges of exterior flatwork. To reduce this risk, consideration should be given placing lateral cutoffs along the outside edges of the flatwork, doweling joints to reduce tripping hazards, and/or stiffening the flatwork by increasing the concrete thickness and including reinforcing steel.

Areas adjacent to new exterior flatwork should be landscaped to maintain more uniform soil moisture conditions adjacent to and beneath flatwork. Final landscaping plans not allow fallow ground adjacent to exterior concrete flatwork.

Practices recommended by the Portland Cement Association (PCA) for proper placement, curing, joint depth and spacing, construction, and placement of concrete should be followed during exterior concrete flatwork construction.

Gravel Roads

We anticipate the access roads between and around the proposed buildings will need to support light vehicles, delivery trucks and occasional fire trucks. Using a design procedure outlined in the FHWA/AASHTO Gravel Roads Design Manual (2000), we estimate that a gravel section consisting of at least 8 inches of Class 2 aggregate base (gravel) should be suitable for support of the anticipated vehicle loads. If heavier vehicle loads are anticipated, the gravel road section should be re-evaluated.

The gravel section was developed assuming an R-value of 5 for the anticipated clay subgrade soils, allowable rutting of two inches, a terminal serviceability factor of 2.5, and that adequate drainage will be provided. The gravel should be moisture conditioned to at least the optimum moisture content and compacted to at least 95 percent relative compaction.

Based on our experience, consideration should be given to placing a woven geotextile fabric (such as Mirafi 500X or a woven fabric with equivalent tensile strength and filtering characteristics) between the subgrade soils and gravel section. The geotextile fabric would increase the gravel performance by decreasing the amount of lateral deflection (thus reducing rutting and potholing) and providing a separation between the subgrade soil and gravel section that would reduce the potential for clay to migrate into the gravel and weaken the section. As an alternative, the subgrade soils should be lime-treated as discussed in the *Subgrade Preparation* section.

As with all gravel roads, periodic maintenance will be required to repair disturbed areas and maintain the thickness of the gravel section.

Retaining Walls

All retaining walls, including loading dock walls, should be designed to resist the lateral soil pressures of the retained soils. Retaining walls that are fixed/restrained at the top should be capable of resisting an “at-rest” lateral soil pressure equal to an equivalent fluid pressure of 60 psf per foot of the wall height (fully drained conditions).

Retaining walls that will be allowed to slightly rotate about their base (unrestrained at the top or sides) should be capable of resisting an "active" lateral soil pressure equal to an equivalent fluid pressure of 40 psf per foot of wall height (fully drained conditions).

If structural elements, i.e., foundations, traffic areas, etc., encroach within a 1H:1V projection up from the bottom of retaining walls, the retaining walls should account for surcharge loads resulting from those elements. Additionally, retaining walls should also account for surcharge loads resulting from construction equipment, vehicles, palletized materials, etc. that encroach the 1H:1V projection up from the bottom of the below-grade retaining walls. Surcharge loading under the circumstances described above should be evaluated by the retaining wall designer on a case-by-case basis and be included in their design of the walls. The retaining wall designer should evaluate the surcharge load distribution, magnitude of the surcharge resultant force to be applied on the walls, and the location of where the resultant force should be applied on the walls. Surcharge loading on the retaining walls will depend on the specific surcharge load type (e.g., point load, distributed load, etc.) and distance away from the retaining walls.

Retaining wall should be fully drained to prevent the build-up of hydrostatic pressures behind the wall by providing a minimum one-foot-wide drainage blanket of Class 2 permeable material, Caltrans Standard Specification, Section 68-2.02F(3), extending from the base of wall to within

one foot of the top of the wall. The top foot above the drainage layer should consist of compacted on-site or imported engineered fill materials, unless covered by a concrete slab or pavement. Weep holes or perforated rigid pipe, as appropriate, should be provided at the base of the wall to collect accumulated water. Drainpipes, if used, should slope to discharge at no less than a one percent fall to suitable drainage facilities. Open-graded ½ to ¾ inch crushed rock may be used in lieu of the Class 2 permeable material provided the rock and drain-pipe are completely enveloped in an approved non-woven, geotextile filter fabric. An approved geotextile drainage composites, such as MiraDRAIN®, may be used in lieu of the drain rock layer. If used, geocomposite drain panels should be installed in accordance with the manufacturer's recommendations.

If efflorescence (discoloration of the wall face) or moisture/water penetration of the retaining walls is not acceptable, moisture/water-proofing measures should be applied to the back face of the walls. A moisture/water-proofing specialist should be consulted to determine specific protection measures against moisture/water penetration through the walls.

Structural backfill materials for retaining walls within a 1H:1V projection from the bottom of the walls (other than the drainage layer) should consist of imported, granular material or native sand and silt that does not contain significant quantities of rubbish, rubble, organics, and rock over four inches in size. Clay, pea gravel and/or crushed rock should not be used for structural wall backfill. Structural wall backfill should be placed, moisture conditioned and compacted in accordance with recommendations provided in the *Engineered Fill* section of this report.

Foundations for support of retaining or below grade walls should be designed using the appropriate foundation design parameters provided in the *Shallow Spread Foundations* section included in this report.

Site Drainage

Because of expansive soil concerns, the performance of foundations and concrete slabs relies on how well storm runoff and irrigation water drains from the site. Final site grading should be accomplished to provide positive drainage of surface water away from the buildings and prevent ponding of water adjacent to foundations, slabs or pavements. The subgrade adjacent to the buildings should be sloped away from the building at a minimum two percent gradient for at least five feet, where possible. All roof drains should be connected to non-perforated rigid pipes, which in-turn are connected to available drainage features that convey water away from the buildings or discharging the drainage onto paved or hard surfaces that slope away from the

buildings. Landscape berms, if planned, should not be constructed in such a manner as to promote drainage toward the buildings.

Drought Considerations

The State of California can experience extended periods of severe drought conditions. Desiccated clay can shrink and crack and the ability for landowners to use irrigation as a means for maintaining landscape vegetation and soil moisture can be inhibited for unpredictable periods of time. For this reason, landscape and hardscape systems for this development should be carefully planned to prevent the desiccation of soils under and near foundations and slabs. Trees with invasive shallow root systems should be avoided. No trees or large shrubs that could remove soil moisture during dry periods should be planted within five feet of any foundation or slab. Fallow ground adjacent to foundations must be avoided.

Geotechnical Engineering Construction Observation Services

Wallace-Kuhl & Associates be retained to review the final plans and specifications to verify that the intent of our recommendations has been implemented in those documents.

Site preparation should be accomplished in accordance with the recommendations of this report. Geotechnical testing and observation during construction is considered a continuation of our geotechnical engineering investigation. Wallace-Kuhl & Associates should be retained to provide testing and observation services during site clearing, preparation, earthwork, and foundation construction at the project site to verify compliance with this geotechnical report and the project plans and specifications, and to provide consultation as required during construction. These services are beyond the scope of work authorized for this study; however, we can submit a proposal to provide these services upon request.

In the event that Wallace-Kuhl & Associates is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide these services should indicate in writing that they agree with the recommendations of this report, or prepare supplemental recommendations as necessary. A final report by the Geotechnical Engineer providing construction testing services should be prepared upon completion of the project.

LIMITATIONS

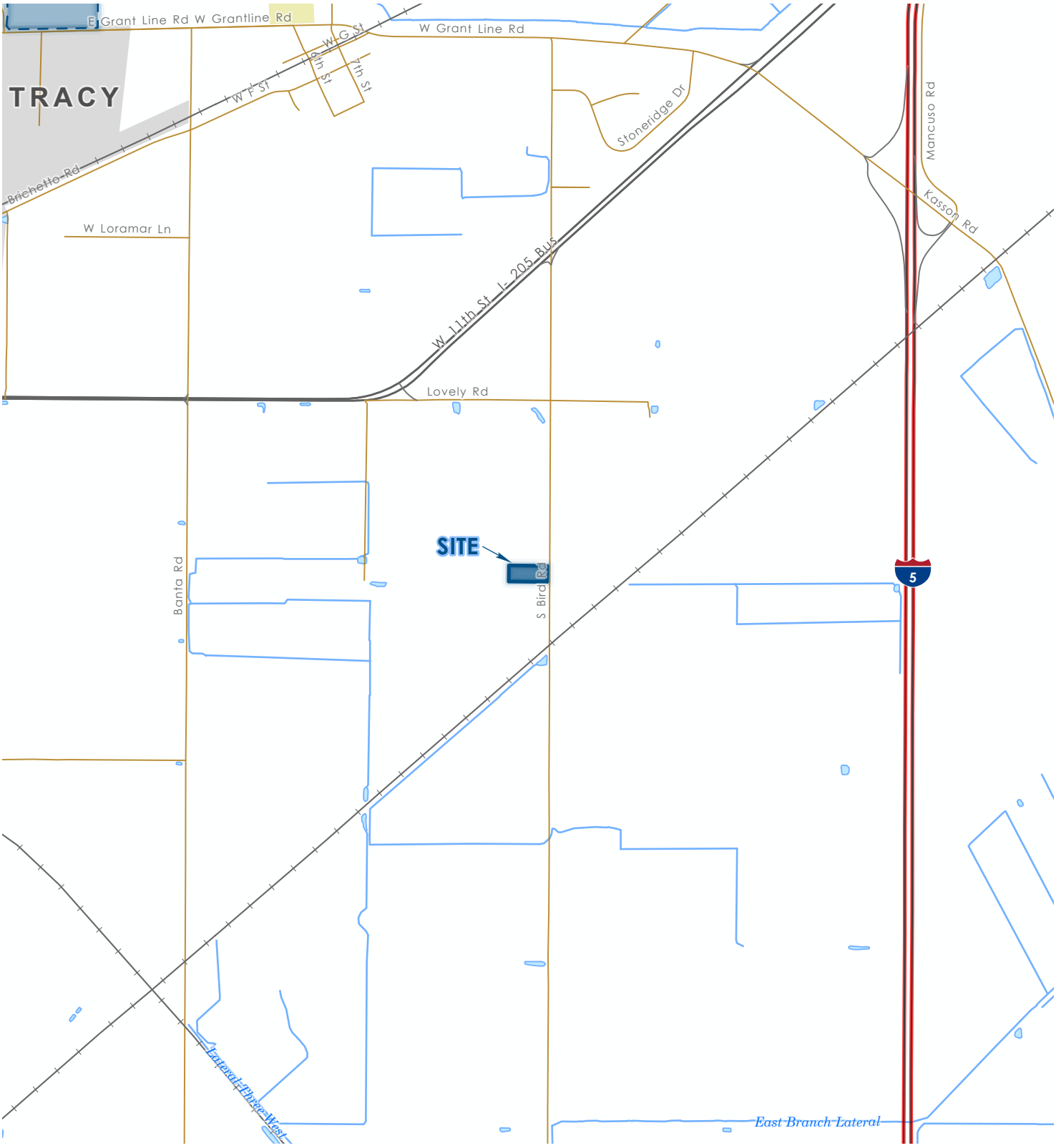
Our recommendations are based upon the information provided regarding the proposed project, combined with our analysis of site conditions revealed by the previous field explorations and associated laboratory testing programs. We have used engineering judgment based upon the information provided and the data generated from our study. This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of the project at the time the report was prepared. No warranty, either express or implied, is provided.

If the proposed construction is modified or re-sited; or, if it is found during construction that subsurface conditions differ from those we encountered at the previous exploration locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.

We emphasize that this report is applicable only to the proposed construction and the investigated site, and should not be utilized for construction on any other site. The conclusions and recommendations of this report are considered valid for a period of two years. If design is not completed and construction has not started within two years of the date of this report, the report must be reviewed and updated, if necessary.

Wallace - Kuhl & Associates

Gary H. Gulseth, GE
Senior Engineer



Spatial Data provided by Esri, NOAA, and USGS.
Projection: NAD 1983 2011 StatePlane California III FIPS 0403 Ft US

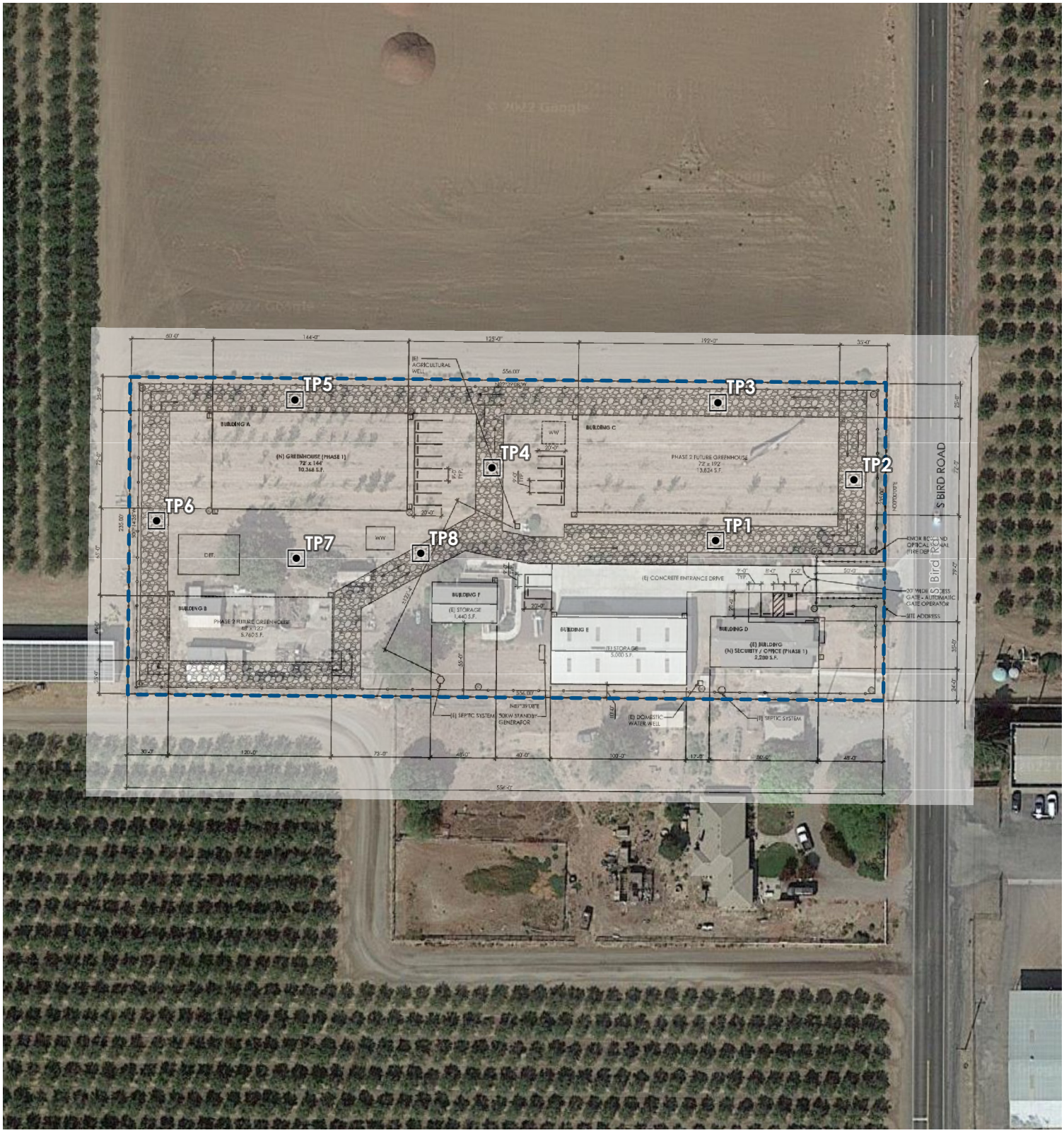
WallaceKuhl & Associates
A Universal Engineering Sciences Company

VICINITY MAP

GREEN HOUSE FACILITY

Tracy, California

FIGURE	1
DRAWN BY	RWO
CHECKED BY	LAH
PROJECT MGR	GHG
DATE	04/2022
4730.2200005.0000	



Approximate Test Pit Location

Approximate Site Boundary

N

0 50 100

Feet

Aerial imagery provided by Esri.
Site Plan adapted from a drawing provided by Pressey & Associates, dated 11/04/21.
Projection: NAD 1983 2011 StatePlane California III FIPS 0403 Ft US

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SITE PLAN

GREEN HOUSE FACILITY

Tracy, California

FIGURE	2
DRAWN BY	RWO
CHECKED BY	LAH
PROJECT MGR	GHG
DATE	04/2022
4730.2200005.0000	

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP1

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, very stiff, sandy lean CLAY (CL); moist, medium plastic						
					TP1 (1'-3')				PP=3.75 EI=38
	5		light reddish brown						
			Light yellowish brown, clayey SAND (SC); moist, fine grained						
					TP1 (6'-8')				
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 3

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP2

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, very stiff, sandy lean CLAY (CL); medium plastic, moist		TP2 (0'-2')				CR
					TP2 @ 2'-2½'		10	94	PP=4.25
			Light yellowish brown, clayey SAND (SC); moist, low plastic, fine to medium grained						
	5				TP2 (3'-5')				
			Dark brown, sandy lean CLAY (CL); medium plastic, moist						
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 4

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP3

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, very stiff, sandy lean CLAY (CL); low to medium plastic, moist		TP3 (0'-3')				PP=4.25 LL=29 PI=16 EI=52
	5		Light yellowish brown, clayey SAND (SC); moist, low plastic, fine to medium grained		TP3 (6'-8')				
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 5

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP4

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, sandy lean CLAY (CL); low to medium plastic, moist						
					TP4 @ 2'-2½'		10	96	
					TP4 (0'-5')				FC=50%
	5								
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 6

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP5

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, clayey SAND (SC); low plastic, moist, fine to medium grained		TP5 (0'-5')				
	5				TP5 @ 4'-4½'		7	96	
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 7

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP6

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, stiff, sandy lean CLAY (CL); medium plastic, moist						
			Light brown, clayey SAND (SC); low plastic, moist, fine to medium grained		TP6 (0'-5')				PP=2.5
					TP6 @ 3'-3½;		7	96	FC=48%
	5								
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 8

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP7

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, very stiff, sandy lean CLAY (CL); medium plastic, moist, lenses of fine to very coarse sand		TP7 (0'-1½')				PP=3.75
			Yellowish brown, clayey SAND (SC); low plastic, moist, fine to coarse grained		TP7 @ 2'-2½'		10	105	
					TP7 (2'-4')				
					TP7 @ 4'-4½'				
	5		Light gray, poorly graded SAND with silt and gravel (SP-SM); moist, fine to coarse grained		TP7 (5'-5½')				
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 9

Project: Greenhouse Facility
Project Location: Tracy, California
WKA Number: 4730.2200005.0000

LOG OF TEST PIT TP8

Sheet 1 of 1

Date(s) Drilled	**3/17/22**	Logged By	**LAH/AMD**	Checked By	**GHG**
Drilling Method	**Backhoe**	Drilling Contractor	**Dynamic Generation Services**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**John Deere 310JS**	Diameter(s) of Hole, inches	**18**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Hand Sampler**	Drill Hole Backfill	**Soil Cuttings**
Remarks				Driving Method and Drop	**10 lb. Slide Hammer**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, sandy lean CLAY (CL); medium plastic, moist		TP8 (0'-2')				
			brown, low to medium plastic						
			Brown, clayey SAND (SC); moist, fine to coarse grained						
	5		with seams of lean clay						
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

BORING LOG 4730.2200005.0000 - GREENHOUSE FACILITY.GPJ WKA.GDT 4/6/22 10:26 AM

Wallace Kuhl & ASSOCIATES

FIGURE 10

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487)

MAJOR DIVISIONS		USCS[4]	CODE	CHARACTERISTICS
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS[1] (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well-graded gravels or gravel - sand mixtures, trace or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, trace or no fines
		GM		Silty gravels, gravel - sand - silt mixtures, containing little to some fines[2]
		GC		Clayey gravels, gravel - sand - clay mixtures, containing little to some fines[2]
	SANDS[1] (50% or more of coarse fraction < no. 4 sieve size)	SW		Well-graded sands or sand - gravel mixtures, trace or no fines
		SP		Poorly graded sands or sand - gravel mixtures, trace or no fines
		SM		Silty sands, sand - gravel - silt mixtures, containing little to some fines[2]
		SC		Clayey sands, sand - gravel - clay mixtures, containing little to some fines[2]
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts, gravely silts, and sandy silts that are non-plastic or with low plasticity
		CL		Inorganic lean clays, gravelly lean clays, sandy lean clays of low to medium plasticity[3]
		OL		Organic silts, organic lean clays, and organic silty clays
	SILTS & CLAYS LL ≥ 50	MH		Inorganic elastic silts, gravelly elastic silts, and sandy elastic silts
		CH		Inorganic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
		OH		Organic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
HIGHLY ORGANIC SOILS		PT		Peat
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Drive Sampler: no recovery

= SPT Sampler

= Initial Water Level

= Final Water Level

— — — = Estimated or gradational material change line

——— = Observed material change line

Laboratory Tests

CR = Corrosion
PI = Plasticity Index
EI = Expansion Index
UCC = Unconfined Compression Test (TSF)
TR = Triaxial Compression Test
GR = Gradational Analysis (Sieve/Hydro)
FC = Wash (Fines Content)
PP = Pocket Penetrometer Test (TSF)
PID = Photo Ionization Detector Test (PPM)
RV = Resistance ("R") Value

REF = Refusal (>50 blows in 6 inches)

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS (b)	Above 12"	Above 300
COBBLES (c)	12" to 3"	300 to 75
GRAVEL (g) coarse fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	75 to 4.75 75 to 19 19 to 4.75
SAND coarse medium fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.075 4.75 to 2.00 2.00 to 0.425 0.425 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

Trace - Less than 5 percent
Few - 5 to 10 percent
Little - 15 to 25 percent
Some - 35 to 45 percent
Mostly - 50 to 100 percent

* Percents as given in ASTM D2488

NOTES:

1. Coarse grained soils containing 5% to 12% fines, use dual classification symbol (ex. SP-SM).
2. If fines classify as CL-ML (4<PI<7), use dual symbol (ex. SC-SM).
3. Silty Clays, use dual symbol (CL-ML).
4. Borderline soils with uncertain classification list both classifications (ex. CL/ML).

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UNIFIED SOIL CLASSIFICATION SYSTEM

GREENHOUSE FACILITY

Tracy, California

FIGURE	11
DRAWN BY	RWO
CHECKED BY	LAH
PROJECT MGR	GHG
DATE	04/2022
4730.2200005.0000	

APPENDIX A

A. GENERAL INFORMATION

The geotechnical engineering study for the Greenhouse Facility, located at 24707 South Bird Road near Tracy, California, was authorized by Mr. Darren Mangrum on March 9, 2022. Authorization was for a study as described in our proposal dated March 9, 2022, sent to our client Dynamic Generator Service, Inc., at the same address near Tracy, California; telephone (209) 650-0085.

B. FIELD EXPLORATION

The subsurface soil conditions at the project site were explored on March 17, 2022, by excavating eight test pits using a tire-mounted backhoe to depths of about eight feet below the existing ground surface (bgs) using a John Deere 310JS backhoe equipped with an 18-inch bucket. The test pit locations are shown in Figure 2.

During the test pit excavations, a field engineer with our firm collected representative soil samples and visually classified the soil recovered in accordance with Unified Soil Classification System (USCS) in general conformance with ASTM D2487. A pocket penetrometer was used to evaluate the consistency of the fine-grained (cohesive) soils exposed in the sidewall of the test pits. The discrete soil samples recovered were placed in plastic bags and sealed to preserve the natural moisture contents. In addition, representative bulk samples of the subgrade soils were collected and retained in plastic bags. All samples were taken to our laboratory for additional soil classification and selection of samples for testing.

The Logs of Test Pits containing descriptions of the soils encountered in each of the test pits excavated for this study are presented on Figures 3 through 10. A Legend explaining the Unified Soil Classification System (ASTM D2487) and the symbols used on the logs is contained in Figure 11.

C. LABORATORY TESTING

Selected undisturbed samples of the soils were tested to determine dry unit weight (ASTM D2937), natural moisture content (ASTM D2216), and percent soil passing the No. 200 sieve. The results of these tests are included in the test pit logs at the depth each sample was obtained.

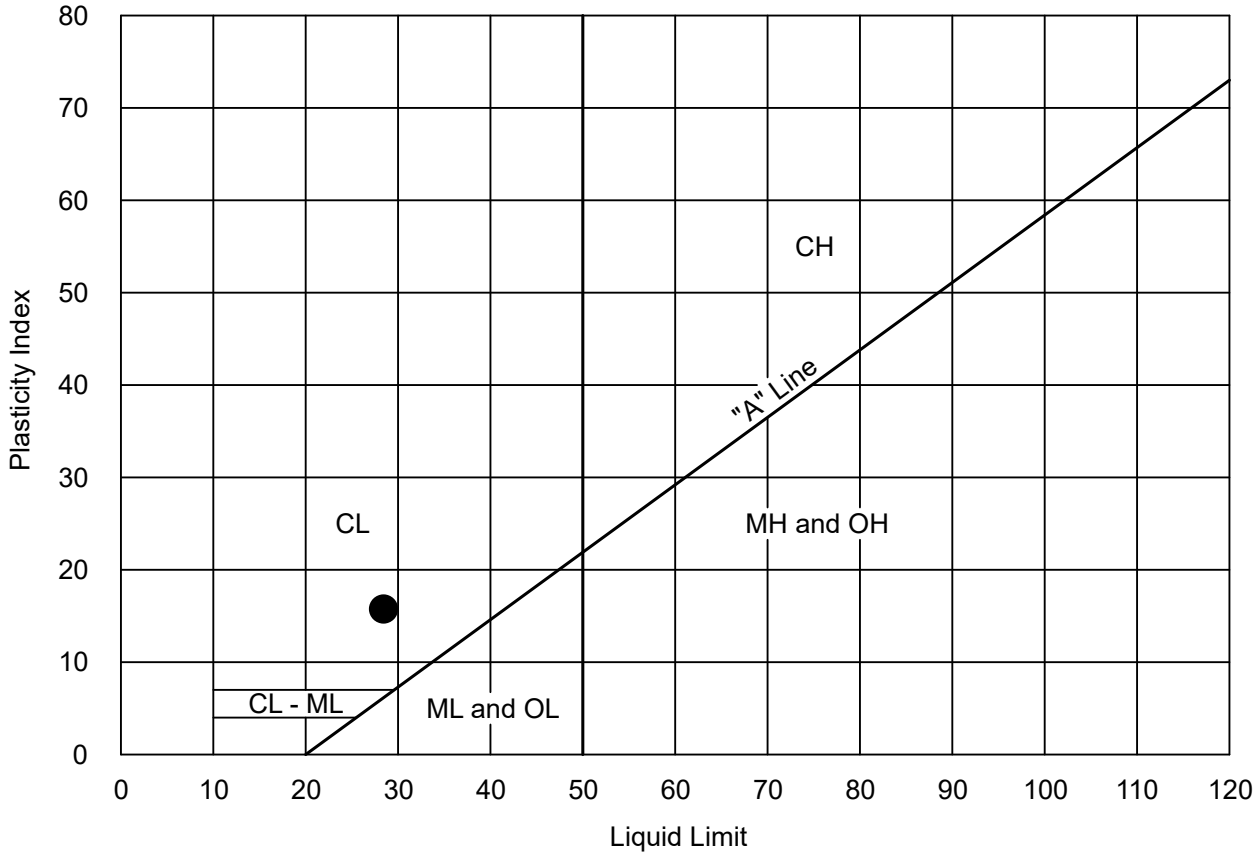
One soil sample was tested to determine the liquid limit, plastic limit and plasticity index of the soil using the Atterberg Limits test (ASTM D4318). The results of the test are presented in Figure A1 and included in the test pit log.

Two bulk samples of the near-surface fine-grained (plastic) soil were tested to estimate the expansion potential of the soils using the Expansion Index test (ASTM D4829) with results presented in Figures A3 and A3 and included in the test pit logs.

One selected soil sample of near-surface soil was submitted to Sunland Analytical of Rancho Cordova, California, to determine the soil pH and minimum resistivity (California Test 643), Chloride concentration (California Test 422m), and Sulfate concentration (California Test 417, ASTM D516m). The results of these tests are presented in Figure A4.

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	TP3	0'-3.0'	---	29	16	---	CL

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ATTERBERG LIMITS

GREENHOUSE FACILITY

Tracy, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	LAH
PROJECT MGR	GHG
DATE	04/2022
4730.2200005.0000	

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Brown, sandy lean clay

LOCATION: TP1

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
1’ - 3’	9.7	19.2	109	**38**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	**Low**
51 - 90	Medium
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

GREENHOUSE FACILITY

Tracy, California

FIGURE	A2
DRAWN BY	RWO
CHECKED BY	LAH
PROJECT MGR	GHG
DATE	04/2022
4730.2200005.0000	

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Brown, sandy lean clay

LOCATION: TP3

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0’ - 3’	10.7	21.7	108	**52**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	**Medium**
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

GREENHOUSE FACILITY

Tracy, California

FIGURE	A3
DRAWN BY	RWO
CHECKED BY	LAH
PROJECT MGR	GHG
DATE	04/2022
4730.2200005.0000	

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/25/2022
Date Submitted 03/21/2022

To: Lauren Herbert
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 4730.2200005.0000 Site ID : TP2 (0-2).
Thank you for your business.

* For future reference to this analysis please use SUN # 86968-180939.

EVALUATION FOR SOIL CORROSION

Soil pH	7.34	
Minimum Resistivity	1.21 ohm-cm (x1000)	
Chloride	34.9 ppm	00.00349 %
Sulfate	37.4 ppm	00.00374 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & Associates — A Universal Engineering Sciences Company	**CORROSION TEST RESULTS** GREENHOUSE FACILITY Tracy, California	FIGURE A4 DRAWN BY RWO CHECKED BY LAH PROJECT MGR GHG DATE 04/2021 4730.2200005.0000

ATTACHMENT G

GRADING PLANS

IMPROVEMENT PLANS

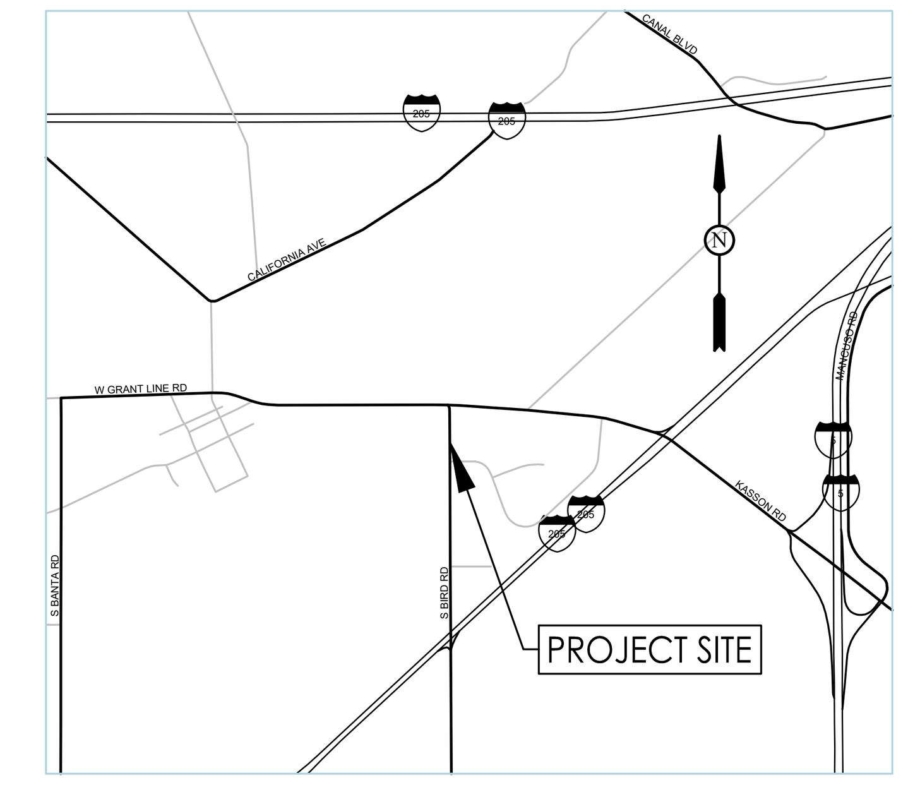
24707 SOUTH BIRD ROAD PROPERTY

SAN JOAQUIN COUNTY, CALIFORNIA

DEVELOPER/OWNER

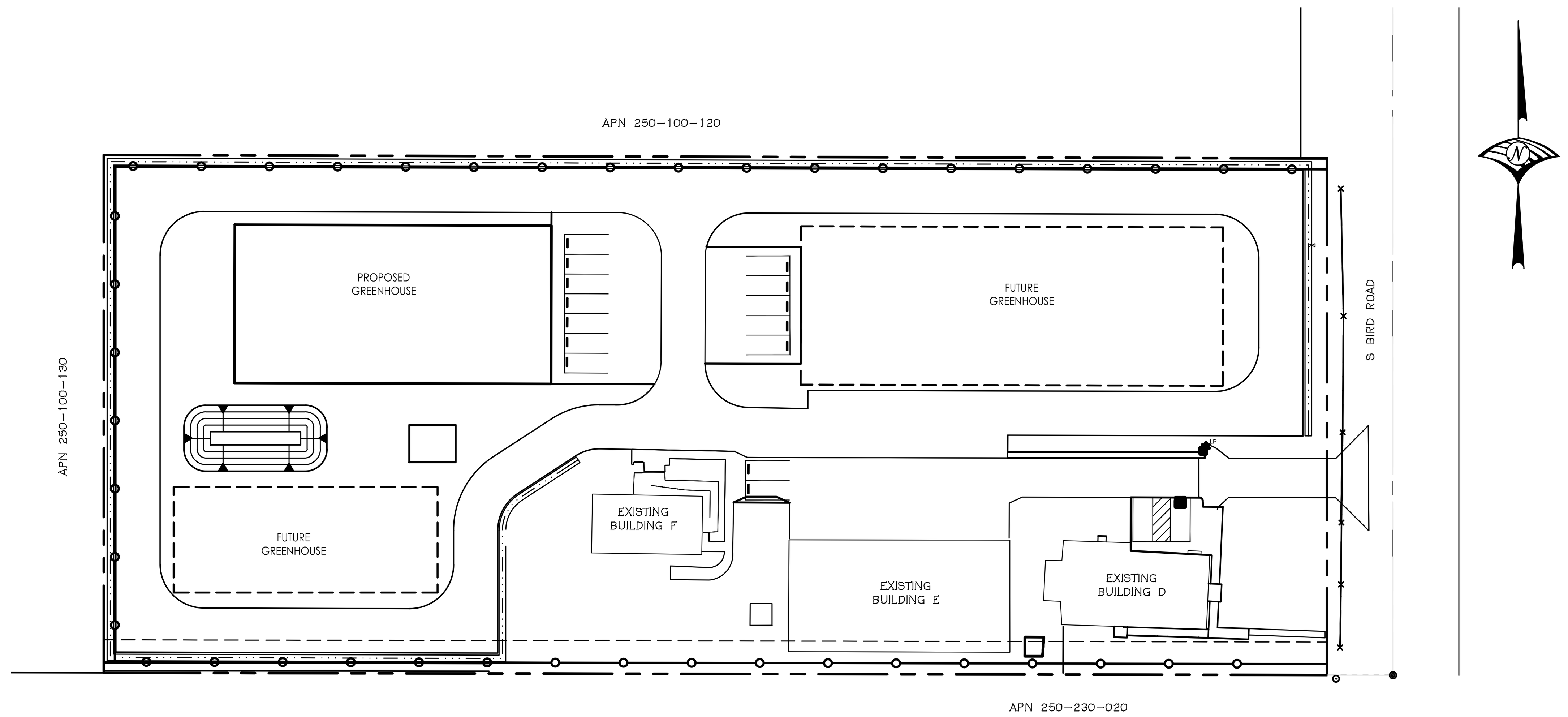
CIVIL ENGINEER
WOOD RODGERS, INC.
4670 WILLOW ROAD, SUITE 125
PLEASANTON, CA 94588
(925) 847-1547
CONTACT: MARY JANE KABALIN, P.E.

GEOTECHNICAL ENGINEER



VICINITY MAP
NTS

SHEET INDEX



SITE PLAN/SHEET INDEX
SCALE: 1"=50'

LEGEND

PROPOSED		EXISTING
	PROJECT BOUNDARY	
	CENTERLINE	
	EASEMENT LINE	
	PROPERTY LINE	
	RIGHT OF WAY	
	GUARDRAIL	
	FENCE	
	CURB AND GUTTER	
	SIDEWALK	
	SEWER LINE	8"SS
	SEWER MANHOLE	
12"SD	STORM DRAIN	12"SD
	DRAIN MANHOLE	
	DRAIN INLET	
8"W	WATER MAIN	8"W
	WATER VALVE	
	BLOW OFF VALVE	
	AIR RELEASE VALVE	
	FIRE HYDRANT	
350	CONTOURS	350
2%	SLOPE	
	AC PAVEMENT	
	UTILITY POLE	
	OVERHEAD UTILITIES	E(OH)
	GAS	GAS
	TYPE 'A' STREET LIGHT	
	INTERSECTION LIGHTING	

ABBREVIATIONS

AB	AGGREGATE BASE	HB	HEADERBOARD	R	RADIUS
AC	ASPHALT CONCRETE	HGL	HYDRAULIC GRADE LINE	RD	ROAD
AD	AREA DRAIN	HGL^{10}	HYDRAULIC GRADE LINE-10 YEAR	RCP	REINFORCED CONCRETE PIPE
ARV	AIR RELEASE VALVE	HGL^{100}	HYDRAULIC GRADE LINE-100 YEAR	RET	RETURN
BC	BEGIN CURVE	HP	HIGH POINT	RIM	RIM ELEVATION
BEG	BEGIN	ID	INNER DIAMETER	RT	RIGHT
BM	BENCHMARK	INST	INSTALL	R/W	RIGHT OF WAY
BOC	BACK OF CURB	INV	INVERT	(S)	SANITARY SEWER
BOV	BLOW-OFF VALVE	IRR	IRRIGATION	S	SLOPE
BVS	BEGIN VERTICAL CURVE	JT	JOINT TRENCH	SCH	SCHEDULE
BW	BOTTOM OF WALL	LF	LINEAR FEET	SD	STORM DRAIN
CATV	CABLE TELEVISION	LG	LIP OF GUTTER	SDMH	STORM DRAIN MANHOLE
CB	CATCH BASIN	LOL	LAYOUT LINE	SEC	SECOND
CBC	CALIFORNIA BUILDING CODE	LP	LOW POINT	SHT	SHEET
CFS	CUBIC FEET PER SECOND	LT	LEFT	SL	STREET LIGHT
C&A	CURB AND APRON	MAX	MAXIMUM	SNS	STREET NAME SIGN
C&G	CURB AND GUTTER	MH	MANHOLE	SO	SIDE OPENING
CG&SW	CURB GUTTER AND SIDEWALK	MIN	MINIMUM	SS	SANITARY SEWER
CI	CURB INLET	MP	MIDPOINT	SSLH	SANITARY SEWER LAMPHOLE
CIPP	CAST-IN-PLACE PIPE	MTC	MEDIAN TOP OF CURB	SSMH	SANITARY SEWER MANHOLE
CO	CLEAN OUT	MTD	MEDIAN TOP OF DIKE	ST	STREET
CR	CURB RETURN	NDT	NON-DESTRUCTIVE TEST	STA	STATION
CT	COURT	NIC	NOT IN CONTRACT	STD	STANDARD
CY	CUBIC YARD	NTC	NORMAL TOP OF CURB	S/W	SIDEWALK
CL	CENTERLINE	NTS	NOT TO SCALE	T	TELEPHONE
D	STORM DRAIN	OC	ON CENTER	TBO	TEMPORARY BLOW OFF VALVE
DET	DETAIL	OD	OUTER DIAMETER	TC	TOP OF CURB
DR	DRIVE	OG	ORIGINAL GROUND	TD	TOP OF DIKE
DIA	DIAMETER	PAE	PUBLIC ACCESS EASEMENT	TEMP	TEMPORARY
DIP	DUCTILE IRON PIPE	PAVE	PAVEMENT ELEVATION	TOT	TOTAL
D/W	DRIVEWAY	PKWY	PARKWAY	TRC	TOP OF ROLLED CURB
E	ELECTRIC	PL	PROPERTY LINE	TYP	TYPICAL
EA	EACH	PI	POINT OF INTERSECTION	TW	TOP OF WALL
EC	END CURVE	PIVC	POINT OF INTERSECTION VERTICAL CURVE	UBC	UNIFORM BUILDING CODE
EL	ELEVATION	PRC	POINT OF REVERSE CURVE	UL	UNDERWRITERS LABORATORY
EP	EDGE OF PAVEMENT	PRVC	POINT OF REVERSE VERTICAL CURVE	V	VELOCITY
ESMT	EASEMENT	PRV	PRESSURE RELEASE VALVE	VC	VERTICAL CURVE
EVC	END OF VERTICAL CURVE	PUE	PUBLIC UTILITY EASEMENT	VCP	VITRIFIED CLAY PIPE
EX	EXISTING	PVC	POLYVINYL CHLORIDE	VERT	VERTICAL
FF	FINISHED FLOOR	PVMNT	PAVEMENT	W	WATER LINE
FG	FINISHED GRADE	Q^{10}	FLOW-10 YEAR	WC	WHEEL CHAIR
FH	FIRE HYDRANT	Q^{100}	FLOW-100 YEAR	WM	WATER METER
FI	FIELD INLET			WS	WATER SERVICE
FL	FLOW LINE			W/	WITH
FS	FIRE SERVICE				
FT	FOOT				
FTC	FUTURE TOP OF CURB				
F/C	FACE OF CURB				
G	GAS				
GA	GAGE OR GAUGE				
GB	GRADE BREAK				
GR	GRATE				
GV	GAS VALVE				

Know what's below. Call 811 before you dig.

WOOD RODGERS
REGISTERED PROFESSIONAL ENGINEER
MARY JANE KABALIN
CIVIL
STATE OF CALIFORNIA
PRELIMINARY
DATE:

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3301 C St. Bldg. 100-B TEL 916.341.7760
Sacramento, CA 95816 FAX 916.341.7767

DATE: MAY 2022
SCALE: H: 1"=40' V: 1"=4'
DRAWN BY: LR GMZ
DESIGNED BY: M.J. KABALIN
CHECKED BY:

NO.	DESCRIPTION	ENGR INIT.	BY	AGENCY APPROVED	DATE

4171.24707 - 24707 SOUTH BIRD ROAD PROPERTY

IMPROVEMENT PLANS FOR
24707 SOUTH BIRD ROAD PROPERTY
TITLE SHEET
SAN JOAQUIN COUNTY CALIFORNIA

PROJECT NO. 4171.24707
DRAWING C0.0
SHT 1 OF 8

WOOD RODGERS GENERAL NOTES

1. WOOD RODGERS, INC. HAS EXERCISED A REASONABLE AND ACCEPTABLE STANDARD OF CARE IN THE PREPARATION OF THESE PLANS. HOWEVER, THE DESIGN PROCESS INCLUDES ACTIVITIES OCCURRING AFTER PLAN SIGNATURE. THESE ACTIVITIES INCLUDE CALCULATION, PLAN CHECK AND VERIFICATIONS DURING CONSTRUCTION. SHOULD PERSONS OTHER THAN WOOD RODGERS INC. PERFORM THE CONSTRUCTION STAKING OPERATIONS, THEY SHALL INDEMNIFY THE WOOD RODGERS, INC. FROM ANY DAMAGES RESULTING FROM FAILURE TO PERFORM THESE TASKS OR ANY EXPENSE OR DAMAGE RESULTING FROM OMISSION OR ERROR CONTAINED IN THE PLANS WHICH WOULD REASONABLY HAVE BEEN DISCOVERED AND CORRECTED BY WOOD RODGERS, INC.

2. SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT WOOD RODGERS, INC. AT (925) 847–1547. ANY REVISIONS REQUIRE PUBLIC WORKS OR BUILDING DEPARTMENT APPROVAL BEFORE PROCEEDING WITH REVISED PLANS.

3. PRIOR TO ANY CORRECTIVE ACTION BY THE CONTRACTOR WHICH IS NECESSARY DUE TO ALLEGED STAKING ERROR, THE CONTRACTOR SHALL NOTIFY WOOD RODGERS, INC. FOR RESTAKING AND VERIFICATION OF PREVIOUS STAKING. SHOULD ANY CORRECTIVE WORK BE DONE PRIOR TO NOTIFICATION, OR IF THE ORIGINAL STAKING IS DONE BY OTHERS, WOOD RODGERS, INC. ASSUMES NO LIABILITIES FOR THE COSTS INCURRED FOR THIS WORK. WHERE IT HAS BEEN DETERMINED THAT ANY CORRECTIVE ACTION WILL REQUIRE FINANCIAL PARTICIPATION BY WOOD RODGERS, INC., THAT AMOUNT SHALL BE AGREED TO BY WOOD RODGERS, INC. IN WRITING PRIOR TO TAKING CORRECTIVE ACTION. FAILURE TO OBTAIN WRITTEN ACCEPTANCE BY WOOD RODGERS, INC. WILL NEGATE ALL REQUIREMENTS OF OUR FINANCIAL ASSISTANCE.

4. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

5. EXCAVATION SHALL BE ADEQUATELY SHORED, BRACED AND SHEETED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM LACK OF ADEQUATE SHORING, BRACING AND SHEETING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL EFFECT NECESSARY REPAIRS OR RECONSTRUCTION AT HIS OWN EXPENSE. WHERE THE EXCAVATION FOR A CONDUIT TRENCH, STRUCTURE AND/OR BORING OR JACKING PIT IS REQUIRED THE CONTRACTOR SHALL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY OF THE STATE OF CALIFORNIA. THE CONTRACTOR SHALL ALWAYS COMPLY WITH OSHA REQUIREMENTS.

6. ALL APPLICABLE FEES TO BE PAID AND PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR BEFORE COMMENCEMENT OF CONSTRUCTION.

7. ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS" OF THE U.S. DEPARTMENT OF LABOR, AND WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS' "CONSTRUCTION SAFETY ORDERS".

8. THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTORS' AND SUBCONTRACTORS' COMPLIANCE WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS" OF THE U.S. DEPARTMENT OF LABOR OR WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS, "CONSTRUCTION SAFETY ORDERS".

9. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF THE DIVISION OF INDUSTRIAL SAFETY PERTAINING TO "CONFINED SPACE". ANY MANHOLE, CULVERT, DROP INLET OR TRENCH (WHICH COULD CONTAIN AIR), THAT IS NOT READILY VENTILATED, MAY BE CONSIDERED A "CONFINED SPACE".

10. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS AT THE JOB SITE FOR PUBLIC WORKS, AMBULANCE, POLICE AND FIRE DEPARTMENTS. CONTRACTOR SHALL POST SIGN AT JOB SITE BEARING OWNER'S NAME AND SITE ADDRESS. PROPERTY CORNERS SHALL CLEARLY BE MARKED.

11. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY AND TO MAINTAIN TRAFFIC CONTROL AT ALL TIMES.

12. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR ANY PRIVATE PROPERTY ADJACENT TO THE WORK AREA THROUGHOUT THE PERIOD OF CONSTRUCTION.

13. PRIOR TO COMMENCEMENT OF ANY WORK ON ADJACENT PROPERTY, THE OWNER SHALL OBTAIN WRITTEN PERMISSION FROM AFFECTED PROPERTY OWNERS.

14. ENCROACHMENT PERMITS ARE REQUIRED FOR WORK WITHIN THE EXISTING PUBLIC RIGHT–OF–WAY. ENCROACHMENT PERMITS SHALL BE OBTAINED BY THE CONTRACTOR.

15. ALL EXISTING ELEVATIONS SHOWN ARE AS MEASURED IN THE FIELD, UNLESS OTHERWISE NOTED.

16. THE CONTRACTOR SHALL CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY WOOD RODGERS, INC. IN WRITING IMMEDIATELY OF ANY DIFFERENCES IN TOPOGRAPHY FROM THAT SHOWN ON THIS PLAN WHICH MAY REQUIRE CHANGES IN DESIGN.

17. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST THREE WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.), AT 811. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT UNIT PRICE.

18. EXISTING UTILITIES SHOWN ARE TO BE PROTECTED IN PLACE OR RELOCATED PER UTILITY PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF EXITING UTILITIES.

19. THE REMOVAL OF OBSTRUCTIONS (POWER POLES, FENCES, RETAINING WALLS, TREES, STRUCTURES, PIPELINES, PAVING, ETC.) SHALL BE AT THE CONTRACTOR'S EXPENSE.

20. ALL RECYCLABLE MATERIALS SHALL BE PROCESSED AND STORED AT THE SITES DESIGNATED ON THE PLANS APPROVED BY THE ENGINEER. ARRANGEMENTS SHALL BE MADE WITH WEST VALLEY DISPOSAL CO. FOR COLLECTION.

21. EXCESS MATERIAL SHALL BE PLACED AT AN APPROVED FILL SITE.

22. ALL STREETS SHALL BE SWEPT AND VACUUMED IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN FOR THE DURATION OF THE PROJECT WORK.

23. SURPLUS EXCAVATED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF–SITE IN A MANNER APPROVED BY THE MHCSD ENGINEER. CONTRACTOR SHALL OBTAIN OFF–HAUL ROUTE APPROVAL FROM THE MHCSD ENGINEER A MINIMUM OF 14 CALENDAR DAYS PRIOR TO THE START OF EXCAVATION WORK.

24. DURING GRADING OPERATIONS, THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES ON SITES AND ON HAUL ROUTES.

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AN AIRBORNE DUST NUISANCE FROM THE CONSTRUCTION SITE BY WATERING AND/OR TREATING THE SITE IN SUCH A MANNER TO LIMIT THE EXTENT OF AIRBORNE DUST PARTICLES.

26. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE SITE OR SURROUNDING AREA DUE TO DUST OR EROSION, RESULTING FROM WORK DONE BY THE CONTRACTOR.

27. THE CONTRACTOR SHALL COMPLY WITH ALL RULES, REGULATIONS AND PROCEDURES OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) FOR MUNICIPAL, CONSTRUCTION AND INDUSTRIAL ACTIVITIES AS PROMULGATED BY THE CALIFORNIA STATE WATER RESOURCE CONTROL BOARD OR ANY OF ITS REGIONAL WATER QUALITY CONTROL BOARDS. REFER TO THE PROJECT SWPPP.

28. IF ARCHEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK WITHIN 30 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST THE APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.

29. IT IS THE DEVELOPER'S RESPONSIBILITY TO COMPLETE ALL THE DEFERRED WORKS PER PLANS AND PER PUBLIC WORKS DIRECTOR'S DIRECTION.

Know what's below. Call 811 before you dig.

PRELIMINARY

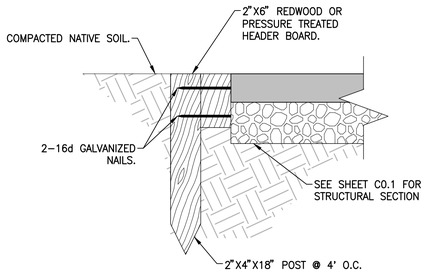
DATE:

IMPROVEMENT PLANS FOR
24707 SOUTH BIRD ROAD PROPERTY
GENERAL NOTES
SAN JOAQUIN COUNTY CALIFORNIA

DATE: MAY 2022
SCALE: H: 1"=40' V: 1"=4'
DESIGNED BY: M.J. KABALIN

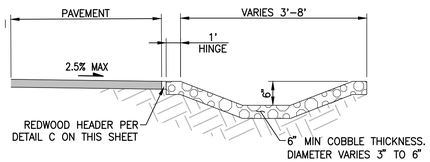
PROJECT NO. 4171.24707
DRAWING C0.1
SHT 2 OF 8

4171.24707 – 24707 SOUTH BIRD ROAD PROPERTY



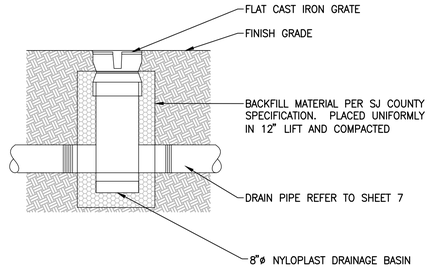
NOT TO SCALE

A | REDWOOD HEADER DETAIL



NOT TO SCALE

B | COBBLE SWALE



NOT TO SCALE

C | AREA DRAIN

NOT TO SCALE

D

NOT TO SCALE

E

NOT TO SCALE

F

NOT TO SCALE

G

NOT TO SCALE

H

Know what's below. Call 811 before you dig.

WOOD RODGERS

REGISTERED PROFESSIONAL ENGINEER MARY JANE KABALIN No. CIVIL STATE OF CALIFORNIA

PRELIMINARY

DATE:

NO.	DESCRIPTION	ENGR INIT	BY	AGENCY APPROVED	DATE

4171.24707 - 24707 SOUTH BIRD ROAD PROPERTY

DATE: MAY 2022
SCALE: H: 1"=40' V: 1"=4'
DRAWN BY: LR, GM, KEZ
DESIGNED BY: M.J. KABALIN
CHECKED BY:

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3301 C St, Bldg. 100-B Tel 916.341.7760
Sacramento, CA 95816 Fax 916.341.7767

IMPROVEMENT PLANS FOR
24707 SOUTH BIRD ROAD PROPERTY
DETAILS
SAN JOAQUIN COUNTY CALIFORNIA

PROJECT NO. 4171.24707

DRAWING C1.0

SHT 3 OF 8

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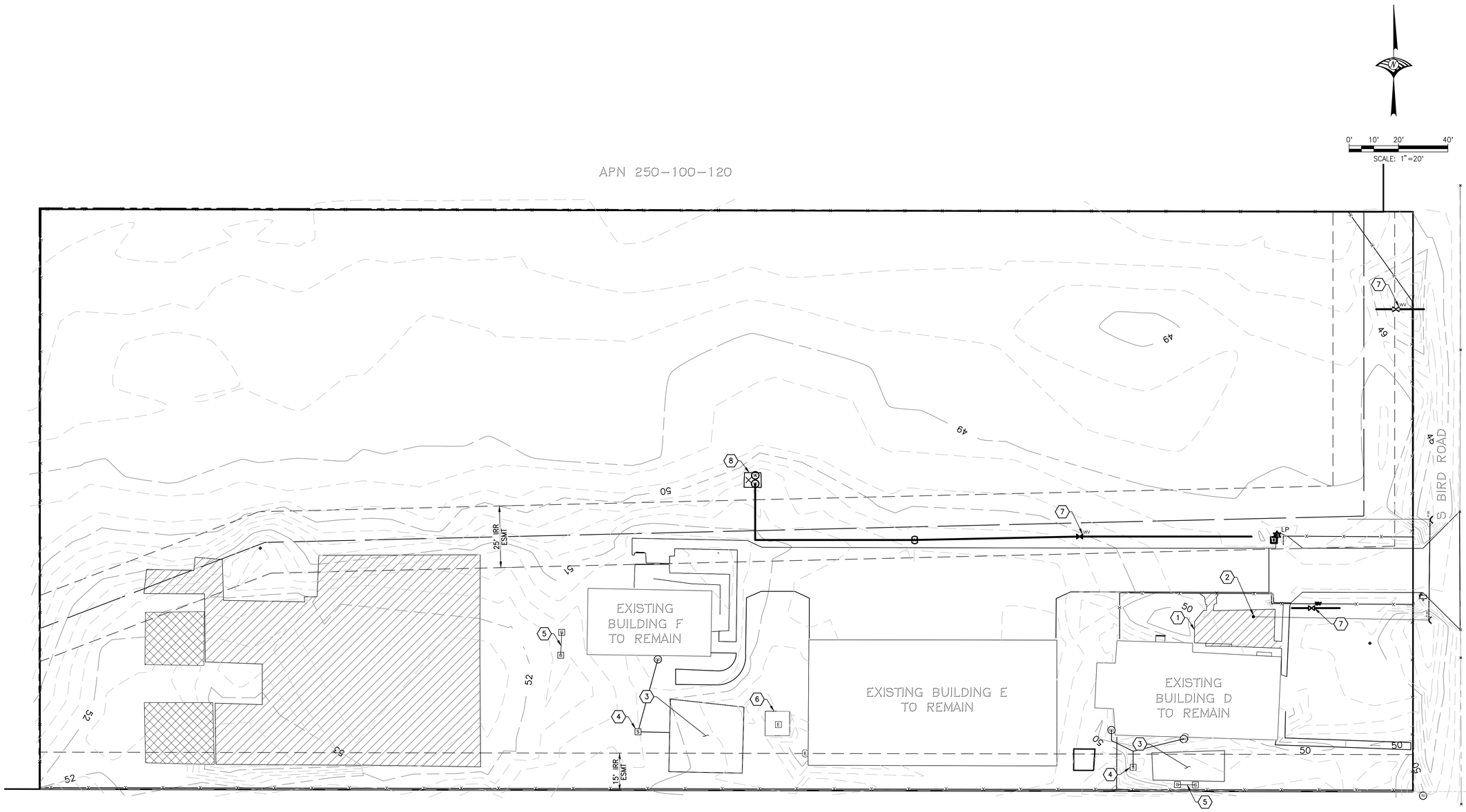

CONTRACTOR SHALL VERIFY ALL DIMENSIONS, SIZES AND LOCATIONS OF EXISTING FACILITIES BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES/CONFLICTS.

LEGEND

- REMOVE AND DISPOSE, EXISTING CONCRETE
- REMOVE AND DISPOSE, EXISTING BUILDING

CONSTRUCTION NOTES

1. REMOVE AND DISPOSE, EXISTING CURB.
2. REMOVE AND DISPOSE, EXISTING AREA DRAIN.
3. PROTECT IN PLACE, EXISTING LEACH FIELD.
4. PROTECT IN PLACE, EXISTING SEPTIC TANK.
5. PROTECT IN PLACE, EXISTING PROPANE TANK.
6. PROTECT IN PLACE, EXISTING GENERATOR.
7. PROTECT IN PLACE, EXISTING BACKFLOW ASSEMBLY.
8. PROTECT IN PLACE, EXISTING WELL.

Know what's below. Call 811 before you dig.

WOOD RODGERS REGISTERED PROFESSIONAL ENGINEER MARY JANE K. KABALIN No. CIVIL STATE OF CALIFORNIA

PRELIMINARY

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4171.24707 – 24707 SOUTH BIRD ROAD PROPERTY

DATE: MAY 2022
SCALE: H: 1"=40' V: 1"=4'
DRAWN BY: LR, GM, KEZ
DESIGNED BY: M.J. KABALIN
CHECKED BY:

WOOD RODGERS
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3301 C ST. BLDG. 100-B SACRAMENTO, CA 95816
TEL 916.341.7760 FAX 916.341.7767

IMPROVEMENT PLANS FOR
24707 SOUTH BIRD ROAD PROPERTY
TOPOGRAPHIC & DEMOLITION PLAN
SAN JOAQUIN COUNTY CALIFORNIA

PROJECT NO. 4171.24707

DRAWING C2.0

SHT 4 OF 8

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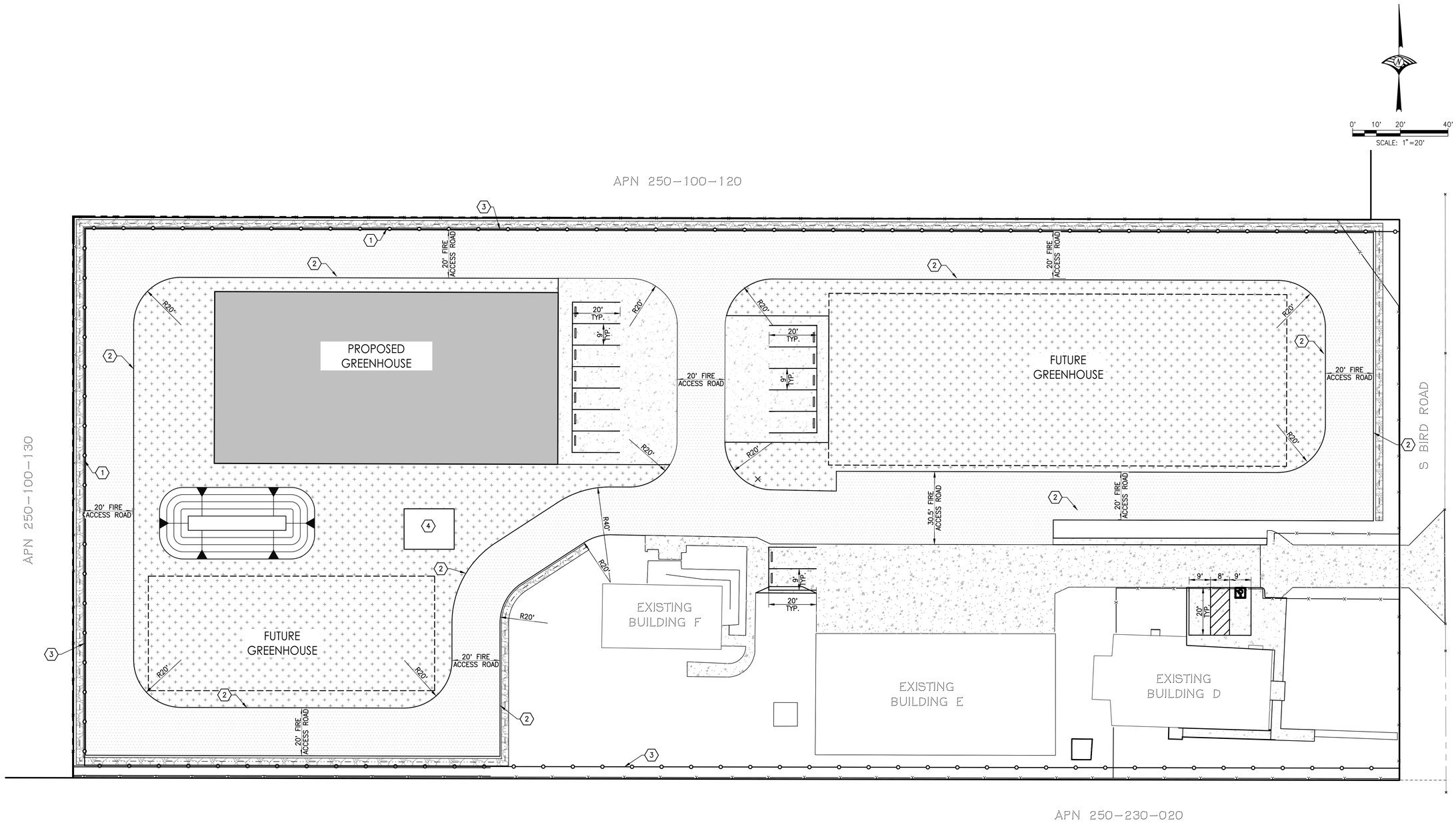

LEGEND

- 8" CLASS II AGGREGATE BASE SUBGRADE COMPACTED PER GEOTECHNICAL RECOMMENDATIONS
- 6" CONCRETE OVER 6" CLASS II AB OVER SUBGRADE COMPACTED PER GEOTECHNICAL RECOMMENDATIONS
- EXISTING CONCRETE
- COBBLE SWALE SEE DETAIL B ON SHEET C1.0
- GRADED SOIL

KEY NOTES

1. INSTALL REDWOOD HEADER PER DETAIL A ON SHEET C1.0
2. EDGE OF GRAVEL
3. INSTALL CHAIN LINK FENCE. SEE PLANS BY OTHERS
4. PROPOSED WASTE WATER TANK

Know what's below. Call 811 before you dig.

WOOD RODGERS

REGISTERED PROFESSIONAL ENGINEER MARY JANE KABALIN No. CIVIL STATE OF CALIFORNIA

PRELIMINARY

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DESIGNED BY: M.J. KABALIN
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Sacramento, CA 95816 Fax 916.341.7767

4171.24707 - 24707 SOUTH BIRD ROAD PROPERTY

IMPROVEMENT PLANS FOR
24707 SOUTH BIRD ROAD PROPERTY
PAVING & DIMENSIONING PLAN
SAN JOAQUIN COUNTY CALIFORNIA

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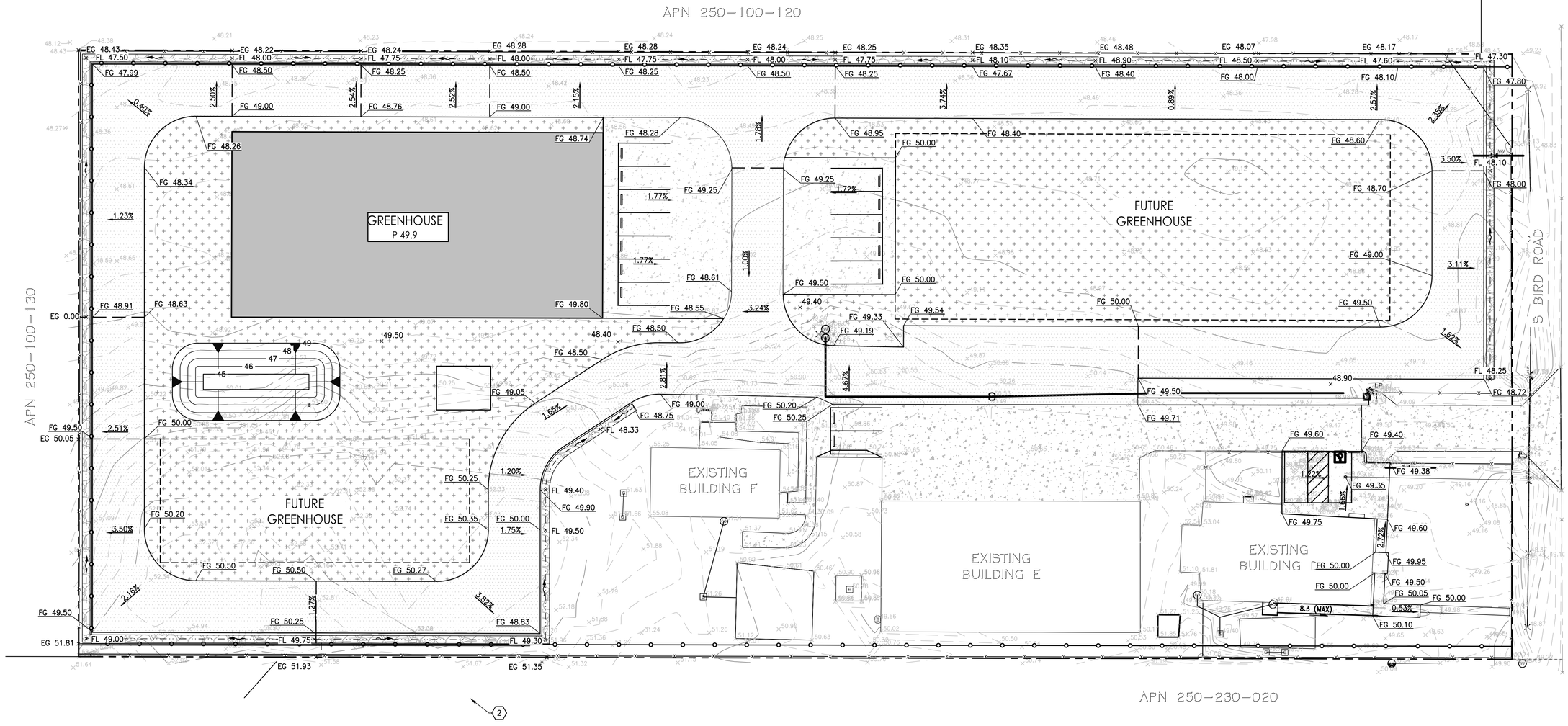
PROJECT NO. 4171.24707

DRAWING C3.0

SHT 5 OF 8



ABBREVIATIONS

FG	FINISHED GROUND
TFC	TOP OF FLUSH CURB
FF	FINISHED FLOOR
HP	HIGH POINT
LP	LOW POINT
RET	CURB RETURN
FL	FLOW LINE

LEGEND

12"SD	STORM DRAIN
TC XX.X / FL XX.X	TOP OF CURB ELEVATION / FLOWLINE ELEVATION
FL X.XX ×	SPOT ELEVATION
2.0%	SLOPE
	GRADE BREAK
	SWALE
	LIMIT OF WORK
	DRAIN MANHOLE
	DRAIN INLET
3	RAMP NUMBER. SEE DETAILS ON SHEET 10

EARTHWORK SUMMARY

CUT (CY)	FILL (CY)	NET (CY)
3,075	225	3,075 (CUT)

EARTHWORK QUANTITIES ARE APPROXIMATE ONLY. ROUGH GRADING QUANTITIES INCLUDE STREET SECTION EXCAVATION.

811 Know what's below. Call 811 before you dig.

REGISTERED PROFESSIONAL ENGINEER MARY JANE K... No. ... CIVIL STATE OF CALIFORNIA

PRELIMINARY

DATE:

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4171.24707 - 24707 SOUTH BIRD ROAD PROPERTY

DATE: MAY 2022
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DRAWN BY: LR, GM, KEZ
DESIGNED BY: M.J. KABALIN
CHECKED BY:

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SACRAMENTO, CA 95816 FAX 916.341.7767

IMPROVEMENT PLANS FOR
24707 SOUTH BIRD ROAD PROPERTY
GRADING PLAN
SAN JOAQUIN COUNTY CALIFORNIA

PROJECT NO. 4171.24707

DRAWING C4.0

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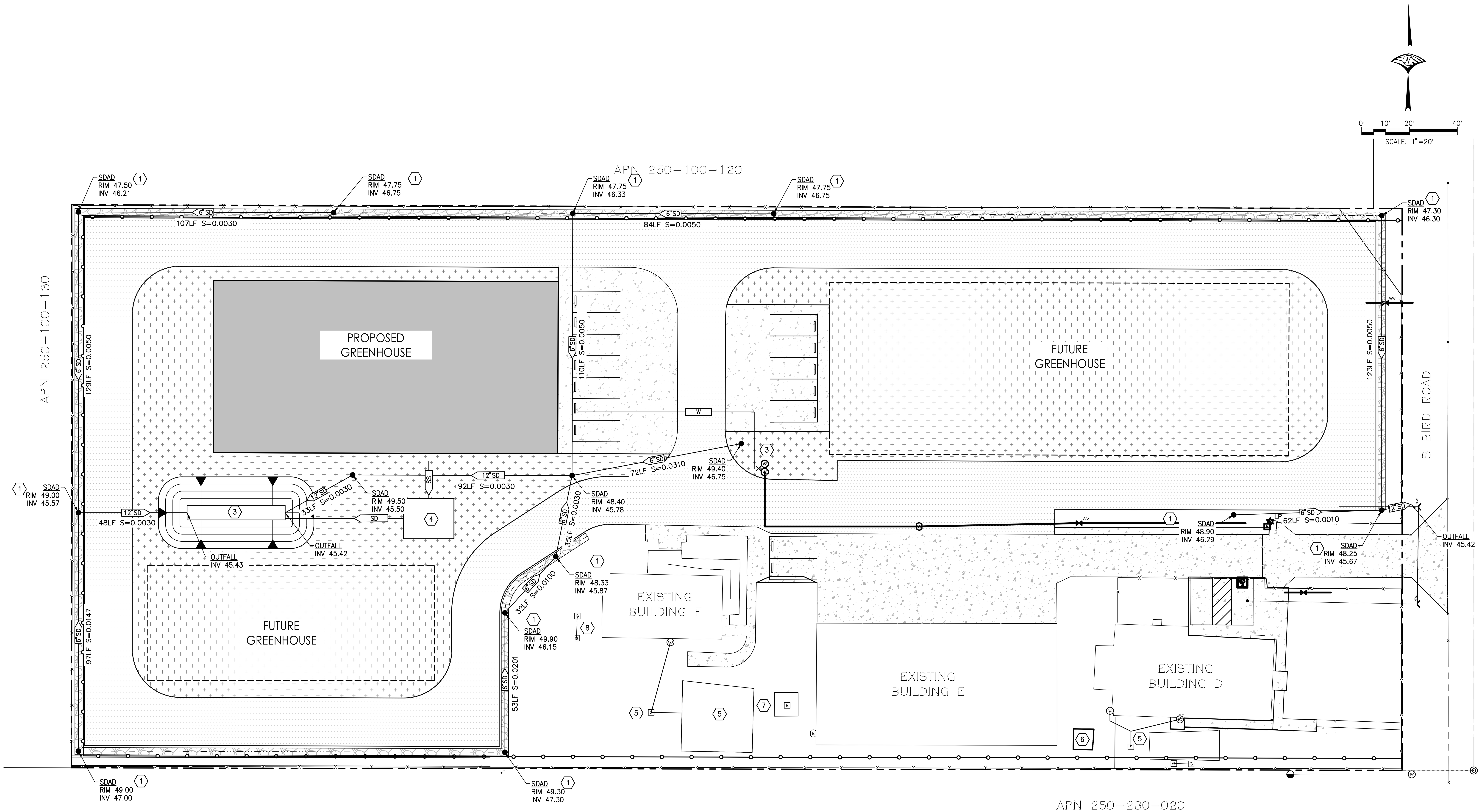

CONTRACTOR SHALL VERIFY ALL DIMENSIONS, SIZES AND LOCATIONS OF EXISTING FACILITIES BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES/CONFLICTS.

CONSTRUCTION NOTES

1. INSTALL AREA DRAIN SEE DETAIL C ON SHEET 3
2. INSTALL RETENTION BASIN
3. PROPOSED WATER SERVICE SHALL BE SERVED FROM EXISTING AGRICULTURAL WELL. CONNECTION AND PIPING TO BE DESIGNED BY OTHERS
4. PROPOSED UNDERGROUND WASTE WATER TANK SYSTEM INCLUDING PIPING TO BE DESIGNED BY OTHERS
5. EXISTING SEPTIC AND LEACH FIELD
6. EXISTING DOMESTIC WELL
7. EXISTING 50KW STANDBY GENERATOR
8. EXISTING PROPANE TANK

811 Know what's below. Call 811 before you dig.

4171.24707 – 24707 SOUTH BIRD ROAD PROPERTY

DATE: MAY 2022
DRAWN BY: L. GALEAZZI
DESIGNED BY: M.J. KABALIN
CHECKED BY: M.J. KABALIN

WOOD RODGERS
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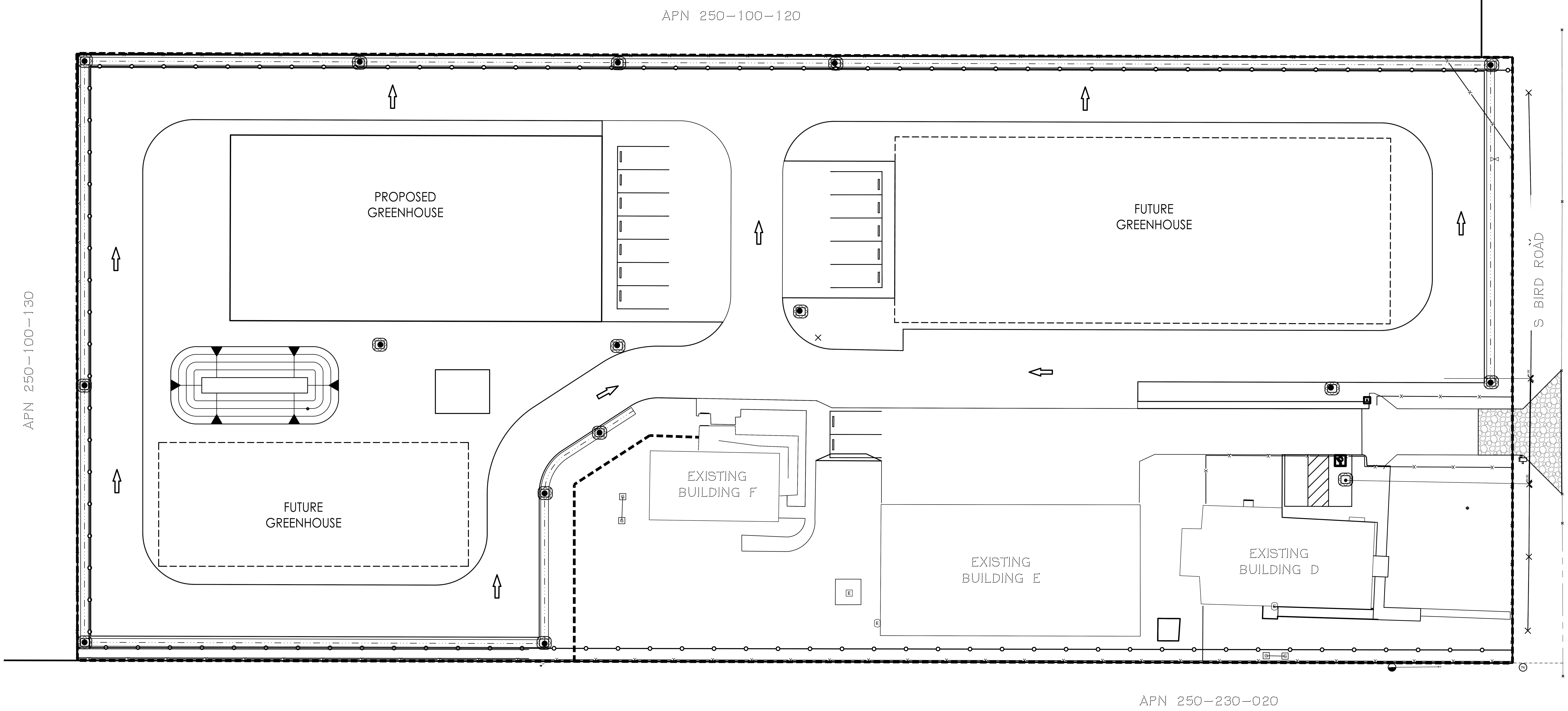
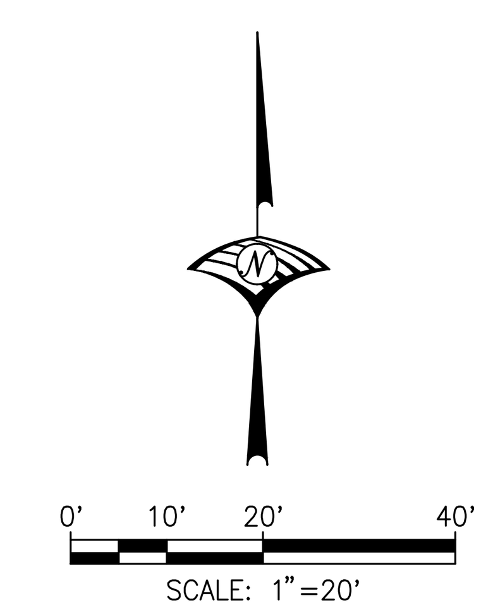
Sacramento, CA 95816 Fax 916.341.7767

IMPROVEMENT PLANS FOR
24707 SOUTH BIRD ROAD PROPERTY
SAN JOAQUIN COUNTY CALIFORNIA

PRELIMINARY

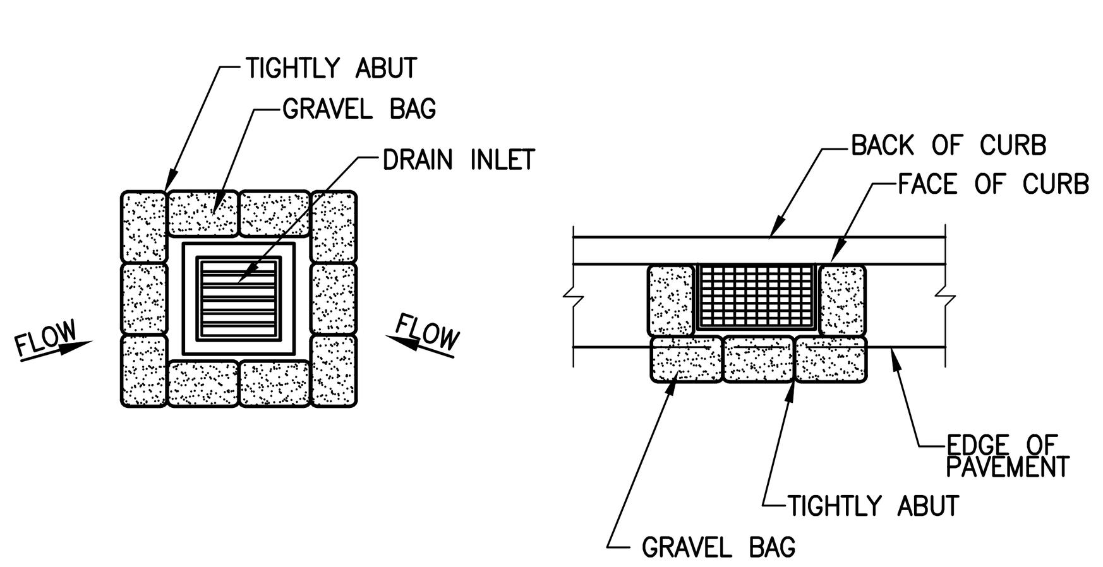
PROJECT NO. 4171.24707
DRAWING
SHT OF 8



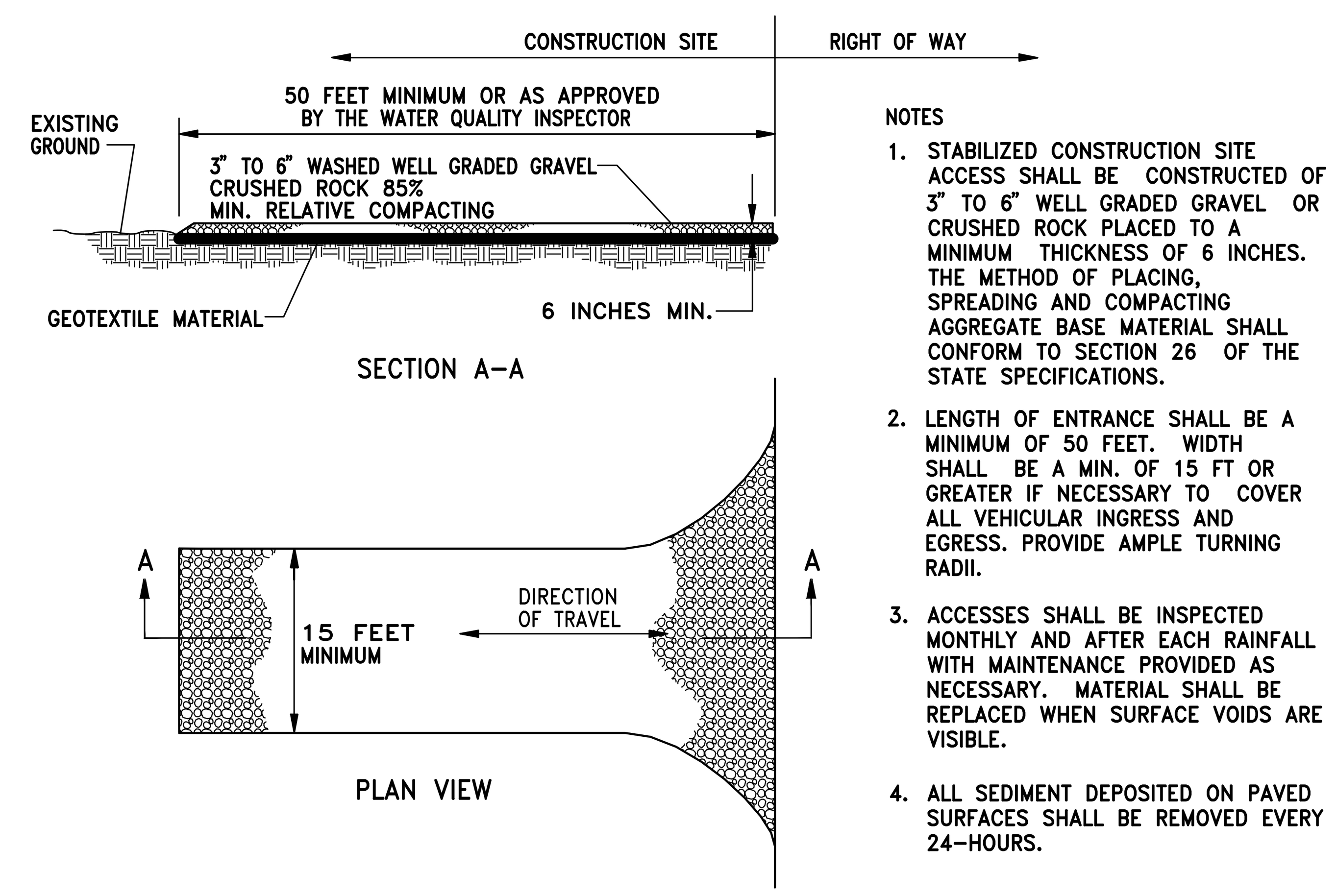


LEGEND

- FIBER ROLL BARRIER
- STORM DRAIN INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- OVERLAND RELEASE



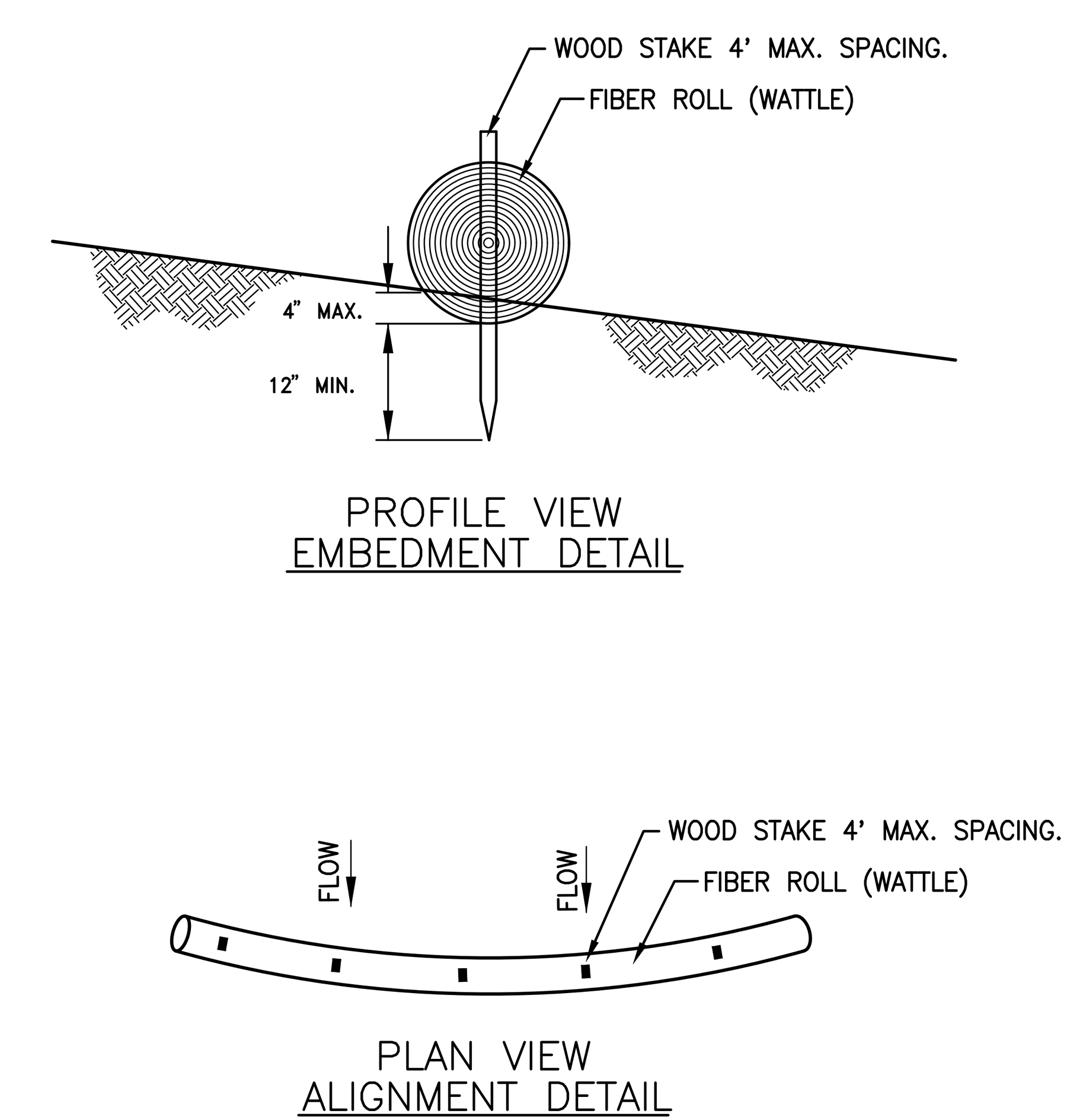
GRAVEL BAG INLET FILTER
NTS



NOTES

1. STABILIZED CONSTRUCTION SITE ACCESS SHALL BE CONSTRUCTED OF 3" TO 6" WELL GRADED GRAVEL OR CRUSHED ROCK PLACED TO A MINIMUM THICKNESS OF 6 INCHES. THE METHOD OF PLACING, SPREADING AND COMPACTING AGGREGATE BASE MATERIAL SHALL CONFORM TO SECTION 26 OF THE STATE SPECIFICATIONS.
2. LENGTH OF ENTRANCE SHALL BE A MINIMUM OF 50 FEET. WIDTH SHALL BE A MIN. OF 15 FT OR GREATER IF NECESSARY TO COVER ALL VEHICULAR INGRESS AND EGRESS. PROVIDE AMPLE TURNING RADII.
3. ACCESSES SHALL BE INSPECTED MONTHLY AND AFTER EACH RAINFALL WITH MAINTENANCE PROVIDED AS NECESSARY. MATERIAL SHALL BE REPLACED WHEN SURFACE VOIDS ARE VISIBLE.
4. ALL SEDIMENT DEPOSITED ON PAVED SURFACES SHALL BE REMOVED EVERY 24-HOURS.

STABILIZED CONSTRUCTION ENTRANCE
NTS



FIBER ROLL (WATTLE) INSTALLATION DETAIL
NTS

Know what's below. Call 811 before you dig.

WOOD RODGERS

REGISTERED PROFESSIONAL ENGINEER · MARY JANE KABALIN · No. [illegible] · CIVIL · STATE OF CALIFORNIA

PRELIMINARY

DATE:

NO.	DESCRIPTION	ENGR INIT	BY	AGENCY APPROVED	DATE

4171.24707 - 24707 SOUTH BIRD ROAD PROPERTY

DATE: MAY 2022
SCALE: H: 1"=40' V: 1"=4'
DRAWN BY: LR.GMCKEZZI
DESIGNED BY: M.J. KABALIN
CHECKED BY:

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Sacramento, CA 95816 Fax 916.341.7767

IMPROVEMENT PLANS FOR

24707 SOUTH BIRD ROAD PROPERTY

EROSION CONTROL PLAN

SAN JOAQUIN COUNTY CALIFORNIA

PROJECT NO. 4171.24707

DRAWING C6.0

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ATTACHMENT H

MODIFICATION REQUEST

NATURAL Synergy

May 18, 2022

Subject: Modification Request - Access Road

Alisa Goulart,

We would like to request a modification to the paved surface requirement for the perimeter site access roads for our property at 24707 South Bird Road, (PA-2100126 Full Application). Our geotechnical engineer, Wallace Kuhl, has given us design recommendations for the gravel road, see the next paragraph.

This consists of “using a design procedure outlined in the FHWA/AASHTO Gravel Roads Design Manual (2000), we estimate that a gravel section consisting of at least 8 inches of Class 2 aggregate base (gravel) should be suitable for support of the anticipated vehicle loads. The gravel section was developed assuming an R-value of 5 for the anticipated clay subgrade soils, allowable rutting of two inches, a terminal serviceability factor of 2.5, and that adequate drainage will be provided. The gravel should be moisture conditioned to at least the optimum moisture content and compacted to at least 95 percent relative compaction. Based on our experience, consideration should be given to placing a woven geotextile fabric (such as Mirafi 500X or a woven fabric with equivalent tensile strength and filtering characteristics) between the subgrade soils and gravel section. The geotextile fabric would increase the gravel performance by decreasing the amount of lateral deflection (thus reducing rutting and potholing) and providing a separation between the subgrade soil and gravel section that would reduce the potential for clay to migrate into the gravel and weaken the section. As an alternative, the subgrade soils should be lime-treated as discussed in the *Subgrade Preparation* section.”

We would like to construct the gravel road per these specifications. The road section is more than double the San Joaquin County Fire Apparatus Road Zone C requirements of 4 inches of class 2 aggregate base over compacted native soils. We will also submit the required fire truck turning template with the final site plan as part of our building permit submittal package.

We are requesting this because we feel that the porous road surface will allow for a better surface for the rain waters to drain through and get back into the underground water system. We feel we can build and maintain this road easier with equipment that we own and keep on the property. The extra thickness of the gravel depth will allow water to drain better and keep standing water from accumulating on site. The costs of the initial installation and the maintenance costs should also be less expensive. We also know that the road section will exceed the requirements of the fire department vehicles, which will most likely be the heaviest vehicles we will have on the roads, and therefore should meet the requirements and expectations for an all-weather road.

Please let us know if this is acceptable. We are looking forward to finishing up our approval process and to submitting to the planning and building departments our final package to obtain the building permit so that we can start construction.

Sincerely,

Darren Mangrum

Darren Mangrum, CEO
Natural Synergy