

**GLENN COUNTY**  
**Planning & Public Works Agency**

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**GLENN COUNTY PLANNING COMMISSION**

**STAFF REPORT**

MEETING DATE: July 19, 2017

TO: Glenn County Planning Commission

FROM: Andy Popper, Associate Planner

RE: Conditional Use Permit 2017-001  
California Olive Ranch Composting Facility  
"AP-80" Zoning District

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## **1 PROJECT SUMMARY**

California Olive Ranch (COR) has applied for a Conditional Use Permit to develop a facility to compost olive pomace (meat and skin) residual from the pressing of olives into olive oil. Following composting, COR would reuse the compost following regenerative agricultural techniques on orchards under their control.

California Olive Ranch farms approximately 5,500 acres of olives and processes the olives, from their farm and other growers, into extra virgin olive oil at their processing and bottling facility in Artois, California. The pressing of extra virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive; however, the cost associated with the disposal of this byproduct has been increasing. In response, COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller etc. Each year, the olive pomace is generated during the pressing window.

California Olive Ranch is proposing to compost up to 70,000 tons per year of olive pomace. The pomace has high moisture content (approximately 65 percent) and will be mixed with other agricultural products to facilitate composting. No commercial fertilizer additives are proposed. The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace (vegetative food material)
- Almond trash (floor sweepings, etc., from almond harvest)
- Manure (dairy)
- MOO (materials other than olives generated during processing)
- Orchard trimmings and stems/greenwaste and green material
- Other agricultural waste materials

The compost facility will include compacted compost areas, paved mixing area, bioswale, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back from property lines and County Road 35 and surrounded by a vegetative buffer of two rows of olives. Mix materials will be received via a separate entrance off County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a bioswale prior to discharge. The water will discharge to an agricultural drainage ditch and hence to White Cabin Creek.

The proposed facility will occupy approximately 30 acres of the 90-acre parcel as shown on Figure 2. The existing agricultural activity footprint will not be expanded with this project. All onsite activities will be located within the existing processing facility property boundary.

The primary goal of the project is to provide a beneficial use for olive pomace and other agricultural wastestreams generated in the county, and reuse the compost on orchards under the control of COR, reducing the use of commercial fertilizers.

## **1.1 RECOMMENDATIONS**

Staff recommends that the Planning Commission grant the proposed Conditional Use Permit 2017-001 a Mitigated Negative Declaration with the Findings as presented in the Staff Report.

Staff also recommends that the Planning Commission approve Conditional Use Permit 2017-001 with the Findings as presented in the Staff Report and the corresponding Mitigation Measures and Conditions of Approval.

## **2 ANALYSIS**

The proposed composting facility is consistent with surrounding intensive agricultural land uses and is consistent with similar projects in the area. This area of Glenn County is a productive agricultural area. Composting offers an efficient, environmentally safe, and cost effective method to divert materials from the wastestream. The proposed project will not be detrimental to the health, safety, or general welfare of persons residing or working in the vicinity.

### **2.1 MITIGATED NEGATIVE DECLARATION**

A copy of the proposed Mitigated Negative Declaration and Initial Study is attached. The Initial Study is a detailed discussion of the project and a discussion of the project's potential environmental impacts as required by the California Environmental Quality Act (CEQA). The Initial Study concludes that this project will result in no Potentially Significant Impacts to the environment with implementation of appropriate mitigation measures, conditions of approval, adopted best management practices, and applicable Federal, State, and local laws and regulations. Therefore, a Mitigated Negative Declaration has been prepared for adoption by the Planning Commission.

## **2.2 GLENN COUNTY UNIFIED DEVELOPMENT CODE (TITLE 15)**

### **2.2.1 “AP” Agricultural Preserve Zone (Glenn County Code Chapter 15.460)**

#### Purpose (Glenn County Code §15.460.010):

*The agricultural preserve zone is to be applied to lands, which are covered by a California Land Conservation Act (Williamson Act) contract with the county for the following purposes:*

- A. To preserve the maximum amount of the limited supply of agricultural land which is necessary in the conservation of the county’s economic resources and vital for a healthy agricultural economy of the county;*
- B. To protect the general welfare of the agricultural community from encroachments of unrelated agricultural uses which, by their nature, would be injurious to the physical and economic well-being of the agricultural community;*

This project as proposed will conform to the purposes provided for in the Agricultural Preserve zoning designation. The proposed compost facility provides a direct benefit/link to the agricultural operation on the premises and other agricultural lands in the vicinity. The project is compatible with surrounding agricultural uses.

#### Permitted Uses (Glenn County Code §15.460.020):

*Glenn County Code §15.460.020.I: Curing, processing, packaging, packing, storage and shipping of agricultural products; however, those particular operations, uses and structures which create smoke, fumes, dust, odor and other hazards may be permitted only if a conditional use permit is first secured. The applicant has applied for a conditional use permit for the proposed composting facility.*

#### Site Area (Glenn County Code §15.460.050):

The minimum parcel size for the “AP-80” zone is 72 acres. The facility will occupy the western portion of Glenn County Assessor’s Parcel Number (APN) 021-020-027-9. The facility will encompass approximately 30 acres of the current 90 acre parcel; therefore, the parcel meets the minimum parcel size for this zone and it is adequate in size and shape to accommodate the proposed project.

#### Maximum Building Height (Glenn County Code §15.460.060):

*The maximum building height in the “AP” zone shall be:*

- A. Thirty-five feet for residential structures;*
- B. Fifty feet for agricultural buildings or structures;*
- C. Exceptions. Water tanks, silos, granaries, barns, pole buildings, electronic towers, antennas and similar structures or necessary mechanical appurtenances may exceed fifty feet in height, provided they do not exceed the airport height restriction.*

The proposed project does not include construction of buildings.

Minimum Distance Between Structures (Glenn County Code §15.460.070):

*Glenn County Code §15.460.070.A: The distance between any accessory building and a dwelling unit shall conform to Uniform Building and Fire Codes. This project does not propose permanent buildings.*

Minimum Yard Requirements (Glenn County Code §15.460.080):

*The minimum front yard shall be thirty feet. The measurement shall start at the edge of the existing county right-of-way as shown on the adopted Glenn County Circulation Plan. The minimum side and rear yards shall be twenty-five feet. This project does not propose any permanent structures or buildings.*

**2.2.2 Conditional Use Permit (Glenn County Code Chapter 15.220)**

Conditional Use Permit (Glenn County Code §15.220.010)

*The planning commission may grant a conditional use permit for the uses listed in Division 3: Development Districts after notice and hearing as provided in Chapter 15.040 and after making findings as required in section 15.220.020.*

Findings (Glenn County Code §15.220.020)

*The approving authority, prior to recommending approval of a development permit shall find as follows:*

- A. That the proposed use at the particular location is necessary or desirable in providing a service or facility, which will contribute to the general well-being of the public;*

The site is in an area of existing agricultural uses. There is a demand by the agricultural industry for compost. Agriculture remains the primary source of Glenn County's economy. The location is desirable because the site is within an agricultural area.

Compost is loosely defined as the product of the activities of aerobic organisms on organic matter. When added to soil, it has many benefits including improved soil structure, porosity, and density in heavy soils; improved water-retention in loose soils; and the addition of essential plant nutrients such as nitrogen, phosphorus, and potassium.

Composting offers an efficient, environmentally safe, and cost effective method to divert materials from the wastestream. It allows for the development of a multi-faceted program, involving diversion from landfilling, and processing into usable end-products. Therefore, it concluded that this project would contribute to the general wellbeing of the public within Glenn County.

*B. That such use will not, under the circumstances of the particular case, be detrimental to the health, safety or general welfare of persons residing or working in the vicinity, or injurious to property or improvements in the vicinity;*

This project will not be subjected to hazardous adverse geologic conditions, proximity to airports, fire hazards, or topography. Impacts from hazards on the project are further discussed in the Initial Study. Given the analysis in the Initial Study, staff has concluded that this project will not be detrimental to the health, safety, or general welfare of persons or property in the vicinity of the project.

*C. That the site for the proposed use is adequate in size and shape to accommodate said use and to accommodate all of the yards, setbacks, walls or fences, and other features required herein or by the planning commission;*

The parcel, and the surrounding facility, is adequate in size and shape to accommodate the proposed project. There is adequate space for parking and unloading/loading.

*D. Except in the case of the expansion of a nonconforming use, that the granting of the permit will not adversely affect the general plan or any area plan of the county.*

The proposed composting facility is consistent with the Land Use Designation of “Intensive Agriculture” and the zoning of “AP-80” (Agricultural Preserve Zone, 72-acre minimum parcel size). The proposed project will meet the land use and zoning requirements of the General Plan and the Zoning Code. The proposed project is a permitted use with approval of a conditional use permit according to Glenn County Code §15.460.020(I). The proposed project conforms to the General Plan and County Code and the facility is identified in the Non-Disposal Facility Element (NDFE) of the county Integrated Waste Management Plan (IWMP).

### **2.2.3 Performance Standards (Glenn County Code Chapter 15.560)**

The performance standards contained in the following subsections are only an excerpt of the required minimum. They shall not be construed as preventing the review authority, as part of any approval, to require more restrictive standards as deemed necessary; including the operator/applicant’s requirement to meet the corresponding performance standards that may not be specifically reviewed in this report.

#### Air Quality (Glenn County Code §15.560.040)

*All uses shall comply with applicable local, state, and federal laws and regulations regarding contaminants and pollutants. This requirement includes, but is not limited to, emissions of suspended particles, carbon monoxide, hydrocarbons, odors, toxic or obnoxious gases and fumes.* The Glenn County Air Pollution Control District (GCAPCD) is responsible for the planning and maintenance/attainment of these standards at the local level. Air quality impacts are further discussed within Section III of the Initial Study for the project.

Fire and Explosion Hazards (Glenn County Code §15.560.070)

*All uses involving the use or storage of combustible, explosive, caustic or otherwise hazardous materials shall comply with all applicable local, state and federal safety standards and shall be provided with adequate safety devices against the hazard of fire and explosion, and adequate fire-fighting and fire suppression equipment. All of the fire protection regulations of the affected fire district shall be complied with. Fire hazards are further discussed within Section VIII of the Initial Study for the project.*

Glare and Heat (Glenn County Code §15.560.080)

- A. All exterior lighting accessory to any use shall be hooded, shielded, or opaque. No unobstructed beam of light shall be directed beyond any exterior lot line. Buildings and structures under construction are exempt from this provision.*
- B. No use shall generate heat so that increased ambient air temperature or radiant heat is measurable at any exterior lot line.*

Any exterior lighting at the site shall comply with the glare and heat standards.

Liquid, Solid, and Hazardous Wastes (Glenn County Code §15.560.090)

- A. All uses are prohibited from discharging liquid, solid, toxic or hazardous wastes onto or into the ground and into streams, lakes or rivers. Discharge into a public or private waste disposal system in compliance with applicable local, state and federal laws and regulations is permitted.*
- C. The handling and storage of hazardous materials, the discharge of hazardous materials into the air and water, and disposal of hazardous waste in connection with all uses shall be in conformance with all applicable local, state, and federal regulations.*

The project may be subject to the conditions and regulations of Waste Discharge Requirements issued by the Central Valley Regional Water Quality Control Board and to comply with Storm Water Pollution Prevention Plan(s). The project will be subject to the conditions and regulations of the Glenn County Air Pollution Control District (GCAPCD), which is the Administering Agency and the Certified Unified Program Agency (CUPA) for Glenn County with responsibility for regulating hazardous materials. Impacts on hazards and hazardous materials and hydrology and water quality are further discussed within Sections VIII and IX of the Initial Study for the project.

Noise (Glenn County Code §15.560.100)

There may be an increase in ambient noise levels during operation of the facility. Agricultural-related operations at this site are exempt from County noise ordinances as stated in Glenn County Code §15.560.100(F8). Section 6.10 of the General Plan supplies noise/land use compatibility guidelines and noise level standards. According to Section 6.10, noise level performance standards do not apply to mobile noise sources associated with agricultural operations on lands zoned for agricultural uses. Noise related impacts are further discussed in Section XII of the Initial Study for the project.

## **2.2.4 Off-Street Parking and Loading Facilities (Glenn County Code Chapter 15.610)**

### Purpose (Glenn County Code §15.610.010):

- A. *In order to prevent traffic congestion, off-street parking facilities shall be provided incidental to any new building or structure and major alterations and enlargements of existing uses. Off-street parking spaces or areas required shall be in proportion to the need for such facilities created by the particular type of land use. Off-street parking facilities shall also be laid out in such a manner that the facilities will protect the public safety and insulate surrounding land uses from their impact.*
- B. *All uses permitted in this title shall comply with all applicable standards of this chapter as set forth herein, except as provided in Division 4.*

### Parking Space Requirements (Glenn County Code §15.610.020):

*Glenn County Code §15.610.020(F15): Open uses, commercial and industrial uses conducted primarily outside of buildings, one parking space for each employee on the maximum shift. The project site (as well as the oil mill facility) has sufficient space for employee and equipment parking.*

### Standards of Off-Street Parking Facilities (Glenn County Code §15.610.030):

- A. *Surfacing and marking.*
  - 1. *The parking area shall be maintained in good condition at all times and shall be surfaced in a manner to be consistent with the type and level of use so as to provide safe and convenient use.*

Glenn County Public Works has made the following comments regarding encroachment permits and parking areas.

*That prior to any work being done in the County Right-of-Way an Encroachment Permit shall be applied for and received from the Glenn County Planning and Public Works Agency.*

*That the applicant shall construct off-street parking in accordance with the requirements of Title 15.610 of the Glenn County Code. Said parking areas shall be designed to accommodate all employees and customers.*

## **2.2.5 Sign Standards (Glenn County Code Chapter 15.620)**

### General Sign Provisions (Glenn County Code §15.620.020):

*Appurtenant signs for uses requiring conditional use permit approval are permitted subject to first securing a conditional use permit.*

Exempt Signs (Glenn County Code §15.620.030):

A. *Agricultural Signs. Two signs with a total aggregate area not exceeding thirty-two square feet for each lot or parcel, identifying or advertising agricultural products produced on the premises.*

The property will be allowed up to two agricultural signs with a total aggregate area not exceeding 32 square feet. Any sign in the future shall comply with Chapter 15.620 of the Glenn County Code.

Additionally, the following is proposed to be included as a Condition of Approval:

*Prior to operations occurring at the site, signage for the ingress/egress driveway at the County Road 35 shall include a 'Stop Sign' and notice stating 'Watch for Oncoming Traffic.'*

**2.2.6 Agricultural Processing Facility (Glenn County Code Chapter 15.740)**

The proposed project is a composting facility. Agricultural processing, as defined under Section 15.020.020(A.11) of the Glenn County Code, means *the refinement, treatment, or packaging of all primary and secondary agricultural products for commercial purposes*. Chapter 15.740 of the Glenn County Code specifies specific standards for agricultural processing facilities. These standards and the project's compliance with these standards are discussed below:

Standards (Glenn County Code §15.740.010)

A. *An agricultural processing operation shall be located a minimum of at least five hundred feet from any residence located on an adjacent parcel.*

According to the application and air imagery the closest residence is approximately 1,000 feet southwest of the site. Therefore, this standard is being met.

B. *No hazardous materials other than for incidental use shall be used for the operation.*

The project does not propose the use of hazardous materials other than for incidental use.

C. *An agricultural processing operation shall be set back at least one hundred feet from the county or state road right-of-way.*

The proposed windrows shall be located no less than 100 feet from the County Road 35 right of way.

D. *All agricultural processing facility development shall require an encroachment permit from the county public works department. Driveways shall be paved according to county standards.*

The applicant is required to obtain an encroachment permit and the driveway shall be constructed in accordance with Glenn County Code and comments received by Public Works

E. *All parking and loading shall remain on-site and not in a county or state road right-of-way.*

The project proposes to have all parking and loading the property.

*F. A use permit shall be required for an agricultural processing operation if the county air pollution control officer determines that the potential exists for smoke, light, dust, glare or odor beyond the property line; or if the county sanitarian determines that the potential exists for flies, vermin or other health hazards to cross the property line.*

The applicant has applied for a conditional use permit for the proposed composting facility.

### **2.2.7 Standards for Landfills, Recycling and Composting Facilities (Glenn County General Plan, Volume I, Section 6.12)**

*In order to protect the public health and safety, it is appropriate to establish minimum standards for landfills, recycling, and composting facilities as follows:*

- *All facilities shall comply with the noise compatibility standards established in this General Plan;*  
Noise related impacts are discussed in Section XII of the Initial Study for the project.
- *All premises shall be completely surrounded and enclosed by walls, fences or barriers, except for necessary openings. All materials shall be kept and stored behind the walls, fences or barriers. Recycling facility fencing shall be so constructed as to be a continuous sight barrier;*  
The site is accessed from County Road 35 via a private driveway. The majority of the property is surrounded by olive orchards and will have two rows of trees buffering County Road 35 to the north and a private road along the west. Landscaping is to be located between the facility property and adjacent properties.
- *All facilities shall comply with air quality standards established by the Glenn County Air Pollution Control District, and shall apply best available control technology for dust suppression;* Air quality impacts are discussed in Section III of the Initial Study for the project.
- *All facilities shall comply with water quality standards established by the Regional Water Quality Control Board;* The project may require Waste Discharge Requirements issued by the Central Valley Regional Water Quality Control Board.
- *All facilities shall be located on a public road designed to accommodate the amount of traffic projected to be generated by such a facility. Access shall be designed to prevent queuing of vehicles on the roadway;*  
Impacts on transportation/traffic are discussed in Section XVI of the Initial Study for the project.

- *Landfills and composting facilities shall not be allowed within 2,000 feet of areas planned and designated for residential use, parks and recreational facilities, schools, hospitals, and other institutional uses;*

The proposed composting facility is located within an area surrounded by intensive agricultural uses and is not within 2,000 feet of the above-described land uses. Surrounding land uses are further discussed in the Initial Study for the project.

- *Landfills and composting facilities shall not be located inside urban limit lines, and shall not be allowed within 2,000 feet of any airport;*

The proposed composting facility will not be located inside urban limit lines and will not be located within 2,000 feet of an airport. The Willows Airport is located approximately 6 miles south of the project site.

### **3 OTHER REQUIREMENTS**

There is a ten (10) calendar day appeal period following the Planning Commission action on this conditional use permit. (Glenn County Code §15.050.020).

The appeal made to the Glenn County Board of Supervisors must be made in accordance with Section 15.050.020 of the Glenn County Code. The Board of Supervisors will hear the appeal as outlined by this code. The decision of the Board of Supervisors may then be challenged in court.

An approved conditional use permit expires one (1) year from the date of granting unless substantial physical construction and/or use of the property in reliance on the permit has commenced prior to its expiration. An approved conditional use permit may be extended by the director for an additional sixty (60) calendar days provided that the applicant/owner submits a written request for extension to the director at least twenty-one (21) calendar days prior to the expiration date. Only one (1) extension shall be allowed for each permit (Glenn County Code §15.090.100.A).

The necessary permits shall be secured in all affected federal, state, and local agencies. It is the responsibility of the applicant/operator to make certain all requirements are met and permits are obtained from all other agencies.

In addition to the Mitigation Measures and Conditions of Approval, the applicant's and his/her technical or project management representative's attention is directed to the attached memoranda from other agencies reflecting their comments on reviewing the application. The items noted are a guide to assist the applicant in meeting the requirements of the Mitigation Measures, the Conditions of Approval, and applicable government codes. The memoranda may also note any unusual circumstances that need special attention. The items listed are a guide and not intended to be a comprehensive summary of all codified requirements or site-specific requirements.

## **4 FINDINGS**

### **4.1 FINDINGS FOR MITIGATED NEGATIVE DECLARATION**

The initial study prepared for the project documents reasons to support the following findings. The following findings shall be made prior to recommending approval of a mitigated negative declaration.

#### **Finding 1 (Aesthetics)**

The project will not have a significant impact on aesthetics because there are no scenic resources in the area and the adopted standards for lighting and construction will minimize impacts. The landscaping strips will act as a visual screen and sound attenuation. The project is compatible with existing agricultural uses in the area. Impacts are considered less than significant.

#### **Finding 2 (Agricultural and Forest Resources)**

The project will not have a significant impact on agriculture or forest resources because the zoning and use of the land is agricultural. Other agricultural activities within the vicinity will not be adversely impacted by this project. There are no forest resources located within the vicinity of the project. Impacts are considered less than significant.

#### **Finding 3 (Air Quality)**

The project will not have a significant impact on air quality because the project will not violate air quality standards or contribute substantially to an existing air quality violation. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

#### **Finding 4 (Biological Resources)**

The project will not have a significant impact on biological resources. The sensitive habitats or natural communities as defined by the Department of Fish and Game or the U.S. Fish and Wildlife Service will not be adversely impacted by this project. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

#### **Finding 5 (Cultural Resources)**

The project will not have significant impact on cultural resources because there are no known resources recorded in the area. No new development will occur in an undisturbed area. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

**Finding 6 (Geology and Soils)**

The project will not have a significant impact on geology and soils because geologic hazards in the area are minimal. No permanent structures are proposed with the project. Best Management Practices are in place to prevent erosion. Soils can adequately accommodate the existing septic system. Impacts are considered less than significant.

**Finding 7 (Greenhouse Gas Emissions)**

The project will not have a significant impact on global climate change as a result of greenhouse gas emissions. The project is not in conflict with existing guidelines or standards. The project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG's. Federal, state, and local standards and codes reduce potential impacts to less than significant.

**Finding 8 (Hazards and Hazardous Materials)**

Hazards and hazardous materials will not have a significant impact on the environment as a result of the proposed project. The project will not interfere with an adopted emergency response plan nor expose people to risk of loss, injury, or death. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

**Finding 9 (Hydrology/Water Quality)**

The project will not have a significant impact on hydrology and water quality because the project does not place structures within a 100-year flood hazard area and will not significantly alter the drainage pattern of the area. The project does not significantly interfere with groundwater recharge in the area. The project will be subject to Waste Discharge Requirements adopted by the Central Valley Water Board and shall adhere to the proposed Storm-Water Pollution Prevention Plan. The project will not substantially deplete groundwater supplies or expose people or structures to a significant risk of loss, injury, or death involving flooding.

**Finding 10 (Land Use and Planning)**

The project will not have a significant impact on land use and planning because the project would not physically divide an established community. The project site is designated "Intensive Agriculture" in the General Plan and is zoned "AP-80" (Agricultural Preserve Zone, 72-acre minimum parcel size). The proposed use meets the requirements of the Glenn County Code and General Plan with an approved Conditional Use Permit. The project will not conflict with an existing habitat conservation plan or natural community conservation plan. Therefore, it is concluded that there will be no impact.

**Finding 11 (Mineral Resources)**

The project will not have a significant impact on mineral resources. The project does not involve permanent structures. Gravel mining has occurred north of the project site. The proposed use is identified as a compatible land use relative to conservation of mineral resources. The project would not preclude gravel mining or natural gas well development from potentially occurring in the future. Impacts are considered less than significant.

**Finding 12 (Noise)**

The project will not have a significant impact on people residing or working in the area from excessive noise levels. Noise generating activities are required to meet the established standards prescribed by the County Code. The closest residence is located approximately 0.5 miles away. Employees will be required to wear protective gear to reduce noise exposure. The project site is not located within a public airport land use planning boundary and not in the vicinity of a private airstrip, which would expose people in the area to unacceptable noise levels. Additionally, this project will not expose people to excessive ground borne vibration. Impacts are considered less than significant.

**Finding 13 (Population and Housing)**

The project will not have a significant impact on population and housing because the project will not displace people or housing. This project would not induce substantial population growth directly or indirectly. Impacts are considered less than significant.

**Finding 14 (Public Services)**

The project will not have a significant impact on public services. The services of fire protection, police protection, schools, parks, and other public facilities are sufficient to accommodate the proposed project. Impacts are considered less than significant.

**Finding 15 (Recreation)**

The project will not have a significant impact on recreation because it would not substantially increase the use of existing recreational facilities nor does the project include such facilities. It is concluded that there will be no impact.

**Finding 16 (Transportation/Traffic)**

The project will not have a significant impact on transportation/circulation because it will not significantly increase traffic volumes on existing roads. The project will not change air traffic patterns. Existing roads do not have dangerous curves or intersections and they provide adequate emergency access to the project site. Alternative transportation plans will not be impacted.

**Finding 17 (Tribal Cultural Resources)**

The project will not have a significant impact on Tribal Cultural Resources because the property has been used for intensive agriculture and other soil disturbing activities. The proposed amendments will not change the footprint or require additional ground disturbance. Cultural Resource Mitigations are in place in the event resources are found.

**Finding 18 (Utilities and Service Systems)**

The project will not have a significant impact on utilities and service systems. The project can adequately be served by existing utilities and service systems. Impacts are considered less than significant.

**Finding 19 (Mandatory Findings of Significance)**

There is no substantial evidence in light of the whole record that the project may have a significant impact on the environment either cumulatively or individually with the proposed mitigation measures, conditions of approval, codified federal, state, and county standards, and adopted Best Management Practices. Impacts are considered less than significant with mitigation incorporated.

**4.2 FINDINGS FOR APPROVAL OF CONDITIONAL USE PERMIT**

According to Glenn County Code Sections 15.220.010 and 15.220.030, the following findings listed in Glenn County Code Section 15.220.020 shall be made prior to recommending approval of a conditional use permit:

**Finding 1 (Desirability and Contribution to Public Well-Being)**

The proposed use at the particular location is necessary or desirable in providing a service or facility, which will contribute to the general well-being of the public. The site is in an area of existing agricultural uses. Composting offers an efficient, environmentally safe, and cost effective method to divert materials from the wastestream. The location is desirable because the site is within an existing intensive agricultural area.

**Finding 2 (Hazards)**

Such use will not, under the circumstances of the particular case, be detrimental to the health, safety, or general welfare of persons residing or working in the vicinity, or injurious to property or improvements in the vicinity. Impacts are considered less than significant with the proposed mitigation measures, conditions of approval, codified federal, state, and county standards, and adopted Best Management Practices and will not have adverse effects on residents, uses, or the public in general.

**Finding 3 (Suitability of Parcel Size)**

The site for the proposed use is adequate in size and shape to accommodate said use and to accommodate all of the yards, setbacks, walls or fences, and other features required herein or by the Planning Commission.

**Finding 4 (General Plan Consistency)**

Granting the permit will not adversely affect the general plan or any area plan of the County because the proposed project conforms to the General Plan and County Code and the facility is identified in the Non-Disposal Facility Element (NDFE) of the county Integrated Waste Management Plan (IWMP).

**5 SAMPLE MOTIONS**

**5.1 ENVIRONMENTAL DETERMINATION**

I move that the Planning Commission find that on the basis of the Initial Study for Conditional Use Permit 2017-001, prepared by the Planning & Public Works Agency, that the conditional use permit, as applied for by California Olive Ranch, LLC could have a potentially significant impact on the environment; however, implementation of applicable federal, state, and county standards, adopted best management practices, mitigation measures, and conditions of approval will reduce potentially significant impacts to a less than significant level. Therefore, a Mitigated Negative Declaration shall be granted with the Findings as presented in the Staff Report.

**5.2 CONDITIONAL USE PERMIT 2017-001**

I (further) move that the Planning Commission approve Conditional Use Permit 2017-001, as applied for by California Olive Ranch, LLC on Assessor's Parcel Number: APN 021-020-027-9 with the Findings as presented in the Staff Report and the Mitigation Measures and Conditions of Approval as attached.

**GLENN COUNTY PLANNING AND PUBLIC WORKS AGENCY**

**MITIGATION MONITORING PROGRAM AND  
CONDITIONS OF APPROVAL**

**Conditional Use Permit 2017-001  
California Olive Ranch Compost Facility  
“AP-80” Agricultural Preserve Zone  
APN 021-020-027**

Pursuant to the approval of the Glenn County Planning Commission, California Olive Ranch is hereby granted Conditional Use Permit 2017-001 for a composting facility. Conditional Use Permit 2017-001 is subject to the Mitigations and Conditions of Approval set forth herein. Pending final approval by the Glenn County Planning Commission, the applicant shall file a signed copy of these with the Planning & Public Works Agency Mitigations and Conditions of Approval.

**MITIGATIONS:**

Mitigation Measure AQ-1 (Air Quality):

That the following Dust Control Plan shall be implemented:

The applicant shall water driveways and loading areas at a minimum frequency of two times per day (once in the morning, once in the afternoon, and more often as needed) when the driveways and loading areas are being utilized. The applicant shall suspend hauling and turning operations during high wind conditions of 25 miles per hour and higher. The applicant shall ensure that all trucks entering and exiting the facility maintain a minimum freeboard space of six inches. If fugitive material is found to be exiting the trucks during transport, the applicant shall ensure that the truckloads are covered.

Timing/Implementation: In Perpetuity  
Enforcement/Monitoring: Glenn County Air Pollution Control District

Mitigation Measure B-1 (Biological Resources):

That all deliveries of green material to the project shall be made in covered or enclosed vehicles in order to avoid or mitigate the potential for significant environmental impacts related to invasive species and damage to habitat. The applicant shall not accept deliveries of green material in uncovered vehicles, and shall post a sign at the entrance to the composting facility notifying drivers of that policy.

Timing/Implementation: In Perpetuity  
Enforcement/Monitoring: Glenn County Planning & Public Works Agency

Mitigation Measure CR-1 (Cultural Resources):

In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 100 feet of the resources shall be halted and the applicant/operator shall consult with the County and a qualified archaeologist (as approved by the County) to assess the significance of the find per CEQA Guidelines Section 15064.5. The qualified archaeologist shall determine the nature of the find, evaluate its significance, and, if necessary, suggest preservation or mitigation measures. Appropriate mitigation measures, based on recommendations listed in the archaeological survey report, will be determined by the Glenn County Planning & Public Works Agency Director. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is carried out. All significant cultural materials recovered shall be, at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documented according to current professional standards.

Timing/Implementation: During Construction/Excavation Activities  
Enforcement/Monitoring: Glenn County Planning & Public Works Agency

Mitigation Measure MFS-1 (Mandatory Findings of Significance):

That all vehicles and equipment shall be washed at regular intervals to reduce dust and spore levels.

Timing/Implementation: In Perpetuity  
Enforcement/Monitoring: Glenn County Planning & Public Works Agency

Mitigation Measure MFS-2 (Mandatory Findings of Significance):

That the following Vector Control Plan shall be implemented:

1. There will be no standing water on the site related to the composting facility.
2. Weeds and grasses will be chopped to limit rodent habitat.
3. Manure and other fly-attracting materials will be tarped.
4. Manure will be brought on-site and mixed into the windrows just prior to commencement of the composting system.
5. The compost turning system will heat windrows to 140 + degrees, which will kill fly larvae.

Timing/Implementation: In Perpetuity  
Enforcement/Monitoring: Glenn County Environmental Health, Glenn County Air Pollution Control District

**CONDITIONS OF APPROVAL:**

Condition of Approval 1:

Landscaping along County Road 35 shall be at least five feet in height and continue to create a continuous visual barrier. Landscaping shall be maintained in a healthy condition; unhealthy plants shall be replanted.

Condition of Approval 2:

The applicant shall provide proof that all necessary permits from the Central Valley Regional Water Quality Control Board (RWQCB) have been obtained prior to commencement of the uses permitted with this Conditional Use Permit. The applicant shall provide the Glenn County Planning Division with copies of all documents and permits required by the RWQCB.

Condition of Approval 3:

That the applicant/operator shall pay money into a road maintenance fund (paid to the Glenn County Planning & Pubic Works Agency) to be paid on an annual basis to maintain County roadways. The payment shall be equal to \$0.00002314 (July 1, 2016 to June 30, 2017) per pound (approx. \$4.63 per 100 tons). The fee is based on the weight of the product exported from the site, and transported via county roads. The payment described above shall be amended on an annual basis, based on the All-Urban Consumers, Consumer Price Index (computed by the U.S. Department of Labor, Bureau of Labor Statistics).

Condition of Approval 4:

No on-street parking associated with this development shall be allowed on County Road “35”.

Condition of Approval 5:

That the driveway shall be constructed in accordance with Glenn County Standard S-19 for a Private Road Intersection except that the minimum drive width shall be twenty-four (24) feet in anticipation of large equipment trailers utilizing the driveway.

Condition of Approval 6:

That the operation shall be confined to those activities as described in the application and project narrative and confined to the areas as shown on the application site plans and narratives being, as submitted and on file at the Glenn County Planning & Public Works Agency.

Condition of Approval 7:

Prior to operations occurring at the site, signage for the ingress/egress driveway at the County Road 35 shall include a ‘Stop Sign’ and notice stating ‘Watch for Oncoming Traffic.’

Indemnification:

That the Applicant(s) and/or successor(s) in interest shall defend, hold harmless and indemnify Glenn County from any claim, action or proceeding against Glenn County and/or its agents, officers and employees, to attack, set aside, void or annul the approval(s) granted by Glenn County concerning this proposal/project or any action relating to or arising out of such approval. The Applicant(s) and/or successor(s) in interest shall further indemnify Glenn County and/or its agents, officers and employees from liability for any award, damages, costs and fees, including but not limited to legal fees and costs, incurred by the County and/or awarded to any plaintiff in any action challenging the validity of this permit or any environmental or other documentation related to approval of this permit. Applicant(s) and/or successor(s) in interest further agree to provide a defense for the County in any such action.

Acknowledgment:

I hereby declare that I have read the foregoing conditions; that they are in fact the conditions that were imposed upon the granting of this permit, and that I agree to abide fully by said conditions. Additionally, I have read the Staff Report and I am aware of codified County, State, and/or Federal standards and regulation that shall be met with the granting of this permit. I have the proper legal authority to, and am signing in the behalf of, those with interest in California Olive Ranch, Inc.

Signed: \_\_\_\_\_  
California Olive Ranch, Inc., Jim Lipman

Date: \_\_\_\_\_

## NOTICE OF DETERMINATION

To: County Clerk, County of Glenn  
516 W. Sycamore Street, 2<sup>nd</sup> Floor, Willows, CA 95988  
From: Glenn County Planning & Public Works Agency  
777 North Colusa Street, Willows, CA 95988

Lead Agency Contact Person:  
Andy Popper, Associate Planner  
777 North Colusa Street, Willows, CA 95988  
530.934.6540 Fax: 530.934.6533

Subject: Filing Notice of Determination in compliance with Section 21152 of the Public Resources Code and CEQA Guidelines Section 15075.

State Clearinghouse Number: 2017032061

Project Title: Conditional Use Permit 2017-001, California Olive Ranch Compost Facility

Project Location: The project site is located, adjacent to the COR olive processing facility at 5945 County Road 35 in Artois. The site is approximately three miles west of the Artois and Interstate 5 in the unincorporated area of Glenn County, California. The facility will occupy the western 30 acres of the 90-acre parcel. The 30 acres will consist of approximately 24 acres of compost windrows and a 4-acre mixing area (APN: 021-020-027).

Project Description: California Olive Ranch (COR) has applied for a Conditional Use Permit to develop a facility to compost vegetative olive pomace residuals from the pressing of olives into olive oil. In addition, feedstock and bulking agents include almond trash (floor sweepings, etc., from almond harvest), dairy manure, orchard trimmings and stems, greenwaste, materials other than olives generated during processing, and other agricultural waste materials. Following composting, COR would reuse the compost following regenerative agricultural techniques on orchards under their control.

Zoning: "AP-80" (Agricultural Preserve Zone, 72-acre minimum parcel size) General Plan: "Intensive Agriculture"

This is to advise that the **Glenn County Planning Commission** has approved the above-described project on Wednesday, July 19, 2017, and has made the following determinations regarding the above-described project:

1. The project **will not** have a significant effect on the environment.
2. A Mitigated Negative Declaration **was** prepared for this project pursuant to the provisions of CEQA.
3. Mitigation Measures **were** made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan **was** adopted for this project.
5. A statement of Overriding Considerations **was not** adopted for this project.
6. Findings **were** made pursuant to the provisions of CEQA.

This is to certify that the Mitigated Negative Declaration and record of project approval is available to the General Public at: Glenn County Planning & Public Works Agency  
777 North Colusa Street, Willows, CA 95988

Date: \_\_\_\_\_

\_\_\_\_\_  
Di Aulabaugh, Deputy Director  
Glenn County Planning & Public Works Agency

## MITIGATED NEGATIVE DECLARATION

### Conditional Use Permit 2017-001 California Olive Ranch Compost Facility

MEETING DATE: July 19, 2017

PROJECT TITLE: Conditional Use Permit 2017-001  
California Olive Ranch Compost Facility

LEAD AGENCY: Glenn County Planning & Public Works Agency  
Andy Popper, Associate Planner

APPLICANT: California Olive Ranch

Mailing Address  
1367 East Lassen Avenue, Suite A-1  
Chico, California 95973

Physical Address  
5945 County Road 35  
Artois, California 95913

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Landowner  
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(530) 223-2585 (office)  
(530) 223-1145 (facsimile)

PROJECT

DESCRIPTION: **Conditional Use Permit 2017-001**

California Olive Ranch (COR) has applied for a Conditional Use Permit to develop a facility to compost vegetative olive pomace residuals from the pressing of olives into olive oil. In addition, feedstock and bulking agents include almond trash (floor sweepings, etc., from almond harvest), dairy manure, orchard trimmings and stems, greenwaste, materials other than olives generated during processing, and other agricultural waste materials. Following composting, COR would reuse the compost following regenerative agricultural techniques on orchards under their control.

Additional project information is located in the Initial Study, and Technical Report.

APN: 021-020-027

LOCATION: The project site is located, adjacent to the COR olive processing facility at 5945 County Road 35 in Artois. The site is approximately three miles west of the Artois and Interstate 5 in the unincorporated area of Glenn County, California. The facility will occupy the western 30 acres of the 90-acre parcel. The 30 acres will consist of approximately 24 acres of compost windrows and a 4-acre mixing area.

ZONING: “AP-80” (Agricultural Preserve Zone, 72-acre minimum parcel size)

GENERAL PLAN: “Intensive Agriculture”

FINDINGS FOR MITIGATED NEGATIVE DECLARATION

The initial study prepared for the project documents reasons to support the following findings. The following findings shall be made prior to recommending approval of a mitigated negative declaration.

**Finding 1 (Aesthetics)**

The project will not have a significant impact on aesthetics because there are no scenic resources in the area and the adopted standards for lighting and construction will minimize impacts. The landscaping strips will act as a visual screen and sound attenuation. The project is compatible with existing agricultural uses in the area. Impacts are considered less than significant.

**Finding 2 (Agricultural and Forest Resources)**

The project will not have a significant impact on agriculture or forest resources because the zoning and use of the land is agricultural. Other agricultural activities within the vicinity will not be adversely impacted by this project. There are no forest resources located within the vicinity of the project. Impacts are considered less than significant.

**Finding 3 (Air Quality)**

The project will not have a significant impact on air quality because the project will not violate air quality standards or contribute substantially to an existing air quality violation. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

**Finding 4 (Biological Resources)**

The project will not have a significant impact on biological resources. The sensitive habitats or natural communities as defined by the Department of Fish and Game or the U.S. Fish and Wildlife Service will not be adversely impacted by this project. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

**Finding 5 (Cultural Resources)**

The project will not have significant impact on cultural resources because there are no known resources recorded in the area. No new development will occur in an undisturbed area. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

**Finding 6 (Geology and Soils)**

The project will not have a significant impact on geology and soils because geologic hazards in the area are minimal. No permanent structures are proposed with the project. Best Management Practices are in place to prevent erosion. Soils can adequately accommodate the existing septic system. Impacts are considered less than significant.

**Finding 7 (Greenhouse Gas Emissions)**

The project will not have a significant impact on global climate change as a result of greenhouse gas emissions. The project is not in conflict with existing guidelines or standards. The project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG's. Federal, state, and local standards and codes reduce potential impacts to less than significant.

**Finding 8 (Hazards and Hazardous Materials)**

Hazards and hazardous materials will not have a significant impact on the environment as a result of the proposed project. The project will not interfere with an adopted emergency response plan nor expose people to risk of loss, injury, or death. Federal, state, and local standards and codes and mitigation measures reduce potential impacts to less than significant.

**Finding 9 (Hydrology/Water Quality)**

The project will not have a significant impact on hydrology and water quality because the project does not place structures within a 100-year flood hazard area and will not significantly alter the drainage pattern of the area. The project does not significantly interfere with groundwater recharge in the area. The project will be subject to Waste Discharge Requirements adopted by the Central Valley Water Board and shall adhere to the proposed Storm-Water Pollution Prevention Plan. The project will not substantially deplete groundwater supplies or expose people or structures to a significant risk of loss, injury, or death involving flooding.

**Finding 10 (Land Use and Planning)**

The project will not have a significant impact on land use and planning because the project would not physically divide an established community. The project site is designated “Intensive Agriculture” in the General Plan and is zoned “AP-80” (Agricultural Preserve Zone, 72-acre minimum parcel size). The proposed use meets the requirements of the Glenn County Code and General Plan with an approved Conditional Use Permit. The project will not conflict with an existing habitat conservation plan or natural community conservation plan. Therefore, it is concluded that there will be no impact.

**Finding 11 (Mineral Resources)**

The project will not have a significant impact on mineral resources. The project does not involve permanent structures. Gravel mining has occurred north of the project site. The proposed use is identified as a compatible land use relative to conservation of mineral resources. The project would not preclude gravel mining or natural gas well development from potentially occurring in the future. Impacts are considered less than significant.

**Finding 12 (Noise)**

The project will not have a significant impact on people residing or working in the area from excessive noise levels. Noise generating activities are required to meet the established standards prescribed by the County Code. The closest residence is located approximately 0.5 miles away. Employees will be required to wear protective gear to reduce noise exposure. The project site is not located within a public airport land use planning boundary and not in the vicinity of a private airstrip, which would expose people in the area to unacceptable noise levels. Additionally, this project will not expose people to excessive ground borne vibration. Impacts are considered less than significant.

**Finding 13 (Population and Housing)**

The project will not have a significant impact on population and housing because the project will not displace people or housing. This project would not induce substantial population growth directly or indirectly. Impacts are considered less than significant.

**Finding 14 (Public Services)**

The project will not have a significant impact on public services. The services of fire protection, police protection, schools, parks, and other public facilities are sufficient to accommodate the proposed project. Impacts are considered less than significant.

**Finding 15 (Recreation)**

The project will not have a significant impact on recreation because it would not substantially increase the use of existing recreational facilities nor does the project include such facilities. It is concluded that there will be no impact.

**Finding 16 (Transportation/Traffic)**

The project will not have a significant impact on transportation/circulation because it will not significantly increase traffic volumes on existing roads. The project will not change air traffic patterns. Existing roads do not have dangerous curves or intersections and they provide adequate emergency access to the project site. Alternative transportation plans will not be impacted.

**Finding 17 (Tribal Cultural Resources)**

The project will not have a significant impact on Tribal Cultural Resources because the property has been used for intensive agriculture and other soil disturbing activities. The proposed amendments will not change the footprint or require additional ground disturbance. Cultural Resource Mitigations are in place in the event resources are found.

**Finding 18 (Utilities and Service Systems)**

The project will not have a significant impact on utilities and service systems. The project can adequately be served by existing utilities and service systems. Impacts are considered less than significant.

**Finding 19 (Mandatory Findings of Significance)**

There is no substantial evidence in light of the whole record that the project may have a significant impact on the environment either cumulatively or individually with the proposed mitigation measures, conditions of approval, codified federal, state, and county standards, and adopted Best Management Practices. Impacts are considered less than significant with mitigation incorporated.

**MITIGATIONS:**

Mitigation Measure AQ-1 (Air Quality):

That the following Dust Control Plan shall be implemented:

The applicant shall water driveways and loading areas at a minimum frequency of two times per day (once in the morning, once in the afternoon, and more often as needed) when the driveways and loading areas are being utilized. The applicant shall suspend hauling and turning operations during high wind conditions of 25 miles per hour and higher. The applicant shall ensure that all trucks entering and exiting the facility maintain a minimum freeboard space of six inches. If fugitive material is found to be exiting the trucks during transport, the applicant shall ensure that the truckloads are covered.

Timing/Implementation: In Perpetuity  
Enforcement/Monitoring: Glenn County Air Pollution Control District

Mitigation Measure B-1 (Biological Resources):

That all deliveries of green material to the project shall be made in covered or enclosed vehicles in order to avoid or mitigate the potential for significant environmental impacts related to invasive species and damage to habitat. The applicant shall not accept deliveries of green material in uncovered vehicles, and shall post a sign at the entrance to the composting facility notifying drivers of that policy.

Timing/Implementation: In Perpetuity  
Enforcement/Monitoring: Glenn County Planning & Public Works Agency

Mitigation Measure CR-1 (Cultural Resources):

In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 100 feet of the resources shall be halted and the applicant/operator shall consult with the County and a qualified archaeologist (as approved by the County) to assess the significance of the find per CEQA Guidelines Section 15064.5. The qualified archaeologist shall determine the nature of the find, evaluate its significance, and, if necessary, suggest preservation or mitigation measures. Appropriate mitigation measures, based on recommendations listed in the archaeological survey report, will be determined by the Glenn County Planning & Public Works Agency Director. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is carried out. All significant cultural materials recovered shall be, at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documented according to current professional standards.

Timing/Implementation: During Construction/Excavation Activities  
Enforcement/Monitoring: Glenn County Planning & Public Works Agency

Mitigation Measure MFS-1 (Mandatory Findings of Significance):

That all vehicles and equipment shall be washed at regular intervals to reduce dust and spore levels.

Timing/Implementation: In Perpetuity

Enforcement/Monitoring: Glenn County Planning & Public Works Agency

Mitigation Measure MFS-2 (Mandatory Findings of Significance):

That the following Vector Control Plan shall be implemented:

1. There will be no standing water on the site related to the composting facility.
2. Weeds and grasses will be chopped to limit rodent habitat.
3. Manure and other fly-attracting materials will be tarped.
4. Manure will be brought on-site and mixed into the windrows just prior to commencement of the composting system.
5. The compost turning system will heat windrows to 140 + degrees, which will kill fly larvae.

Timing/Implementation: In Perpetuity

Enforcement/Monitoring: Glenn County Environmental Health, Glenn County Air Pollution Control District

The project cannot, or will not, have a significant effect on the environment. Mitigated Negative Declaration Status is therefore granted for this project and an Environmental Impact Report is thereby not necessary.

Reviewed by Planning Commission: \_\_\_\_\_

Chairman

Date: \_\_\_\_\_

Glenn County Planning & Public Works Agency  
777 North Colusa Street, Willows, CA 95988  
530.934.6540 Fax: 530.934.6533

**INITIAL STUDY**

**CALIFORNIA OLIVE RANCH COMPOST FACILITY**

**STATE CLEARINGHOUSE NO. 2017032061**

**June 2017**

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## 1.0 INTRODUCTION

**Project Title:** Conditional Use Permit 2017-001  
California Olive Ranch Compost Facility

**Lead Agency:** Glenn County Planning & Public Works Agency  
777 North Colusa Street  
Willows, California 95988

**Contact Person:** Andy Popper, Associate Planner  
(530) 934-6540  
APopper@countyofglenn.net

**Project Location:** The project site is located at 5945 County Road 35. The site is approximately three miles west of Artois and Interstate 5 in the unincorporated area of Glenn County, California, as shown on Figure 1.

**APN:** Glenn County APN 021-020-027-9 (project encompasses the western 30 acres of the 90-acre parcel); see Figure 2.

**Project Sponsors:** Applicant  
California Olive Ranch  
  
Mailing Address  
1367 East Lassen Avenue, Suite A-1  
Chico, California 95973

Physical Address  
5945 County Road 35  
Artois, California 95913

Vice President  
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Redding, California 96002  
WJohnston@vestra.com  
(530) 223-2585 (office)  
(530) 223-1145 (facsimile)

**General Plan:** “Intensive Agriculture”

**Zoning:** “AP-80” (Agricultural Preserve Zone, 72-acre minimum parcel size); see Figure 3.

**Project Summary:** California Olive Ranch (COR) has applied for a Conditional Use Permit to develop a facility to compost olive pomace (meat and skin) residual from the pressing of olives into olive oil. Following composting COR would reuse the compost following regenerative agricultural techniques on orchards under their control.

California Olive Ranch farms approximately 5,500 acres of olives and processes the olives, from their farm and other growers, into extra virgin olive oil at their processing and bottling facility west of Artois, California. The pressing of extra virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive; however, the cost associated with the disposal of this byproduct has been increasing. In response, COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller etc. Each year, the olive pomace is generated during the pressing window.

California Olive Ranch is proposing to compost up to 70,000 tons per year of olive pomace. The pomace has high moisture content (approximately 65 percent) and will be mixed with other agricultural products to facilitate composting. No commercial fertilizer additives are proposed. The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace (vegetative food material)
- Almond trash (floor sweepings, etc., from almond harvest)
- Manure (dairy)
- MOO (materials other than olives generated during processing)
- Orchard trimmings and stems/greenwaste and green material
- Other agricultural waste materials

The compost facility will include compacted compost areas, paved mixing area, bioswale, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back from property lines and County Road 35 and surrounded by a vegetative buffer of two rows of olives. Mix materials will be received via a separate entrance off County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a bioswale prior to discharge. The water will discharge to an agricultural drainage ditch and hence to White Cabin Creek.

The proposed facility will occupy approximately 30 acres of the 90-acre parcel as shown on Figure 2. The existing footprint will not be expanded with this project. All onsite activities will be located within the existing project boundary.

The primary goal of the project is to provide a positive use for olive pomace and other agricultural waste streams generated in the county, and reuse the compost on orchards under the control of COR, reducing the use of commercial fertilizers. A more detailed description of the project is included in Section 3.0.

#### **Surrounding Land Uses and Setting:**

North, West, and South: “AE-40” (Exclusive Agricultural Zone, 36-acre minimum parcel size)  
East: “AP-80” (Agricultural Preserve Zone, 72-acre minimum parcel size)

Land use within one mile of the facility is agricultural as shown on Figure 4. All parcels within two miles of the project site are zoned for agricultural uses. Almond and olive orchards are located on adjacent properties to the north, south, east, and west. The adjacent property north of the facility is farmed for rice. Other crops grown within a mile of the facility include walnuts, olives, and pasture. Three residences are located within one mile of the facility boundary.

The project is located west of Artois within the valley. Surface water near the facility consists mainly of irrigation ditches and creeks in controlled channels. Runoff flow will be directed to the northeast of the property and hence to an onsite bioswale before being directed to White Cabin Creek.

#### **Other Public Agencies Approval That May Be Required:**

The project will require review and/or discretionary approvals and permits from several agencies. The potential agency reviews and approvals required to implement the project are listed below.

- **Conditional Use Permit:** Issued by Glenn County Planning Division with CEQA concurrence.
- **Solid Waste Facility Permit (SWFP) and associated Report of Composting Facility Information:** Issued by Glenn County Environmental Health Department with concurrence from CalRecycle and the California Regional Water Quality Control Board (RWQCB).

- **Compliance with Order WQ-2015-0121-DWQ General Waste Discharge Requirements for Composting Operations and associated Technical Report Requirements:** Issued by RWQCB – may not be applicable to the project.

Other agencies may require permits that were not specifically listed or have yet to be recognized through the initial study and Glenn County permitting process. It is the responsibility of the applicant/agent to recognize and acquire any/all necessary permit approvals.

## 2.0 GENERAL BACKGROUND INFORMATION

### 2.1 Introduction

This Initial Study has been prepared for the proposed Conditional Use Permit as applied for by California Olive Ranch. This Initial Study has been prepared by the County of Glenn to identify potential impacts on the environment that could result from the proposed project and to identify any mitigation measures that will reduce, offset, minimize, avoid, or otherwise compensate for significant environmental impacts. This Initial Study has been prepared in accordance with the provisions of the California Environmental Quality Act (CEQA) and the County's rules to implement CEQA.

### 2.2 Project Location and Boundaries

The facility will be located at 5945 County Road 35 west of Artois, California, adjacent to the COR olive processing facility, in an unincorporated area of Glenn County (see Figure 1). The facility will occupy the western portion of Glenn County Assessor's Parcel Number (APN) 021-020-027-9 (see Figure 2). The facility will encompass approximately 30 acres of the current 90-acre parcel. The 30 acres will consist of approximately 24 acres of compost windrows and a 4-acre mixing area and the remainder of the parcel will be used for setbacks and roadway. See the Site Plan attached as Figure 5.

The project site is located in the northwest  $\frac{1}{4}$  of Section 12, Township 20 North, Range 4 West, M.D.B.M. The 90-acre property is roughly square in shape. The existing facility occupies approximately 30 acres of the parcel. Elevations on the proposal site range from about 190 feet to 212 feet above mean sea level (MSL).

### 2.3 General Environmental Setting

Land use within one mile of the facility is agricultural. Parcels within one mile of the project site are zoned for agricultural uses. Olive orchards are generally located on properties to the north, south, east, and west. Other crops grown within the area of the site include walnuts, almonds, rice, and pasture.

A total of three residences are located within one mile of the compost facility boundary (Figure 2). Out of the three residences, two of them are located within  $\frac{1}{2}$  mile of the facility boundary as shown in Table 1.

<b>Distance from Facility Boundary</b>	<b>APN</b>
0.25 mile south	020-020-016
0.45 mile west	020-021-025

The project is located west of Artois in the Sacramento Valley. The property is generally flat to gently rolling. The facility will direct runoff to the east and north to White Cabin Creek following construction. Surface water near the facility consists mainly of Sheep Corral Creek, White Cabin Creek, and irrigation ditches.

The site topography is even with adjacent parcels. No run-on will enter the site following construction. Drainage on the portion of the property used for composting will be directed to the northeast through a bioswale to filter runoff before it is discharged to White Cabin Creek.

The proposed project benefits from its location because of the following characteristics:

- Adjacent to olive processing facility and olive orchards
- Size and generally flat topography that facilitate design and construction of stormwater control features
- Proximity to agricultural compost users
- Clay soils to limit surface infiltration

## **2.4 Basics of a Composting Process and the Project**

Composting is a process where microorganisms break down organic matter and produce carbon dioxide, water, heat, and humus (the organic end product). Under optimal conditions, composting proceeds through three phases:

- 1) moderate-temperature phase, which lasts for a couple of days;
- 2) high-temperature phase, which can last from a few days to several months; and, finally,
- 3) a several-month cooling and maturation phase.

Different communities of microorganisms predominate during the various composting phases. Initial decomposition is carried out by moderate-temperature microorganisms, which rapidly break down the soluble, readily degradable compounds. The heat produced by the microorganisms causes the compost temperature to rapidly rise. As the temperature rises above about 40 degrees Celsius (°C), the moderate-temperature microorganisms become less competitive and are replaced by others that are high temperature, or heat loving. At temperatures of 55°C and higher, many microorganisms that are human or plant pathogens are destroyed. Because temperatures over about 65°C kill many forms of microbes and limit the rate of decomposition, compost managers use aeration and mixing to keep the temperature below this point.

During the high-temperature phase, high temperatures accelerate the breakdown of proteins, fats, and complex carbohydrates like cellulose and hemicellulose, the major structural molecules in plants. As the supply of these high-energy compounds becomes exhausted, the compost temperature gradually decreases and moderate-temperature microorganisms once again take over for the final phase of “curing” or maturation of the remaining organic matter. The result of this decomposition process is “compost,” a crumbly, earth-smelling, soil-like material.

The objectives of composting are to reduce pathogens to below detectable levels, degrade volatile (odor-producing) solids, and to produce a reusable product. Pathogens reduction is a function of time and temperature. The end product is usually a humus-like material that can be applied as a

soil conditioner and fertilizer to gardens, crops, orchards, and rangelands. Compost provides organic matter and nutrients (such as nitrogen and potassium) to the soil and improves soil texture.

## **2.5 Goals and Objectives**

The main goal of the project is to reuse 70,000 tons of olive pomace annually.

The project has the following objectives:

- To establish an efficient reuse of olive pomace
- To increase solid waste diversion through the recycling of other agricultural waste material
- To develop regenerative agricultural techniques for use on COR orchards
- To reduce COR use of commercial fertilizers

The organic material and water retention properties of compost can improve the agricultural productivity of soils.

## **3.0 PROJECT DESCRIPTION**

### **3.1 Proposed Conditional Use Permit**

California Olive Ranch has applied for a Conditional Use Permit (CUP) to allow them to operate a composting facility at the processing location west of Artois. The CUP would allow for the composting of 78,000 cubic yards of olive pomace and 121,000 cubic yards of other materials to generate a quality compost product.

#### **3.1.1 Facility Drawings and Improvements**

##### **3.1.1.1 Compost Area Design**

A site map of the facility is shown on Figure 6. Drainage and stormwater flow, including Best Management Practices (BMPs), are included on Figure 7. Because the facility will not use commercial fertilizers or additives, coverage under the General Industrial Stormwater Permit is not anticipated to be required. Run-on and runoff from the site are controlled by the completed site topography. All stormwater is designed to flow to the northeast of the property and hence to the bioswale.

Current topography is shown on Figure 8. Completed site topography is shown on Figure 9. A cross-section of the site is shown on Figure 10.

All drainage structures were designed to meet the 25-year, 24-hour storm event of 3.94 inches and an intensity of 0.154 inches per hour, based on data from the Orland Station.

The site will be compacted to meet the  $1 \times 10^{-5}$  cm/sec requirements for Tier II of the General Order for Composting Operations. Compaction testing showed the site soils can meet greater than  $1 \times 10^{-7}$  cm/sec hydraulic conductivity at 90 percent compaction. The site will slope at 0.5 percent to ensure that water is conveyed to drainage structures and that water flows off of the site away from the compost windrows. Windrows will be positioned parallel to the direction of water flow.

##### **3.1.1.2 Water and Wastewater Management Plan**

###### ***Precipitation Controls***

No covers or structures are planned for the facility. The mixing area and feedstock storage area will be paved and contain windcreens for blowing material. If necessary, feedstock storage piles prior to harvest will be covered. Late-harvest compost mix will be covered prior to windrowing.

###### ***Containment Structures***

The mixing area will include concrete pushwalls to control blowing and movement of mix materials. Pomace will be loaded directly into mix trucks. Stormwater will be directed to a bioswale and hence to discharge. No detention pond is currently planned.

### ***Best Management Practices***

Best Management Practices (BMPs) to be used onsite include:

- Dust Blowing Material
  - Concrete pushwalls
  - Screens
  - Cover piles
  - Separate entrance off County Road 35
  - Paved encroachment
  - Water gravel roads
  
- Runoff Stormwater
  - Paved mix area
  - Modified topography to control run-on
  - $1 \times 10^{-5}$  compaction
  - Drainage structures with rock check dams
  - Tiered bioswale
  - Wattles and straw bales as needed
  - Annual regrade and surveying
  
- Erosion
  - Gravel access road
  - Rock slope of bioswale
  - Rock check dams in drainage structures

### ***Contingency Plans***

The goal of mixing pomace to compost is to reduce overall initial moisture. Currently, “almond trash” is the best ingredient to absorb moisture. It also is anticipated that almond trash quantities will continue to increase, as additional orchards come on line.

The contingency is to have backup sources of materials that can be purchased and shipped quickly, such as rice hulls.

California Olive Ranch plans to operate two mix trucks. One additional truck may be rented to cover downtime on primary equipment. Loaders and water trucks are available for rental as needed.

### ***Control of Run-On and Runoff from Working Surfaces***

The site topography has been modified to prohibit run-on. Runoff is controlled by topography and placement of windrows. Runoff flows to the northeast and hence to the bioswale (see Figure 7).

## ***Water and Wastewater in the Compost Process***

No process wastewater is anticipated to be generated at the site. Stormwater will be directed into drainage structures and conveyed via topography and drainage structures to a bioswale prior to discharge.

### **3.1.2 Composting Facility Controls**

#### **3.1.2.1 Leachate Control**

The site will be situated on a compacted soil pad with greater than  $1 \times 10^{-5}$  cm/sec permeability. The pad is on a 0.5 percent slope. The facility is sloped to drain into a bioswale. The surface water drainage system includes swales with check dams. The proper management of compost via turning and moisture management will limit the generation of leachate. Residual feedstock (of which none is planned) and mixed materials will be covered for storage during the period after November 1. Windrows completed prior to November 1 and composting through March will be monitored for leachate production. The heating of the windrow during the compost process should reduce the moisture in the windrow, including local precipitation additions. Leachate generation is not anticipated to be a problem at the site. Any leachate generated will be conveyed to the bioswale and stored through the winter season prior to being applied as compost water.

#### **3.1.2.2 Groundwater Monitoring**

Groundwater monitoring is not anticipated to be required under this permit.

#### **3.1.2.3 Drainage/Stormwater Control**

The site has been designed to drain into a bioswale. All stormwater generated is directed to this swale. The facility is not subject to the *General Permit for Stormwater Discharges Associated with Industrial Facilities* Order No. 2014-0057-DWQ, as no fertilizer additives are planned to be added. The swale has been designed to meet the 25-year, 24-hour storm per the General Compost Order requirements.

A small portion of the facility is currently located within the floodplain of Sheep Corral Creek. This area of the site will be regraded and fill added so that the elevation is no longer in the floodplain boundary. Due to topography and site design, no run-on to the facility will occur. Runoff is directed to drainage control structures that contain rock berms and vegetation to assist in filtering water before it enters the bioswale.

#### **3.1.2.4 Nuisance Control**

The facility is located in a rural area surrounded by agricultural and pasture land uses. These uses are compatible with the compost operation. Adjoining properties are used for production of olives and pasture. The closest residence is located 1,000 feet from to the site to the west. An additional residence is located 1,500 feet to the south of the site.

### **3.1.2.5 Dust Control**

The mixing of compost to approximately 50 percent moisture limits the generation of dust from compost turning operations. To assist in control of dust from feedstocks during the mixing process, the mixing area includes windscreens and concrete pushwalls. A water truck will be used to suppress dust on the unpaved roadway between the olive pomace source and the compost mixing area. The feedstock receiving areas are paved to reduce dust and mud.

In summary, control of dust will be accomplished by:

- Use of windscreens and pushwalls
- Watering unpaved portions of the access road a minimum of two times per day
- Washdown of loading and mixing area if dust is an issue
- Covering of loads
- Retention of truck freeboard of 6 inches

Water at the site will be obtained from the onsite well or wastewater ponds.

### **3.1.2.6 Vector Control**

The feedstocks to be used at the facility will not attract birds or rodents. Because the mixing is completed over a rather short harvest window, feedstock does not sit for long periods that will attract rodents or birds. The actual composting process is initiated shortly after feedstock arrival. Pomace is not stored in the mixing area or unmixed on the site where it would attract vectors. In the event rodents or birds are found to be an issue, flagging, tape, and sound guns can be used to reduce populations. Poison bait will be used as necessary, if needed.

Fly populations are controlled by the proper management and handling of feedstock materials and the frequent turning of the compost rows. The frequent turnings increase the windrow temperatures and do not allow flies to complete their lifecycle. To minimize the opportunity for breeding of flies, material is covered and moist areas minimized. Feedstocks are not stored over the season. Composting conducted during the summer will be completed similarly to their ongoing operation where feedstock is received and composting begun in a few days. Completed compost stored prior to application on COR orchards should not attract vectors. Storage periods will be short and the material will be applied as soil amendment shortly after composting is complete beginning in April. Following each compost cycle, the pad area will be backbladed to remove areas for water to pond and any residual compost. The site will be maintained always in a clean and orderly manner to limit possible vector issues.

Fly bait can be used during the warm summer months when they are more likely to be an issue. If populations are observed, chemical sprays will be used. Specific vector control actions include:

- No standing water on the site related to the composting facility
- Weeds and grasses will be cut to limit rodent habitat
- Manure and other fly-attracting materials will be tarped
- Manure will be brought onsite and mixed into the windrows just prior to commencement of the composting system

- The compost turning system will heat windrows to 140-plus degrees, which will kill fly larvae
- Direct mixing of pomace
- Short storage time for feedstocks

### **3.1.2.7 Litter Control**

Litter will be generated in the COR composting operations. The composting operation may include limited amounts of greenwaste. Greenwaste is the only feedstock used onsite that may contain a litter component. This component will be removed via hand.

### **3.1.2.8 Noise Control**

Due to the short harvest window at COR, the facility will operate 24 hours a day during the harvest period. The facility is located in a rural area with compatible land uses. Likely sources of noise are the delivery of feedstock by truck, driving of the mixing trucks and use of loader and turner onsite. Noise will be limited by the use of equipment in good working order and by the vegetative buffer around the site.

### **3.1.2.9 Odor Control**

California Olive Ranch has completed an Odor Impact Management Plan for the site, which is included in Appendix A. The only feedstock that will be used that has an obvious odor is the olive pomace. Because the pomace will be mixed as it is generated with the other feedstock materials in an approximately 50:50 mix, there should be limited odor.

### **3.1.2.10 Traffic Control and Impacts**

This project is designed to reduce the disposal requirements for olive pomace. Previously, 1,700 to 3,900 truck trips were required to dispose of the pomace at the Wilbur-Ellis facility. The number of trucks necessary to deliver feedstocks to mix with the pomace will be reduced from that number and is estimated at 1,220 per season, or an average of 12 per operating day, with a maximum of 100 truck trips per day. The trucks leaving the facility with completed product will be limited to the roads in and around the current COR orchard areas in “off” years and to other orchards in the North Valley when extra compost is available. The number of truck trips of finished product is estimated at 2,700.

The COR facility is anticipated to have three employees per shift, resulting in six additional roundtrip vehicle trips per day. The employee vehicles will park adjacent to the COR vehicle maintenance building.

### **3.1.3 Maximum and Average Length of Time Compost Material will be Stored**

Materials will be delivered and mixed to windrows and the composting process begun as soon as possible. Composting generally takes 90 to 120 days to complete. The finished compost will be stored onsite for a short period. Compost finished at the end of the season may be stored for three to six months. Compost has heavy use seasons in both the spring and fall. It is possible

that finished compost and certain feedstock generated only at harvest times may be onsite for up to one year.

### **3.1.4 Maximum Compost Storage Capacity**

The maximum amount of compost stored onsite would be 110,000 cubic yards of compost mix. Up to 121,000 cubic yards of feedstock and 78,000 cubic yards of pomace may be composting onsite at any given time.

### **3.1.5 Method for Storage and Final Disposal of Non-Marketable Residues**

California Olive Ranch will control the supply of mix materials. Non-marketable residuals are not anticipated.

## **3.2 Project Timetable**

California Olive Ranch hopes to begin composting operations in September 2017.

### **3.3 Hours of Operation and Staff**

The facility will operate year round. During the olive harvest period, September through December, the facility will operate 24 hours a day, seven days a week, in conjunction with the 24-hour-per-day olive processing. Once the pomace and materials are mixed and windrowed, or piled and covered, the facility will return to a 40-hour week, Monday through Friday. Normal operating hours will be no more than one hour before sunrise until one hour after sunset. The facility will not be open to the public. Two full-time employees will work a standard 40-hour work week. Two additional employees will be needed during the olive processing and mixing window.

Additional temporary lighting will be required during the harvest season. Lighting will be provided by one or two generator-driven light stands. The lighting will be temporary during the harvest period from September to December. This will not be a significant change from current conditions, as the area is already subject to artificial lighting and 24-hour-a-day activities (trucks, etc.) during the olive harvest.

### **3.4 Method of Composting**

Composting will be completed using passive windrowing and turning techniques.

### **3.5 Feedstocks, Bulking Agents, and Additives**

The following composting feedstocks and bulking agents with estimated daily maximum tonnages may be received at the facility. The final materials to be used in the compost mix will be a function of the price and availability of bulking agents and feedstock. The majority of materials will be received over the three-month olive harvest window, as the pomace will be mixed directly for composting as it is generated at the facility. COR will control the shipment and delivery of all incoming raw materials.

	<b>Max per Day<sup>1</sup></b> <b>(tons)</b>	<b>Total</b> <b>Tons</b>	<b>Total</b> <b>Cubic Yards</b>
Olive Pomace (vegetative food material)	700	70,000	78,000
Almond Waste	500	31,500	78,000
MOO/Orchard Pruning (leaves and stems)	20	2,100	15,500
Manure (Dairy)	60	5,600	7,700
Greenwaste	100	10,000	20,000
Other Agricultural Waste Materials	TBD	--	--
Totals:	~1,660	--	~199,000

<sup>1</sup> The facility max tons per day are based on loading during the peak 100-day harvest period

Currently, COR intends to limit compost mix inputs to the olive pomace, “MOO” (materials other than olives sorted off the harvested olives), orchard prunings, dairy manure, almond trash, or other similar “agricultural materials.” Limited amounts of greenwaste may also be received. COR is committed to the development of a state-of-the-art compost facility to improve the overall sustainability of their product and to reduce dependence on commercial fertilizers.

All deliveries of limited greenwaste material to the project will be made in covered or enclosed vehicles in order to avoid or mitigate the potential for impacts related to invasive species and damage to habitat. COR will not accept deliveries of greenwaste material in uncovered vehicles. A sign will be posted at the entrance to the composting facility notifying drivers of that policy.

Other materials may be added as they become available or are determined to be needed in the compost mix (such as cogeneration ash and vegetable- and fruit-processing waste).

The facility will not receive any of the following:

- Food materials (non-vegetative)
- Biosolids (Class A, B, and/or EQ)
- Animal carcasses
- Liquid wastes other than those of food origin
- Medical wastes as defined in the Health and Safety Code, Section 117690
- Radioactive wastes
- Septage
- Sludges including, but not limited to, sewage sludge, water treatment sludge, and industrial sludge
- Wastes classified as “designated” as defined in Water Code Section 13173
- Wastes classified as “hazardous” as defined in CCR, Title 22, Section 66261.3
- Wood containing lead-based paint or wood preservatives, or ash from such wood

## 3.6 Capacity

### 3.6.1 Storage Capacity

The facility has been designed to be able to windrow up to 70,000 tons (78,000 cubic yards) of pomace and approximately 121,000 cubic yards of other materials, which will equal approximately 198,000 cubic yards of material or 110,000 cubic yards of compost mix onsite at any given time. The area not used for windrows will be used to stockpile covered, mixed material for windrowing in spring.

The pomace will be mixed as it is generated during the pressing process. Bulking agents and other mix materials will be delivered as needed during the mixing period September through December. The mixing area is designed to hold one to two days of mix materials.

### 3.6.2 Maximum Time for Storage

The maximum time for storage of mix materials onsite will be two to three weeks (in advance of olive harvest). Pomace will not be stored onsite as it will be mixed directly as it is produced. The maximum time for storage of late-season compost mix onsite prior to windrowing is four to five months (December to March or April). The maximum time for storage of completed compost mixture is two months. Early-harvest compost will be used on the COR orchards as soon as it is possible to work the ground in the spring, and in mid-summer for the spring-composted material.

### 3.6.3 Maximum and Minimum Storage Volumes

The maximum mixed material onsite at any time will be 110,000<sup>A</sup> cubic yards of compost mix, either completed or in process. This includes the mixing of 78,000<sup>B</sup> cubic yards of pomace and approximately 101,000<sup>C</sup> cubic yards of feedstock. Following mixing and composting, it is anticipated that 81,000<sup>D</sup> cubic yards of completed compost will be generated, 54,500<sup>E</sup> cubic yards in the spring and 28,500<sup>F</sup> cubic yards in the summer. The maximum amount of completed product stored at any given time is estimated to be 30,000 cubic yards.

<sup>A</sup> 1,532 (windrow volume (cyds)) \* 70 = 108,000 (reduction factor included)

<sup>B</sup> 1,110 (pomace (cyds)) \* 70 = 78,000 (no reduction factor)

<sup>C</sup> (222 + 1,110 + 111) (other (cyds)) \* 70 = 101,000 (no reduction factor)

<sup>D</sup> (101,000 + 78,000) \* 6 = 108,000 (reduction on mixing)

108,000 \* 3/4 = 81,000 (reduction on composting)

<sup>E</sup> 81,000 \* 0.65 = 54,000 (spring)

<sup>F</sup> 81,000 \* 0.35 = 28,000 (summer)

Operator: 8,000 \* 3/4 = 6,000

The previous calculations are presented to allow the regulatory community to evaluate the numbers. Greenwaste was not included in this calculation.

In addition, some feedstock materials may be composted during the summer period. COR will generate more compost than they will use, which will be available for sale or use elsewhere.

### **3.6.4 Peak Loads**

The facility has been designed to manage the peak loading associated with the generation of the olive pomace during harvest, up to 70,000 tons (78,000 cubic yards) of pomace from September to December. No other peak loading times are anticipated.

### **3.7 Equipment**

Equipment to be used onsite includes:

- 2 - Truck-mounted feed mixers, 10 cubic yards each (Kirby or equivalent)
- 1 - Rubber-tired wheel loader with 5-cubic-yard bucket (966 or equivalent)
- 1 - 18-foot-wide self-propelled windrow turner, 1,000 tons per hour capacity (likely a Midwest Bio-System 190)
- 1 - Water truck for dust suppression and water addition to windrows if needed

The onsite equipment will be diesel-powered. Equipment maintenance and fueling will be conducted at the existing COR maintenance shop located on the adjoining processing facility south of the compost area. The maintenance shop includes an aboveground diesel tank. All oil and grease are stored indoors at the maintenance facility. This facility has a Hazardous Materials Business Plan on file with Glenn County. Material storage and spill response is covered under that plan. The maintenance shop is also equipped with an employee lounge and restroom that will service employees working at the compost facility. Compost employees will park at the maintenance facility. For ease of operation, a portable toilet may be placed in the mixing area.

During the harvest period, an additional mix truck and/or loader may be needed to accommodate repairs and breakdowns. The equipment is available locally for rent.

### **3.8 Processing**

The pomace will be mixed directly out of the olive processing facility in the mix trucks. From the processing facility, the trucks will be driven to the mixing area where the mixing/bulking agents will be added. From here, the trucks will proceed to a windrow location where the material will be placed. It is anticipated that material will be mixed and windrowed until November 1<sup>st</sup>, after which point the materials will be mixed, stockpiled, and covered until March or April. Approximately two-thirds of the total pomace produced will be mixed and windrowed before November 1<sup>st</sup>. The remaining one-third will be mixed, stockpiled, and covered for the winter season. Once temperatures begin to warm in the spring, the mixed material will be placed in windrows and turned until complete.

When COR is not using portions of the composting pads in late spring and summer, these areas may be used by another party to produce a higher-quality compost product.

It is anticipated that the early windrowed material will be turned as needed and composting be completed by April or May. This first batch of completed compost will be applied to the COR orchards beginning in April or May. The stockpiled material that was covered in December will be uncovered and windrowed in March or April, depending on the weather, and will compost until July or August and be applied to orchards under the control of COR. The target application

rate is 5 tons per acre to the orchard cropland. This will be applied between the tree rows and seeded to a cover crop.

The composting will be completed using similar techniques to other composting operations in the County. The exception herewith is that the pomace and other bulking materials will be mixed in large mixing trucks that will mix and transport the material to the windrow location. Once a windrow is complete, it will be turned as needed using a standard turning machine.

The windrows will be on 32-foot centers and measure 16 feet wide and approximately 6 feet high. When composting is completed, three to four windrows will be combined into a large row to facilitate removal to orchards.

California Olive Ranch intends to use the compost on the 5,500 acres of orchards that they control adjacent to the processing facility and future orchards; if additional material is available, the additional 1,000 acres of contract growers will receive compost as well.

### **3.9 Material Handling**

Because the composting will be conducted during a relatively short window, a few days of mixable materials will be stockpiled in the weeks prior to harvest. Mix materials will be delivered via truck off of County Road 35 and stockpiled in or near the “mix area.” A separate entrance/exit will be developed for compost feedstocks. The driveway will be designed per Glenn County standards and paved to accommodate large equipment and trailers. If necessary, the mix materials will be covered prior to use. Mix materials planned for use are not anticipated to be pretreated prior to mixing.

California Olive Ranch anticipates using orchard trimmings generated from the annual pruning of olive orchards as part of the compost mix. These trimmings will be generated from the olive orchards adjacent to the processing facility. These materials will be stockpiled at the compost facility as they are generated June through August. The other materials planned for use will be delivered as needed during compost mixing with the exception of the few days of stockpile material addressed above.

Mix materials will be delivered by end-dump trucks. The estimated number of trucks to deliver mix materials will vary with the weight and volume of material received, but is estimated to be on average 12 truckloads per day during composting (100 truck trips per day maximum), or a total of 1,220 truck trips over the estimated 100-day harvest window (September, October, November, and part of December). In 2016, 1,700 truckloads of pomace were transferred to the Orland Airport. This amount is less than in previous years where the total number of truckloads of pomace exceeded 3,900. The pomace will no longer be transported offsite.

The material mixing area, where the dry material will be added to the pomace-filled mix truck, will be paved and have concrete push bins and walls to contain mix products. Wind screens will contain fine materials from blowing offsite.

### 3.10 Area Preparation

The windrowing areas will be compacted to greater than  $1 \times 10^{-5}$  cm/sec and will have a minimum slope of 0.5 percent. Prior to harvest, the compost windrow area will be scraped and regraded to ensure proper drainage.

Soil samples were collected in December 2016. The samples were submitted to Material Testing, Inc., in Redding, California, for analyses for the following:

- ASTM D1557 (maximum density/optimum moisture);
- Remold two samples for permeability testing: one to 90 percent relative compaction and the other to 95 percent relative compaction;
- Permeability (ASTM 5084 or ASTM 2434) on each sample.

Results of the testing are included in the Technical Report (VESTRA, 2017) prepared for the site. The test results indicate that the onsite soils will meet greater than  $2E-07$  cm/sec hydraulic conductivity at 90 percent relative compaction.

### 3.11 Compost Mixing

Compost will be mixed in truck-mounted feed-mix bins. Pomace will be fed into each mix truck from the existing hopper at the processing facility. The mix trucks will be driven to the mixing area where additional material will be added with a loader. The trucks will mix the material as they are driven and place the material along windrows. Once placed, the windrows will be turned with the compost turner. Moisture levels in the compost are monitored and managed to maintain approximately 50 to 60 percent moisture. Because the pomace itself has a moisture content of between 65 and 70 percent, most of the mix materials will be dry-source.

Water will be added as necessary to the windrows to maintain optimum moisture. The source of the water will be the existing well at the olive processing facility or future wastewater ponds. The well is identified as DWR Well 39606N1222621W001. The water will be applied to the windrows by water truck with a specially designed boom.

Windrows will be turned initially every other day and slowed to once a week as the 90-day compost window comes to a close. Temperatures are monitored twice weekly in the initial phases of composting and weekly thereafter.

Because of the differences in bulk density and moisture content, the compost mix placed in the windrows will be approximately 60 percent of the volume of the separate mix materials. As the compost feedstock decomposes, the volume will decrease by an additional 25 percent. As this occurs, windrows may be combined together using the loader in order to maintain proper temperatures and moisture levels. This is because the larger piles have less surface area per unit of volume than smaller rows and the rows with lower surface to volume ratios are easier to manage with respect to moisture and temperature.

The composting process generally takes 90 to 120 days, dependent on weather. After the compost period has ended and the compost had reached the required 131°F for 15 consecutive days, the windrows are combined into large rows to await transport to the olive orchards. The material will be sampled for nutrient and metal content. Determining the required nutrient rates for application to olive orchards will be completed by a professional Certified Crop Advisor. Field application will follow protocols issued by the RWQCB and will not be located within 100 feet of water supply wells or in floodplain areas.

Application to the olive orchards will be completed using spreaders. The final composted product will be loaded either directly into spreaders or into end-dump trucks for transport to specific agricultural blocks as needed for field application.

### **3.12 Annual Survey/Grading and Inspection**

The site will be graded annually prior to the olive harvest and then surveyed. The grading and survey will ensure that the site drains stormwater properly. The results of the survey and documentation of preparation will be provided to the RWQCB and Local Enforcement Agency (LEA).

### **3.13 Site Restoration Post-Closure**

Site restoration would be performed in accordance with 14 CCR Section 17870. Written notice will be provided to the LEA of intent to perform site restoration at least 30 days prior to site closure and commencement of site restoration. Site restoration will be completed that is necessary to protect public health, safety, and the environment. Upon site closure, all feedstock and finished compost will be removed from the site. Any refuse will be transported to the landfill. Equipment will be cleaned and properly stored or removed from the facility.

The swales and drainage may remain as part of olive operations or be releveled. The site will be deep-ripped to remove the compacted barrier and releveled for use as agriculture crops.

## 4.0 INITIAL STUDY ENVIRONMENTAL CHECKLIST

### 4.1 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.

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Aesthetics               | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources     | <input type="checkbox"/> Cultural Resources                 | <input type="checkbox"/> Geology/Soils                      |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials    | <input type="checkbox"/> Hydrology/Water Quality            |
| <input type="checkbox"/> Land Use/Planning        | <input type="checkbox"/> Mineral Resources                  | <input type="checkbox"/> Noise                              |
| <input type="checkbox"/> Population/Housing       | <input type="checkbox"/> Public Services                    | <input type="checkbox"/> Recreation                         |
| <input type="checkbox"/> Transportation/Traffic   | <input type="checkbox"/> Utilities and Service Systems      | <input type="checkbox"/> Mandatory Findings of Significance |

### 4.2 Determination

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.



Andy Popper, Associate Planner

June 16, 2017

Date

### **4.3 Purpose of this Initial Study**

This Initial Study has been prepared consistent with CEQA Guidelines Section 15063, to determine if the project, as proposed, may have a significant effect upon the environment.

## I. AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### a) Would the project have a substantial adverse effect on a scenic vista?

**No Impact.** There are no designated scenic vistas on or adjacent to the subject property. The surrounding topography is flat to gently sloping. The project as proposed is not expected to obstruct views in the area. The composting facility will be located behind a vegetative buffer. As there are no vistas or scenic viewpoints in the area, it is concluded that there will be no impact.

### b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

**No Impact.** There are no unique scenic resources or structures located at or near the project site. The roadways in Glenn County are not listed as Eligible or as Officially Designated Scenic Highways according to the California Department of Transportation. There are no rock outcroppings, historic buildings, or other potential scenic resources in the vicinity. This project will be located at an existing agricultural facility and the development as proposed will not impact resources in the area. Therefore, it is concluded that the project will have no impact.

### c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

**Less Than Significant Impact.** All surrounding properties are zoned “AE-40” (Exclusive Agricultural Zone, 36-acre minimum parcel size) and “AP-80” (Agricultural Preserve Zone, 72-acre minimum parcel size). Properties surrounding the project site consist of agricultural uses, primarily nut and olive orchards and various field crops. There are agricultural accessory structures associated with agricultural use within the vicinity of the project site.

The Glenn County General Plan (§6.12) sets performance standards for landfills, recycling, and composting facilities regulating noise, visual barriers, air quality standards, water quality standards, traffic accommodations, adjacent zoning designations, and land uses. To meet the requirements of the General Plan performance standards, the applicant is proposing a landscaping plan along County Road 35. The landscaping strips will be completed following approval and will be monitored for compliance by Planning Division staff. The landscaping strips will act as a visual screen and sound attenuation. The following condition of approval will be implemented under this amendment:

**Condition of Approval:**

*Landscaping along County Road 35 shall be at least five feet in height and continue to create a continuous visual barrier. Landscaping shall be maintained in a healthy condition; unhealthy plants shall be replanted.*

**d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

**Less Than Significant Impact.** The project includes additional light and glare into an area currently unlit. The lighting is intended to be portable and will only be used during the 24-hour operating period during harvest. The installation of new lighting will be required to conform to the Glenn County Code. Glenn County Code §15.560.080 (Glare and Heat) states the following: *All exterior lighting accessory to any use shall be hooded, shielded or opaque. No unobstructed beam of light shall be directed beyond any exterior lot line.* New exterior lighting will be required to be hooded to reduce glare and retain light to limited areas. Additionally, the light shall not be directed beyond the property lines.

## II. AGRICULTURE AND FOREST 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.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<b>Would the project:</b>				
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 non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature that could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) **Would the project 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 non-agricultural use?**

**Less Than Significant Impact.** This project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. According to the Farmland Mapping and Monitoring Program (FMMP) map produced by the state Department of Conservation, the majority of the land within the valley of Glenn County is classified as either "P" (Prime Farmland) or "S" (Farmland of Statewide Importance). The project site historically was used for olive orchards and is classified as "P" (Prime Farmland). Prime Farmland is land which has the best combination of physical and chemical features for producing crops and is irrigated.

The project will not convert farmland to non-agricultural use. The majority of the project site consists of Prime Farmland, but the facility will be directly related to agriculture. Approximately 30 acres of the 90-acre site will be utilized for the compost operation. The project is consistent with agricultural uses and the parcel is zoned for agriculture; therefore, this project will have no significant impact on agricultural resources.

In addition, the project has a plan for clean-closing the facility upon completion of operations. The clean-closure plan will address returning the surface soils and drainage patterns to their pre-project state, to the extent feasible, and establishing soil erosion control by planting a suitable mixture of vegetation. It is concluded that there will be a less than significant impact on the conversion of viable agricultural land.

**b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?**

**No Impact.** All surrounding properties are zoned “AE-40” (Exclusive Agricultural Zone, 36-acre minimum parcel size) and “AP-80” (Agricultural Preserve Zone, 72-acre minimum parcel size). See Figure 4. Properties surrounding the project site consist of agricultural uses. These uses consist of orchards and various field crops. There are agricultural accessory structures and residences associated with agricultural use within the vicinity of the project site.

The proposed project is defined as an “Agricultural Material Compost Operation”, which is an operation that produces compost from agricultural additives, and/or amendments (14 CCR Section 17852). The proposed facility will be directly related to agriculture. The facility provides a direct benefit/link to the agricultural operations on the premises and other agricultural lands in the vicinity. When added to soil, compost has many benefits. Some of these include: improved soil structure, porosity, and density in heavy soils; improved water-retention in loose soils; and the addition of essential plant nutrients such as nitrogen, phosphorus, and potassium. Compost from the facility will be marketed to organic crop producers, who will then use it as a soil amendment on their organic crops.

The proposed project is consistent with zoning and existing agricultural uses in the area; therefore, there will be no impact on existing zoning for agricultural use or a Williamson Act contract.

**c) Would the project 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))?**

**No Impact.** The proposed project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The project site is not zoned for forest land or timberland nor is it adjacent to land that is zoned for forest land or timberland. The project site is located within the “AP” Agricultural Preserve Zone (Chapter 15.460 of the Glenn County Code). This zoning category is meant to preserve agricultural uses. The “FA” Foothill Agricultural/Forestry Zone and “TPZ” Timberland Preserve Zone (Chapters 15.320 and 15.450 of the Glenn County Code) are meant to protect timber and forest lands. Areas zoned “FA” and “TPZ” are located within the Mendocino National Forest in the western part of the County. The

project does not involve rezoning property. Therefore, it is concluded that the project will have no impact.

**d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?**

**No Impact.** Forest land is defined in Public Resources Code section 12220(g) as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. This project will not result in the loss of forest land as the project site does not contain forest land. Therefore, there will be no impact as a result of this project.

**e) Would the project involve other changes in the existing environment which, due to their location or nature that could result in conversion of Farmland, to non-agricultural use?**

**Less Than Significant Impact.** This project will not involve a change of agricultural-related uses on the project site or surrounding parcels. The project does not include land being converted from farmland to non-agriculture related uses nor does it include land being converted from forest land to non-forest use. Therefore, there will be no impact.

### 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.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<b>Would the project:</b>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**a) Would the project conflict with or obstruct implementation of the applicable air quality plan?**

**Less Than Significant Impact with Mitigation Incorporation.** The proposal will not conflict or obstruct implementation of an applicable air quality plan. The Air Quality section of the Glenn County General Plan establishes mitigation measures designed to reduce particulate matter (PM) and ozone precursors in the ambient air as a result of emissions from sources that attract or generate motor vehicle activity.

Air quality standards are set at both the federal and state levels. The Glenn County Air Pollution Control District (GCAPCD) is responsible for the planning and maintenance/attainment of these standards at the local level. The GCAPCD has not identified a potentially significant impact on air quality with this project. The pollutants in Glenn County for which standards have been established include ozone and particulates (PM<sub>10</sub>). The County has been designated as a non-attainment area for both of these pollutants by the State. Pursuant to the California Clean Air Act of 1988, an updated 2009 *Air Quality Attainment Plan* has been prepared for the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA Districts have committed to jointly prepare and adopt the uniform air quality attainment plan for the purpose of achieving and maintaining healthful air quality throughout the air basin. The 2009 Plan focuses on the adoption and implementation of control measures for stationary sources, area-wide sources, and indirect sources, and addresses public education and information programs. The 2009 Plan also addresses the effect that pollutant transport has on the ability of the NSVPA to meet and attain the State standards.

The project would not result in a significant change in air quality impacts associated with transportation of materials to the facility and the associated emissions from heavy-duty diesel trucks. As the facility is located close to the source of pomace and other feedstock, it will reduce the amount of miles traveled by trucks and hence the emissions will decrease.

The project will create some dust emissions. Potential sources of dust include construction activities, turning of windrows, loading and unloading feedstock, periodic grading of new areas, and operation of onsite equipment. Fugitive dust from vehicle traffic will be controlled by paving the mixing and access areas and using a water truck as needed, as well as by screens installed in the unloading and mixing areas. Sufficient water for dust control will be obtained from an onsite groundwater well. The compost moisture content of approximately 50 percent will minimize dust from compost turning and screening activities. Water will be applied to the compost during the turning process, which will reduce the amount of dust generated.

**Mitigation:**

**Mitigation Measure AQ-1 (Air Quality):**

That the following Dust Control Plan shall be implemented:

*The applicant shall water driveways and loading areas at a **minimum** frequency of two times per day (once in the morning, once in the afternoon, and more often as needed) when the driveways and loading areas are being utilized. The applicant shall suspend hauling and turning operations during high wind conditions of 25 miles per hour and higher. The applicant shall ensure that all trucks entering and exiting the facility maintain a minimum freeboard space of six inches. If fugitive material is found to be exiting the trucks during transport, the applicant shall ensure that the truck loads are covered.*

*Timing/Implementation: In Perpetuity*

*Enforcement/Monitoring: Glenn County Air Pollution Control District*

A Dust Control Plan will be generated and provided to GCAPCD.

- b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

**Less Than Significant Impact with Mitigation Incorporation.**

See Section III a) above.

- c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?**

**Less Than Significant Impact.**

See Section III a) above.

Each project with emissions falling under regulatory standards much individually comply with the GCAPCD regulations. When adopting the General Plan in 1993, the Glenn County Board of Supervisors adopted a Statement of Overriding Considerations finding that the unavoidable impact to air quality could be overridden because any project would represent a cumulative impact and that the General Plan employed all feasible mitigations.

Also, each project would be required to utilize the best available control technology to mitigate impacts to air quality. The project is specifically subject to the regulations outlined in 40 CFR Part 503 and Title 14 CCR, Division 7, Chapter 3.1.

The pollutants in Glenn County for which standards have been established include ozone and particulates (PM<sub>10</sub>). The County has been designated as a “moderate non-attainment” area for ozone and “non-attainment” for PM<sub>10</sub> by the State. The facility employs a Dust Control Plan to manage dust. Given this information, it is concluded that the impact from the proposal is less than significant.

**d) Would the project expose sensitive receptors to substantial pollutant concentrations?**

**Less Than Significant Impact.** Air pollutants will potentially be generated from composting operations and vehicle emissions from trucks transporting materials to the site. There will not be a significant increase in vehicular activity as a result of this project. The closest public facility is the Interstate 5, Willows rest stop, which is located approximately three miles southeast of the site. There are no residential areas, churches, schools, or recreation areas within two miles of the site.

Land use within one mile of the facility is agricultural. Nut and olive orchards are located on adjacent properties to the north, south, east, and west. The adjacent properties north of the facility are farmed for rice. Two homes are located within ½ mile of the site. The closest of these is located just over 1,000 feet to the south of the site. Three homes are located within one mile of the site (see Figure 11).

Construction of the composting facility will involve diesel equipment. Operation of the composting facility will also involve diesel equipment. These activities can result in emissions of particulate matter from the diesel exhaust. The GCAPCD requires a Health Risk Analysis specific to diesel particulate matter exhaust when a residence is within 1,000 feet of a project. The project boundary is just over 1,000 feet of an existing residence; therefore, the project will not require a Health Risk Analysis.

The Odor Impact Minimization Plan discussed in the next section will reduce impacts from odor and volatile organic compound (VOC) emissions on the closest residences.

**e) Would the project create objectionable odors affecting a substantial number of people?**

**Less Than Significant Impact.**

The primary sources of composting-related odors are:

- (1) Feedstock management (e.g. delivery, storage, and handling);
- (2) Active composting (e.g. surface emissions, turning windrows, tearing down piles);
- (3) Curing (e.g. surface emissions, turning windrows, and tearing down piles).

Other minor sources of composting-related odors include mixing of feedstocks into windrows, finished product loading, and poor site management conditions (e.g. runoff, leachate, surface ponding, and road spillage).

The compounds that produce odors differ depending on the type of feedstock, condition of the feedstock, and the stage of composting (i.e. pre-processing stage, active composting

stage, curing stage). Feedstocks that decompose rapidly are likely to produce odors at higher concentrations than those feedstocks that decompose at a slower rate. In general, grass, green material, and manure produce more odors than woody waste. The delivery, storage, and handling of feedstocks can also greatly affect odors. If incoming feedstocks are not expeditiously processed, they may decay and begin to produce odors.

Windrow turning can result in the release of odors because some of the organic material within the pile may be in an anaerobic state. Compounds formed under anaerobic conditions and their characteristic odors may include hydrogen sulfide (rotten egg), carbon disulfide (disagreeable sweet), dimethyl sulfide (rotten cabbage), and ammonia (pungent, sharp). Newly formed windrows containing fresh organic material can potentially generate intense odors when turned. Odors produced at this stage are principally the result of the decomposition or breakdown of proteins and fats that contain sulfur and nitrogen compounds. These compounds generally break down during the first 14 days of composting, and odor generation is significantly reduced after this initial stage of decomposition.

Odors are also released from windrow surfaces during non-turning periods. Although surface emissions are the greatest overall source of odors from windrows, turning results in higher short-term spikes in concentration and intensity of odors. The fresher the material in the windrow, the greater the odor potential. Material that has been in the windrow for long periods of time is more stable and tends to be less odorous.

When the windrows are torn down, the potential for odors is considerably lower than for the initial composting process, because the compost has become more stable with time. The rate of decomposition is less and many of the odor-producing compounds have already broken down. There is less potential for odor generation during the final (curing) stage of composting, since organic compounds have already been degraded and curing piles require relatively infrequent turning. In addition, odors from finished compost are usually not considered to be offensive, unlike fresh composting feedstocks.

Odor can be emitted during the mixing process, depending on the feedstock and the time over which feedstock materials have been stored prior to mixing. For example, grass cuttings decay rapidly, and if stored prior to mixing, may emit ammonia and other types of sharply odorous compounds. Consequently, it is important for odor control that such feedstock be mixed as soon as possible upon arrival at the site.

Processing, grinding, and conveying the materials to the windrows also have the potential to generate odors, especially for putrescible materials such as grass clippings and food waste. Odors can be carried in the dust generated during the conveyance and grinding processes. Odor levels are generally minimal during final loading of the finished compost product for shipment offsite, and the characteristics of the odor from this process is that of a soil-like material. Odors can also be generated if runoff and leachate remain on the composting facility surface in sufficient amounts to form ponds.

Table 2 taken from Epstein (2004) identifies sources of odors during the composting process and the relative contribution of individual sources in comparison to total odor generation by composting facility operations. The relative odor contributions are expressed as a percentage of the total odor emissions typically generated.

As shown in Table 2, the greatest odor source by far is the composting windrows, especially during the first few days of feedstock decomposition.

<b>Odor Sources and Area Sources</b>	<b>Relative Odor Contribution</b>	<b>Potential Odor Characteristics</b>
Feedstock Storage	4%	Woody
Composting Windrows, 0-6 days old	30%	Stinky, sulfurous, fish, ammonia
Composting Windrows, 7-11 days old	10%	Stinky, sulfurous
Composting Windrows, 12-27 days old	40%	Earthy, mulch
Curing Windrows, 28-61 days old	11%	Earthy, soil-like
Curing Windrows, 62-90 days old	3%	Earthy, soil-like
<b>Volume Sources</b>		
	(<2% all sources combined)	
Grinding Operations	<1%	Woody
Feedstock Tipping	<1%	Stinky
Feedstock Mixing	<1%	Stinky
Compost Windrow Building	<1%	Stinky
Compost Windrow Turning	<1%	Ammonia, sulfurous
Compost Windrow Teardown	<1%	Mulch
Curing Windrow Turning	<1%	Mulch, woody
Curing Windrow Teardown	<1%	Earthy, soil-like
Screening	<1%	Woody, mulch
Product Loadout	<1%	Earthy, soil-like

A total of three residences are located within one mile of the compost facility boundary. A map is included which shows all residences within one mile of the facility (Figure 4). Out of the three residences, two of them are located within ½ mile of the facility boundary. The number of residences was determined by the Assessor Use Code for parcels lying within one mile of the existing facility and was verified via 2015 aerial photography. Based on the numerous complaints received regarding odors from existing composting facilities, it is possible that the proposed project could expose at least some members of the public to objectionable odors.

The applicant has prepared an Odor Impact Minimization Plan (OIMP) to provide guidance to onsite personnel on the handling, storage, and processing of compostable materials. The purpose of the OIMP is to reduce potential odor impacts during operation of the compost facility. The OIMP is prepared pursuant to the requirements established by the Department of Resources, Recycling, and Recovery (14 CCR 17863.4) and would act as the overall program document for odor control at the compost facility. The OIMP shall be submitted to the LEA for review and approval prior to operation. Specific mitigative actions included in the OIMP will reduce impacts to a less than significant level. The proposed OIMP is included in Appendix A.

#### IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**a) Would the project 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?**

**No Impact.** This project will not have a substantial adverse effect on species identified as a candidate, sensitive, or special-status species. According to the Glenn County General Plan and the California Department of Fish and Wildlife Natural Diversity Database, there are no areas within the project or surrounding areas that contain habitat for sensitive species (see Figure 12). The nearest species, the Swainson's hawk (*Buteo swainsoni*), was sighted approximately 1/2 mile east of the site in 2000 and the tri-colored blackbird (*Agelaius tricolor*) was last sighted approximately 4.25 miles northwest of the site in 1971. The compost facility and proposed additions will likely neither be an attraction or deterrent to either species. Due to (1) the distance of the species sightings from the project site, and

(2) that the land use will not significantly change with the approval of this project, there will be a less than significant impact on the Swainson's hawk and tri-colored blackbird with the approval of this project.

No habitat for special-status wildlife exists at the existing composting facility, with the exception of foraging habitat for Swainson's hawk.

This project involves new construction on undisturbed land. No trees will be removed with approval of this project. Bird species will continue to forage within surrounding agricultural fields. This project does not include activities that would adversely affect fisheries because the site is not located near major watercourses.

It is concluded that the project will have no impact on 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 Wildlife or U.S. Fish and Wildlife Service.

**b) Would the project 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 U.S. Fish and Wildlife Service?**

**No Impact.** According to Section 2.4.1 of Volume III of the General Plan, riparian communities formerly occupied extensive stands within the County; however, current riparian communities are principally located along the Sacramento River, Willow Creek, and Walker Creek. The project site is not located within the vicinity of these watercourses nor is it located within the vicinity of stream courses which feature riparian habitat.

Nearby surface waterbodies consist of Sheep Corral Creek and White Cabin Creek, as well as numerous irrigation ditches, drainage ditches for roads, and sloughs. Using Geographic Information Systems (GIS) data on riparian habitats created under the Sacramento River Stream Corridor Protection Program, no sensitive natural communities were identified onsite or in the surrounding area.

The project site is not located near the twelve important biological areas defined in Table 2-7 of Volume III of the General Plan. These important biological areas are mostly located within the riparian zones of the Sacramento River. The project site is not located within an area of special biological importance as shown on Figure 3-14 of Volume I of the General Plan.

**c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means?**

**No Impact.** According to the National Wetlands Inventory of the U.S. Fish and Wildlife Service, the facility boundary does not contain wetlands. Search results are shown on Figure 13.

The project will not directly remove, fill, interrupt the hydrology of, or otherwise impact federally protected wetlands. Therefore, it is concluded that there will be no impact on federally protected wetlands as a result of this project.

- d) **Would the project 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?**

**Less Than Significant with Mitigation Incorporation.** According to Section 2.4.2 of Volume III of the General Plan, there is a large expanse of deer range located in the western portion of the County next to the Mendocino National Forest. The project site is outside of this range area and there will be no impact on the existing deer range.

Glenn County is located within the Pacific Flyway, a migratory corridor for birds moving between their winter and summer ranges. Section 2.4.2 states that winter waterfowl habitat is located within and surrounding the Sacramento National Wildlife Refuge which is located in the southern part of the County. Many of these birds are protected by the Migratory Bird Treaty Act which prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the United States Secretary of the Interior. The project would have no impact on migratory waterfowl and other birds migrating through the region because the project does not include features which would draw migratory fowl to the area.

The project would not alter or destroy migratory wildlife corridors. According to Figure 2-7 of Volume III of the General Plan, major migration corridors are located in the western part of the County. The project would not significantly impede any migratory wildlife corridors.

The proposed project may import additional green material to the site from a variety of sources. The possibility exists that new species of plants could be introduced to the area. Introduction of plant species would act as a barrier to the normal replenishment of existing species. Proposed mitigation will reduce impacts to a less than significant level.

### **Mitigation**

#### **Mitigation Measure B-1 (Biological Resources):**

*That all deliveries of green material to the project shall be made in covered or enclosed vehicles in order to avoid or mitigate the potential for significant environmental impacts related to invasive species and damage to habitat. The applicant shall not accept deliveries of green material in uncovered vehicles, and shall post a sign at the entrance to the composting facility notifying drivers of that policy.*

*Timing/Implementation: In Perpetuity*

*Enforcement/Monitoring: Glenn County Planning & Public Works Agency*

- e) **Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

**No Impact.** The proposed project would not create a conflict with local policies or ordinances protecting biological resources because there are none within the area of the project. Therefore, it is concluded that there will be no impact.

- f) **Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

**No Impact.** The proposed project would not create a conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan because no plans have been adopted for this specific area. Therefore, it is concluded that there will be no impact.

## V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?**

b) **Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?**

**Less Than Significant Impact with Mitigation Incorporation.** In compliance with CEQA Guideline §15064.5 (Determining the Significance of Impacts to Archaeological and Historical Resources), a request for a records search was submitted to the Northeast Information Center (NEIC) at California State University, Chico, a member of the California Historic Resources Information System (CHRIS), to determine if cultural places are located within the project site. Results from the records search were received from the NEIC on February 14, 2017. The NEIC responded that:

**Prehistoric Resources:** *According to our records, no sites of this type have been recorded in the project area or within a mile of the proposed project. The project is located in a region utilized by Konkow Maidu populations. Unrecorded prehistoric cultural resources may be located within the project area.*

**Historic Resources:** *According to our records, no sites of this type have been recorded in the project area or within a mile of the proposed project. Unrecorded historic cultural resources may be located in the project area.*

In addition, NEIC recommended:

*We recommend that you contact the appropriate local Native American representatives for information regarding traditional cultural properties that may be located within project boundaries for which we have no records.*

The project site has experienced past extensive agricultural uses which have repeatedly disturbed the project site surface and soils to varying depths. However, if buried archaeological resources exist on the site, grading and other construction-related activities could cause significant impacts to these undiscovered resources. As a result, implementation of the following mitigation measures is necessary.

### Mitigation

**Mitigation Measure CR-1 (Cultural Resources):**

*In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 100 feet of the resources shall be halted and the applicant/operator shall consult with the County and a qualified archaeologist (as approved by the County) to assess the significance of the find per CEQA Guidelines Section 15064.5. The qualified archaeologist shall determine the nature of the find, evaluate its significance, and, if necessary, suggest preservation or mitigation measures. Appropriate mitigation measures, based on recommendations listed in the archaeological survey report, will be determined by the Glenn County Planning & Public Works Agency Director. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is carried out. All significant cultural materials recovered shall be, at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documented according to current professional standards.*

*Timing/Implementation:                      During Construction/Excavation Activities  
Enforcement/Monitoring:                      Glenn County Planning & Public Works Agency*

**c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

**No Impact.** The project site contains no known paleontological resources or unique geologic sites. Refer to the discussion above in regard to accidental discovery of paleontological resources.

**d) Would the project disturb any human remains, including those interred outside of formal cemeteries?**

**No Impact.** No human remains are likely to be encountered as the project site has not been known to be used as a burial ground. The potential exists during construction to possibly uncover previously unidentified resources. Section 7050.5 of the California Health and Safety Code states that if human remains are found during construction activities, all operations are to cease until the County coroner has determined that the remains are not subject to the provisions of law concerning investigation of the circumstances in the manner provided in Section 5097.98 of the Public Resources Code.

## VI. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Expose people or structures to 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**a) Would the project expose people or structures to 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?**

**No Impact.** According to Section 3.3.1 of the General Plan, Glenn County is in a relatively inactive seismic area. There are no Alquist-Priolo Special Studies Zones within the County. During the past 100 years, the County has experienced only

minor earthquakes within its boundaries and secondary impacts from earthquakes centered out of the area. Projections of future impacts are low to moderate. Glenn County is in a Seismic Design Load “D” according to the Uniform Building Code (UBC). All construction in the County is required to meet the standard set by the UBC for this area.

According to Section 4.1.4 of the General Plan, the highest historic intensity rating for an earthquake affecting Glenn County is VII as measured by the Modified Mercalli Intensity Scale. The UBC establishes standards for structures to survive earthquakes of an intensity of VII with little or no damage. The UBC also classifies all of Glenn County as being within a Seismic Risk Zone 3. Seismic risk zones are based, in part, on the distribution of earthquakes and the Modified Mercalli Intensity Scale rating of known earthquakes. A Seismic Risk Zone 3 requires that special precautions be taken, in accordance with the UBC, during construction to avoid or minimize earthquake damage.

The USGS and California Geologic Survey (CGS) produced a *Seismic Shaking Hazards in California* map (revised April 2003), which depicts the peak ground acceleration (pga) percentage that has a 10 percent potential of occurring in the next fifty years. Glenn County, as well as areas on the west side of the central valley, are rated as 10 percent to 30 percent on a scale of 0 percent to 100 percent. Additionally, no earthquake greater than a magnitude 5.5 has occurred in Glenn County in over 200 years (CGS Map 49, *California Earthquakes, 1800-2000*).

The seismic history of Glenn County shows the area to be generally stable. Glenn County’s stability can be correlated with its location away from tectonic plate boundary convergence/divergence and its location away from major active faults with high slip rates. Given these data, seismic-related activities such as rupture of known earthquake faults, strong seismic ground shaking, and ground failure such as liquefaction and landslides would have no impact on people in the area of the project or on new construction related to the project.

### iii) Seismic-related ground failure, including liquefaction?

**No Impact.** Due to the lack of seismic activity in Glenn County, it is unlikely that liquefaction or other ground failure of this type would occur. Liquefaction generally occurs in low-lying areas with saturated soils and its effects are commonly observed near waterbodies. Soils with a loose structure, such as sand, are more susceptible to liquefaction when saturated. The project site consists entirely of the following soil type as shown on Figure 14.

“AnC” (Altamont-Shedd Association, 3 to 15 percent slopes.

Depending on the level of saturation, these soil types may be subject to liquefaction during strong shaking in a seismic event. However, since 1800, there have been no recorded earthquakes in Glenn County above a magnitude 5. The Earthquake Shaking Potential for California map published by the CGS in 2003 indicates that Glenn County is in an area that only will experience lower levels of ground shaking. Further, the California Geologic Survey does not list Glenn County as an area where seismic activity affects soil stability. It is concluded that there is no impact.

Also see a) i-ii above.

**iv) Landslides?**

**No Impact.** Landslides include phenomena that involve the downslope displacement and movement of material, either triggered by static (gravity) or dynamic (earthquake) forces. Areas susceptible to landslides are typically characterized by steep, unstable slopes in weak soil or bedrock units. The highest potential for landslides exists in the western portion of the County. Figure 4-2 of Volume II of the General Plan depicts the project site as being in an area of least landslide potential. The topography of the site and surrounding area is relatively flat; therefore, it is not susceptible to slope failures and landslides. Therefore, it is concluded that there will be no impact.

Also see Section VI. a) i) above.

**b) Would the project result in substantial soil erosion or the loss of topsoil?**

**Less Than Significant Impact.** Figure 4-1 of Volume II of the General Plan shows that the project area is not located within an area prone to erosion. The project site is relatively flat and has been leveled in the past to accommodate agricultural practices. Severe erosion typically occurs on moderate slopes of sand and steep slopes of clay subjected to concentrated water runoff. These topographic conditions do not exist at the site. The site is located outside of the severe erosion areas (see Figure 15).

**c) Would the project 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?**

**No Impact.** This proposed project will have a less than significant impact on land involving unstable soils that may result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse. Soils and the geology of the project site are generally stable because of the area's seismic stability and low relief. Landslide potential in the County generally correlates with relief. Landslides are not a threat because the site is not located in an area with a great amount of relief. Figure 4-2 of Volume II of the General Plan shows that the project site is in an area of least landslide potential. Some lateral spreading or soil creep may occur over time, but this would have a less than significant impact on the project site. According to Section 4.1.3 of Volume II of the General Plan, potential subsidence areas occur in the eastern portion of the County where extensive groundwater withdrawals have occurred. Figure 4-3 of this section of the General Plan shows no potential subsidence areas within the project site. There is a low probability for liquefaction and ground collapse to occur because of the area's seismic stability. Based on this information, it is concluded that there will be no impact.

**d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

**Less Than Significant Impact.** Expansive soils are those that shrink or swell with the change in moisture content. The volume of change is influenced by the quantity of moisture, by the kind and amount of clay in the soil, and by the original porosity of the

soil. According to Section 4.1.5 and Figure 4-5 of Volume II of the General Plan, most of Glenn County has high expansive soils. According to the Natural Resources Conservation Service, the soil types at this site are classified as having either a low, low to moderate, moderate, or moderate to high shrink-swell potential. Soils containing a high clay content often exhibit a relatively high potential to expand when saturated, and contract when dried out. This shrink/swell movement can adversely affect building foundations, often causing them to crack or shift, with resulting damage to the buildings they support. The soils at the project site do not have a high clay content that would cause adverse effects to building foundations. There would be no substantial risks to life or property from this project because all future development will require compliance with the Uniform Building Code (UBC) to avoid potential unstable earth conditions or changes in geologic substructures. All future building construction must meet the requirements of the UBC and is reviewed for compliance by the Glenn County Building Official. California Building Code compliance reduces potential impacts from expansive soils to less than significant.

- e) **Would the project 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?**

**No Impact.** The project site relies on the use of septic tanks for the disposal of wastewater as there is no sewer system available in the area of the project. The project site has adequate area to support a future onsite sewage disposal system. Portable sanitation units with an approved sewage hauler contracted for sanitary disposal may be used at the facility during the peak harvest period. Otherwise, existing facilities located at the California Olive Ranch maintenance building will be used. Therefore, it is concluded that there will be no impact.

## VII. GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
<b>Would the project:</b>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Legislative/Regulatory

The Governor of California signed Executive Order S-3-05 (EO) in June 2005 which established statewide reduction targets for greenhouse gases. The EO states that emissions shall be reduced to 2000 levels by 2010, to 1990 levels by 2020, and by 2050 reduced to 80 percent of the 1990 levels. Assembly Bill 32, the California Global Warming Solutions Act, 2006 (AB 32), was signed into law in September 2006. AB 32 finds that global warming poses a serious threat to the economic wellbeing, public health, natural resources, and the California environment. It establishes a state goal of reducing greenhouse gas emissions to 1990 levels by the year 2020, which would be a 25 percent reduction from forecasted emission levels.

Senate Bill 97 (SB 97) was approved by the Governor of California in August 2007. SB 97 requires the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit guidelines to the Resources Agency for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA. In April 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the CEQA Guidelines for greenhouse gas emissions, as required by Senate Bill 97 (Chapter 185, 2007). The Natural Resources Agency conducted formal rulemaking prior to certifying and adopting the amendments, as required by Senate Bill 97. The Natural Resources Agency adopted the proposed amendments, and transmitted the amendments to the Office of Administrative Law on December 31, 2009. The Office of Administrative Law reviewed the Adopted Amendments and the Natural Resources Agency's rulemaking file. The Adopted Amendments were filed with the Secretary of State and became effective on March 18, 2010.

These CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in draft CEQA documents. The greenhouse gas guidelines fit within the existing CEQA framework by amending existing Guidelines to reference climate change.

**a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**Less Than Significant Impact.** Greenhouse gases (GHGs), as defined by Health and Safe Code, include but are not limited to water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), ozone (O<sub>3</sub>), and chlorofluorocarbons (CFCs) (Health and Safety Code §38500 et seq.). These gases all act as effective global insulators, reflecting back to earth visible light and infrared radiation.

The project cannot generate enough GHG emissions to influence global climate change on its own. The project participates in potential climate change by its incremental contribution (positive or negative) of GHG emissions that, when combined with the cumulative increase of all other natural and anthropogenic sources of GHGs, impact global climate change. Therefore, global climate change is a type of cumulative impact and the project's participation in this cumulative impact is through its incremental contribution of GHG emissions.

The primary source of GHG emissions associated with the project results from the transportation of materials to the facility and the associated emissions from heavy-duty diesel trucks. With this project, the total trucks decrease and hence the GHG emissions will decrease. As the facility is located close to the source, it will reduce the amount of miles traveled by trucks and hence the GHG emissions will decrease.

Methane emissions are commonly associated with various types of composting operations. The fugitive emissions from the decomposition of the waste will occur. The project is consistent with the AB 32 goal of reducing GHG emissions and is not in conflict with existing guidelines or standards. The project may reduce GHG emissions and provide consistency with AB 32. The County has a waste reduction program that diverts greenwaste and recyclable material out of the municipal landfill waste stream. The project will provide cost-efficient local agricultural and green material composting.

The following project objectives will all contribute to a reduction in GHG emissions:

- Increase solid waste diversion through the recycling of agricultural and green material in compost; and
- Materials considered in this analysis are modeled as being recycled in a closed loop (e.g., green/ag waste is recycled into compost).

Compostable organics make up 30 percent of California's overall waste stream, contributing over 12 million tons annually to California landfills. In landfills, this material undergoes anaerobic decomposition and produces significant quantities of methane, up to 80 percent of which is not captured by a landfill gas system. Composting, on the other hand, is a fundamentally aerobic process, and well-managed composting facilities produce little methane. Composting offers an environmentally superior alternative to landfilling organics that eliminates methane production, provides a series of economic and environmental co-benefits, and has a substantial impact on GHG production.

- **Compost can significantly reduce agricultural energy demand.** Plants grown in compost-rich soil require less irrigation because of the increased infiltration and storage capacity of root systems and the reduction of water runoff, evaporation, and water usage by weeds. Research has shown that the application of compost can reduce the need for irrigation by 30 to 70 percent. Given that approximately 8 percent of the electricity generated in the state is used to run California's massive water supply infrastructure, a substantial decrease in water consumption would significantly reduce energy consumption.
- Composting provides nutrient-rich soils, which multiple studies have shown results in greater carbon storage in crop biomass.
- **The application of compost results in a reduced need for GHG-producing, petroleum-based chemical fertilizer, pesticides, herbicides, and additives.**

These chemicals are carbon-intensive in their production and emit large quantities of global-warming pollutants during application and as they decompose in the soil. The use of compost can reduce the need for fertilizers for vegetable crops by 33 to 66 percent.

- **The application of compost greatly increases the amount of carbon sequestered in soil.** Experimental studies have shown that increased carbon sequestration in soil from composting application was 6 to 40 tons of carbon per hectare.

Based on the analysis provided above, it is concluded that the proposed project would have a less than significant impact on emissions of GHGs and climate change.

**b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

**Less Than Significant Impact.** See discussion in Section VII a) above. The project is consistent with the AB 32 goal of reducing GHG emissions and is not in conflict with existing guidelines or standards. The project will reduce GHG emissions and provide consistency with AB 32. The project may result in an overall net reduction of GHG emissions during project operation, which would ensure that the proposed project would not conflict with an applicable plan, policy, or regulation which has been adopted for the purpose of reducing the emissions of GHGs. Therefore, impacts associated with this issue would be less than significant.

## VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport/use/disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project in the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working there?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**a) Would the project create a significant hazard to the public or the environment through the routine transport/use/disposal of hazardous materials?**

**Less Than Significant Impact.** The project will require the use of petroleum-based products for onsite equipment. These products include oils, diesel fuel, and lubricants and are classified as potentially hazardous. The facility is currently regulated under Waste Discharge Requirements Order No. R5-2012-0039 adopted by the Central Valley Water Board on June 8, 2012, covering land application of wash water from processing.

California Olive Ranch has also filed a Hazardous Materials Business Plan (HMBP) with Glenn County.

Motor vehicles and equipment used for operating the facility are maintained and refueled onsite at the maintenance building. All used petroleum products will be recycled or properly disposed of at an appropriate receiving facility. The HMBP contained good housekeeping Best Management Practices (BMPs). BMPs include prevention of oil, antifreeze, and solvent spillage, and cleaning up of any spills in a timely manner. All equipment will be kept in good repair to prevent leakage of petroleum products and antifreeze. Any waste spills will be cleaned up immediately.

Spill response will be performed according to a site-specific spill prevention control and countermeasure plan (SPCC). Spill response will involve:

- 1) Spreading of absorbent pads and booms to absorb the spill. Sorbent material and any contaminated soil will be collected immediately and placed in Department of Transportation (DOT)-approved containers for appropriate disposal.
- 2) Reporting the spill to Glenn County Environmental Health Department, Glenn County Sheriff's Department, and the RWQCB within 24 hours of occurrence.

All hazardous materials such as diesel fuel are stored and managed according to applicable federal, state, and local regulations. All uses involving the storage and handling of hazardous materials are monitored by the Glenn County Air Pollution Control District (GCAPCD) which is the Certified Unified Program Agency (CUPA) for Glenn County.

The project is required to comply with Glenn County Code §15.560.070 which requires that all uses involving the use or storage of combustible, explosive, caustic, or otherwise hazardous materials shall comply with all applicable local, state, and federal safety standards and shall be provided with adequate safety devices against the hazard of fire and explosion, and adequate fire-fighting and fire suppression equipment. The project is also required by comply with Glenn County Code §15.560.110.A which requires all outdoor storage to be maintained in an orderly manner and shall not create a fire, safety, health, or sanitary hazard.

Local, state, and federal regulations for use and handling of hazardous materials associated with the project will reduce impacts to the public and the environment. Therefore, it is concluded that impacts would be less than significant.

- b) Would the project 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?**

**Less Than Significant Impact.**

Refer to subsection VIII a) above.

All uses involving the storage and handling of hazardous materials would be closely monitored by the GCAPCD, which is the CUPA for Glenn County. According to the GCAPCD, businesses that handle hazardous materials are required by law to provide an immediate verbal report of any release or threatened release of hazardous materials, if there is a reasonable belief that the release or threatened release poses a significant present or potential hazard to human health, safety, property, or the environment.

The Hazardous Material Spills and Chemical Fires Emergency Response Plan is the plan which details the concept of operations if there were to be a hazardous materials incident in the County. If an upset or spill of toxic material occurred during future construction or use, this existing plan is in place and would reduce the risk of exposure to a less than significant level.

Local, state, and federal regulations for use and handling of hazardous wastes will reduce impacts to the public and the environment. Therefore, it is concluded that impacts would be less than significant.

- c) **Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

**No Impact.** The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school. There are no schools located within ¼ mile of the project site and there are no schools or proposed schools within the vicinity of the project site. Therefore, it is concluded that there will be no impact as a result of this project.

- d) **Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and create a significant hazard to the public or the environment?**

**No Impact.** The project site is not in an area included on a list of hazardous materials sites compiled pursuant to California Government Code §65962.5. According to the database of cleanup sites provided through the California Department of Toxic Substances Control, Glenn County has cleanup sites within the City of Willows and Orland. There are no hazardous materials sites located in the area of the project. The project would not create a significant hazard to the public or environment. It is concluded that there will be no impact.

- 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 for people residing or working in the project area?**

**No Impact.** The project site is located approximately 6 miles north of the Willows Airport. This airport is the closest public use airport to the project site. The project site is not located within the airport land use planning boundary for this airport. This airport would have no impact on the project site and would not create a significant hazard for people residing or working in the project area. Therefore, it is concluded that there will be no impact.

- f) **For a project in the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working there?**

**No Impact.** Based on an analysis of digital aerial photographs from 2016 and USGS 7.5 minute quadrangle maps, one unused private airstrip was identified approximately 1.25 miles northeast of the project site. The airstrip runs in a north-to-south direction. The airstrip is located on property owned by California Olive Ranch and is no longer being used. If the airstrip is utilized in the future, it would still have no impact on the project

site as it is located over a mile away. Therefore, it is concluded that there will be no impact on the project from a private airstrip.

**g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

**No Impact.** The project would not interfere with an adopted emergency response or evacuation plan. All roads in the area would remain open. The project site is located on private property with adequate access to county roads. The project will not interfere with adjacent roadways that may be used for emergency response or evacuation. Designated emergency evacuation routes in the event of flood or dam failure are listed in Section 3.7 of Volume II of the General Plan. The project site is not located within the vicinity of the designated evacuation routes. The proposed project does not pose a unique or unusual use or activity that would impair the effective and efficient implementation of an adopted emergency response or evacuation plan. Therefore, it is concluded that there is no impact.

**h) Would the project expose people or structures 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?**

**No Impact.** The proposed project would not expose people, agricultural lands, or structures to a significant risk of loss, injury, or death involving wildland fires surrounding the project site. The project site is not located within a State Responsibility Area managed by the California Department of Forestry and Fire Protection (CAL FIRE). It is adjacent to the State Responsibility Area (see Figure 16). The site is not ranked by CAL FIRE. Figure 17 shows a map of fire hazard severity zones. According to this map, the project site is not located within one of the fire hazard zones. The most severe wildland fires occur in the western portion of the County within the Mendocino National Forest. It is concluded that there will be no impact on the project from wildland fires.

## IX. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) **Would the project violate any water quality standards or waste discharge requirements?**

**Less Than Significant Impact.** The compost facility will be located in the Northern Sacramento Valley. The site has an average potential evapotranspiration rate of 52.08 inches according to the California Irrigation Management Information System (CIMIS) Station #61, located 10 miles northeast of the facility. See Figure 18. The high evapotranspiration rate in combination with proper compost moisture management will limit the generation of leachate. The site will be situated on a soil pad with a permeability of no faster than  $1 \times 10^{-5}$  cm/sec on a 0.1 percent slope. The facility will drain through a 1,100-foot by 10 foot bioswale (0.25 acre) before leaving the property.

The surface hydrology in the vicinity of the site is shown on Figure 19. Currently, the site drains to White Cabin Creek and Sheep Corral Creek, hence to Wilson Creek, and hence to the Sacramento River.

The facility is currently regulated under Waste Discharge Requirements Order No. R5-2012-0039 adopted by the Central Valley Water Board for land application of waste wash water. This order does not currently allow for composting. California Olive Ranch has applied for coverage under Order WQ-2015-0121-DWQ General Waste Discharge Requirements for Composting Operations. To ensure compliance the following Condition of Approval is recommended:

**Condition of Approval:**

*The applicant shall provide proof that all necessary permits from the Central Valley Regional Water Quality Control Board (RWQCB) have been obtained prior to commencement of the uses permitted with this Conditional Use Permit. The applicant shall provide the Glenn County Planning Division with copies of all documents and permits required by the RWQCB.*

Permits required by the RWQCB, which has jurisdiction over waste discharge, will mitigate potentially significant impacts to a less than significant level. Order WQ-2015-0121-DWQ requires the operator to obtain coverage under the General National Pollutant Discharge Elimination System (NPDES) Permit for Industrial Activities (IGP) and submit a Stormwater Pollution Prevention Plan (SWPPP) to the Regional Board prior to operation.

Facilities requiring coverage under the IGP are summarized in Attachment A of the IGP. Coverage is a function of being specifically listed in Attachment A, including facilities subject to effluent limitation guidelines under 40 CFR Subchapter N, Landfills; under Subtitle D of RCRA, Hazardous Waste Treatment Facilities; under RCRA Subtitle C, Power Generation Facilities and Wastewater Treatment Plants; or based on Standard Industrial Classification (SIC) code.

40 CFR § 122.26(b) (14) provides that facilities are considered to be engaging in “industrial activity” if they are “classified as” any one of a number of specified SIC codes. The IGP provides regulatory coverage for facilities with the industrial activities described in the permit where the covered industrial activity is the Discharger’s “primary” industrial activity. In some instances, a Discharger may have more than one industrial activity occurring at a facility. The primary activity is that activity that is associated with the primary source of revenue (Standard Industrial Classification Manual 1987, U.S. EPA, 1992).

The SIC defines an establishment as “an economic unit, generally at a single physical location, where business is conducted or where services or industrial operations are performed.” However, “for activities such as construction, transportation, communications, electric, gas, and sanitary services, and similar physically dispersed operations, establishments are represented by those relatively permanent main or branch offices, terminals, station, etc. that are either (1) directly responsible for supervising such activities, or (2) the base from which personnel operate to carry out these activities.”

Composting facilities do not have individual SIC codes. The SIC code used historically to require IGP coverage is 2875 Fertilizer Mixing Only. This SIC code is under 287 Agricultural Chemicals and includes “establishments primarily engaged in manufacturing nitrogenous and phosphatic basic fertilizers, mixed fertilizers, pesticides, and other agricultural chemicals. Establishments primarily engaged in manufacturing basic chemicals, which require further processing or formulation before use as agricultural pest control agents, are classified in Industry Groups 281 or 286.”

Specifically, SIC Code 2875 includes:

**2875 Fertilizers, Mixing Only.** Establishments primarily engaged in mixing fertilizers from purchased fertilizer materials.

Compost

Fertilizers, mixed: made in plants not manufacturing fertilizer materials

Potting soil, mixed

Most commercial compost operators add limited commercial fertilizers to their final compost. No commercial fertilizers are planned to be added to the California Olive Ranch compost; therefore, coverage under the IGP may not be required.

The pomace will be mixed directly out of the olive processing facility in the mix trucks. From the processing facility, the trucks will be driven to the mixing area where the mixing/bulking agents will be added. From here, the trucks will proceed to a windrow location where the material will be placed. It is anticipated that annually material will be mixed and windrowed until November 1<sup>st</sup>, after which point the materials will be mixed, stockpiled, and covered until March or April. Approximately two-thirds of the total pomace produced will be mixed and windrowed before November 1<sup>st</sup>. The remaining one-third will be mixed, stockpiled, and covered for the winter season. Once temperatures begin to warm in the spring, the mixed material will be placed in windrows and turned until complete. When COR is not using portions of the composting pads in late spring and summer, these areas may be used by another party to produce a higher-quality compost product.

It is anticipated that the early windrowed material will be turned as needed and composting will be completed by April or May. This first batch of completed compost will be applied to the California Olive Ranch orchards beginning in April or May. The stockpiled material that was covered in December will be uncovered and windrowed in March or April, depending on the weather, and will compost until July or August and be applied to orchards under the control of California Olive Ranch.

An example of the proposed cover for “spring” compost is shown on Figure 20.

An NPDES permit for construction activities is also required. Construction-related impacts would be reduced to less than significant by the implementation of BMPs that are part of the required SWPPP. All stormwater leaving the facility passes through a filter strip and is subject to regulations set forth in the Clean Water Act.

- b) **Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?**

**Less Than Significant Impact.** The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. A water supply well for the California Olive Ranch facility will be used if needed for water application and is located onsite. The same system may be used for filling water tanks used for dust control. Compost that needs water in its early stages of composting may have collected pond water applied. No additional wells are proposed with this project; however, California Olive Ranch has obtained a permit for an additional onsite well.

Groundwater occurs in the alluvial deposits underlying the alluvial fans, low plains, and basin flats of the Sacramento Valley. The site is located in the Colusa Subbasin of the larger Sacramento Valley Groundwater Basin. The Colusa subbasin is comprised of deposits of late tertiary to Quaternary age, including the Holocene alluvium and Pleistocene terrace deposits of the Tehama Formation.

The Tehama Formation consists of sediments originating from the coastal mountains and is the primary source of groundwater of the subbasin. Department of Water Resources (DWR) has noted that there do not appear to be any increasing or decreasing trends in water levels within the subbasin. This may be due in part to the existence of numerous irrigation districts and use of canal water for irrigation in many portion of the subbasin. There are 14 DWR-monitored groundwater wells within five miles of the site. Information on the wells is included in Table 3. Well locations are shown on Figure 21.

Based on water well driller reports for the onsite industrial well and two nearby well clusters, the first significant water-bearing zone occurs at a depth of approximately 50 to 80 feet bgs. Based on the relation between lithology and horizontal hydraulic conductivity (Freeze and Cherry, 1979, Page 29), the hydraulic conductivity of this water-bearing unit may vary between 30 feet/day and 3,000 feet/day (0.01 to 1 cm/sec).

The depth to groundwater in the onsite industrial well varies between approximately 10 feet and 80 feet bgs. The minimum depth to water of 9.9 feet bgs occurred in 1998. Information on local, site-specific groundwater flow direction is not available. Based on a review of DWR data from 2006, groundwater flow generally follows topography toward the Sacramento River. Localized variations occur in response to local pumping and the locations of Sheep Corral Creek and Walker Creek near the site.

Groundwater quality has been obtained from four wells near the site under GAMA. The well with the most analyses is located approximately 1,250 feet northwest of the proposed site. The well has been sampled since 1957. Nitrate averages 21 mg/L. pH ranges between 8.4 and 8.9 pH units.

Existing groundwater resources would be sufficient to serve the project.

<b>Site Code ID</b>	<b>Distance from Site</b>	<b>Use</b>	<b>Status</b>	<b>Total Depth (feet)</b>	<b>Depth to Water (feet)</b>	<b>Years of Record</b>
396468N1222278W001	3.5 miles	Irrigation	Inactive	900	40-72	58
396060N1222621W001	Onsite	Industrial	Active	172	10-80	54
396049N1222495W001	1 mile	Observation	Active	1,030	84-184	10
396049N1222495W002	1 mile	Observation	Active	664	130-190	10
396049N1222495W003	1 mile	Observation	Active	515	49-199	10
396049N1222495W004	1 mile	Observation	Active	160	24-94	10
396034N1222377W001	1.5 miles	--	Inactive	150	13-93	68
396391N1222438W001	2.25 miles	Residential	Active	Unknown	36-111	54
396312N1222419W001	2 miles	Stock	Inactive	142	24-94	21
396332N1222356W001	2.5 miles	Residential	Active	161	29-129	38
396309N1222335W001	2.25 miles	Unknown	Inactive	33	14-64	28
396277N1222344W001	2 miles	Irrigation	Active	430	17-92	65
396258N1222343W001	2 miles	Unknown	Inactive	21	2-11	6
396252N1222351W001	2.25 miles	Unknown	Inactive	410	20-120	55
396252N1222351W002	2.25 miles	Unknown	Inactive	565	1-25	55
396252N1222351W003	2.25 miles	Unknown	Inactive	240	20-110	55
396252N1222351W004	2.25 miles	Unknown	Inactive	120	20-95	55

The vertical hydraulic conductivity in the vicinity will limit the downward migration of any leachate produced onsite.

On December 29, 2016, four test pits were excavated by hand to a depth of greater than 12 inches. The samples were submitted to Materials Testing, Inc., in Redding, California, and analyzed for ASTM D1557 and ASTM 5084. The objective of these tests were to determine optimum moisture content for compaction and the hydraulic conductivity of samples remolded to 90 percent and 95 percent of maximum density at optimum moisture. Optimum moisture varied between 15.4 percent and 18.2 percent and the hydraulic conductivity of the samples varied between 2.35E-07 and 5.31E-07 cm/sec.

On January 26, 2017, four additional test pits were excavated along the perimeter of the proposed composting operation area to a depth of approximately 7 feet. Test pits were logged for lithology according to *ASTM Method D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*. Soil samples were collected from surface and subsurface soils and submitted to Materials Testing, Inc., for analysis using ASTM 5084. The objective of these tests were to characterize the lithology to approximately 7 feet bgs and to submit one undisturbed soil sample from each test pit for vertical hydraulic conductivity testing. The undisturbed sample from each test pit was collected from the soil unit deemed to be the least permeable based on grain size and lithology. General lithology is summarized in Table 4 and the vertical hydraulic conductivity test results are summarized in Table 5.

Location ID	Max Depth (ft bgs) <sup>1</sup>	Sampled Interval (ft bgs)	Typical Soil Type (USCS)	Notes
TP-1	7.0	3-3.5	0-2: Clayey Sand 2-5.5: Gravelly-Sandy Clay 5.5-7: Gravelly Sand	Profile consists of fill material
TP-2	7.0	3.5-4	0-2.2: Sandy Clay 2.2-7: Silty Clay	Native Material
TP-3	7.0	3.5-4	0-2.4: Sandy Clay 2.4-7: Silty Clay	Native Material
TP-4	6.5	3-3.5	0-2: Clayey Sand 2-5: Sandy Clay 5-6.5: Gravelly Sand	Disturbed Fill Material

**Notes:**  
<sup>1</sup> Feet below ground surface

Test Pit	Depth (feet)	Lithology	Hydraulic Conductivity (cm/sec)
TP-1	3-3.5	Gravelly Sandy Clay	1.59E-07
TP-2	3.5-4	Silty Clay	1.74E-07
TP-3	3.5-4	Silty Clay	1.70E-07
TP-4	3-3.5	Sandy Clay	4.8E-07

Two distinct lithologies were exposed in the test pits; one was a coarse-grained lithology consisting of a clayey sand approximately 2 feet thick overlying a gravelly sand with variable amounts of matrix clay. This material was exposed in the two southern test pits, TP-1 and TP-4. This is believed to be disturbed fill material placed during past grading and filling activities. Discussions with personnel onsite suggest that this is indeed fill material and does not represent native soils.

The second observed lithology consisted of a 2.5-foot-thick sandy clay overlying a silty clay. Both clay units were dense and highly plastic. Moderate amounts of organic material were present in the upper 3 feet of these pits and associated with gleyed mottles. This fine-grained material is believed to be native soil and is consistent with the soils mapped by the USDA Soil Survey. These clay soils were encountered in the two northern test pits, TP-2 and TP-3.

Based on the undisturbed hydraulic conductivity test results and the relationship between lithology and hydraulic conductivity in Freeze and Cherry (1979), the effective vertical hydraulic conductivity through each layered profile to a depth of either 6.5 or 7 feet was calculated. The average effective vertical hydraulic conductivity through the profile is  $4.6 \times 10^{-7}$  cm/sec, with values ranging between  $1 \times 10^{-6}$  and  $2.5 \times 10^{-7}$  cm/sec.

- c) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or offsite?**

**Less Than Significant Impact.** The grading and drainage pattern of the project site will be changed to drain to the bioswale and hence to White Cabin Creek. A slight increase in runoff will occur following site compaction. Surface runoff will not result in erosion or siltation on- or off-site.

Due to design topography, no run-on to the facility is expected. See previous design figures.

- d) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?**

**Less Than Significant Impact.** See discussion in Section IX. C) above. The facility will be designed to limit run-on and direct run-off to the bioswale prior to offsite discharge. Stormwater runoff from the composting pads travels toward the eastern portion of the site into the bioswale. The grading and drainage patterns of the site will not increase surface runoff which would result in flooding on- or off-site. The site is not located in an area prone to flooding. Therefore, it is concluded that there will be a less than significant impact.

- e) **Would the project 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?**

**Less Than Significant Impact.** The project would not result in a substantial amount of runoff; therefore, it would not exceed the capacity of a stormwater drainage system.

- f) **Would the project otherwise substantially degrade water quality?**

**Less Than Significant Impact.** The proposed project will not substantially degrade water quality. Construction activity could expose soils to erosion and could result in the transportation of sediment into local drainages. Additionally, if fuel is accidentally spilled during refueling of heavy equipment during construction or operation of the facility, water quality could be degraded. These impacts would be mitigated by implementing existing BMPs that are included in the construction SWPPP or IGP, if required.

- g) **Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?**

- h) **Would the project place within a 100-year flood hazard area structures, which would impede or redirect flood flows?**

**No Impact.** A small portion of the project site (in the southwest corner) is located within a 100-year flood hazard area, according to Federal Flood Insurance Rate Maps (see Figure 22). No housing is associated with the project. Therefore, this project would not place housing or structures within a 100-year flood hazard area. Site development and grading

will result in the site being outside of the 100-year floodplain. Therefore, it is concluded that there will be no impact.

- i) **Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?**

**No Impact.** As discussed in Section IX g) and h) above, the project will not be located within a 100-year flood hazard area following construction. People working at the project site would not be exposed to a greater risk from flooding as a result of the project. The project site is not located near major levees that could fail and cause flooding. Due to design topography, no run-on to the facility is expected. It is concluded that there will be no impact.

- j) **Would the project be subject to inundation by seiche, tsunami, or mudflow?**

**No Impact.** There would be no impact on the project site from inundation by seiche or tsunami because the project area is not located near large bodies of water that would pose a seiche or tsunami hazard. Intensive mud flows occur in areas with steep terrain, heavy rain, and loose soils. The site is not located near steep terrain, mountains, or steep slopes that would pose a mud flow hazard. Therefore, it is concluded that there will be no impact.

## X. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### a) Would the project physically divide an established community?

**No Impact.** The proposed project would not physically divide an established community. All proposed onsite activities will be conducted within the existing footprint of the site. The area consists of agricultural and low density residential uses and is not part of a developed community. It is concluded that there will be no impact as a result of this project.

### b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

**No Impact.** The General Plan land use designation for the site is “Intensive Agriculture” and the zoning is “AP-80” (Exclusive Agricultural Zone, 72-acre minimum parcel size). A composting facility is a conditionally permitted use in the “AP” zoning classification (Glenn County Code §15.330.040.B, Y). Section 6.12 of the General Plan lists standards for landfills, recycling, and composting facilities. The project would be developed consistent with the General Plan land use goals and policies and no significant land use impacts will occur. It is concluded that there will be no impact.

### c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

**No Impact.** There are no existing plans in the area of the project; therefore, there will be no impact.

## XI. MINERAL RESOURCES

Would the project?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) **Would the project 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) **Would the project 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?**

**No Impact.** According to the Mined Land Classification Map for Concrete-Grade Aggregate Resources Central Glenn County, produced by the Department of Conservation (1997), the project area is not located within an area which contains significant aggregate resources. The proposed project would have no impact on oil, gas, and geothermal resources. According to the Oil, Gas, and Geothermal Fields in California, 2001 map by the Department of Conservation, Glenn County does not contain oil or geothermal fields but contains several natural gas fields. Additionally, no oil or geothermal resources have been discovered in the County according to Section 2.5 of Volume III of the General Plan. The project site lies on a sedimentary basin within the area of the Greenwood gas fields. Therefore, it is concluded that the project will have no impact on mineral resources.

## XII. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) **Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

**Less Than Significant Impact.** The project site is located in an area of lands zoned for agricultural uses. Agricultural-related operations at this site are exempt from County noise ordinances as stated in Glenn County Code §15.560.100.F8. Section 6.10 of the General Plan supplies noise/land use compatibility guidelines and noise level standards. According to Section 6.10, noise level performance standards do not apply to mobile noise sources associated with agricultural operations on lands zoned for agricultural uses. No significant increase in noise is anticipated as a result of this project.

Currently, during olive harvest, noise occurs 24 hours per day, seven days per week. Noise is associated with trucks delivering olives and removing pomace. The truck trips removing pomace will cease. Trucks delivering feedstocks will use a separate entrance off of County Road 35 farther from the nearby residences. The noise associated with compost operations during harvest is considered baseline. Limited additional noise will be associated with compost turning during the remainder of the year, and the loading and transfer of completed compost offsite are anticipated to be small and mitigated by the vegetative buffer and standard equipment features.

Noise impacts associated with onsite activities and traffic is not anticipated to exceed the area's existing ambient noise levels. In addition, the property will have a vegetative fence or hedgerow along County Road 35. The hedgerow will be useful as a visual screen and sound attenuation. All equipment to be used is late model and in sound working order with proper sound-attenuating mufflers attached.

Based on the aforementioned information, it is concluded that there will be a less than significant impact from project generated noise.

**b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

**No Impact.** The proposed project would not generate excessive groundborne vibrations. Vibrations are regulated by Glenn County Code §15.560.130, which states that no use shall generate ground vibrations which are perceptible without instruments beyond the lot line. Ground vibration caused by motor vehicles, aircraft, temporary construction work or agricultural equipment are exempt from the vibration performance standard as stated under Glenn County Code §15.560.130. Sources of noise and vibration associated with the project include equipment, haul trucks, and other vehicles. These sources will not produce excessive groundborne noise or vibration. Initial construction work would be temporary and would not cause significant groundborne vibration. It is concluded that there will be no impact.

**c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

**Less Than Significant Impact.** Ambient noise in the area is primarily the result of traffic on adjacent roadways and noise generated from nearby agricultural uses. It is anticipated that noise generated as a result of this project will not exceed the area's existing ambient noise levels. No substantial permanent increase in ambient noise levels in the project vicinity will result. Therefore, impacts are concluded to be less than significant.

Also see Section XII a) above.

**d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

**Less Than Significant Impact.** There will be temporary or periodic increases in noise during future construction activities. This increase in noise will be sporadic and temporary. Construction-related noises between the hours of 7:00 a.m. and 7:00 p.m. are exempt from the local noise standards per Glenn County Code §15.560.100(F) (5). Construction-related noise levels at other times are regulated by the above-referenced County Code section.

At maximum capacity, truck traffic will average 12 truck trips per day in order to receive feedstock. Truck traffic will not increase with this project; however, the timing of the traffic will be extended. Most truck traffic will occur during normal business hours. Additional truck traffic will not cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity. Therefore, potential impacts are concluded to be less than significant.

Also see Section XII a) above.

- 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 expose people residing or working in the project area to excessive noise levels?**

**No Impact.** The project site is located approximately 6 miles north of the Willows Airport. This airport is the closest public use airport to the project site. The project site is located outside the airport land use planning boundary for this airport. This airport would not expose people in the project area to excessive noise levels. Therefore, there would be no impact on people working or residing in the project area from noise levels generated from public airports.

- f) **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

**No Impact.** Based on an analysis of digital aerial photographs from 2015, one private airstrip was identified approximately 1.25 miles east of the project site. The airstrip runs in a north-to-south direction. The airstrip is located on property controlled by California Olive Ranch and is no longer used. If the airstrip is utilized in the future, it would still have no impact on the project site as it is located over a mile away. Therefore, there will be no impact to people working in the project area from excessive noise levels generated by a private airstrip.

### XIII. POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Induce substantial 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) **Would the project induce substantial 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)?**

**Less Than Significant Impact.** The proposed project would not induce substantial population growth directly or indirectly. No new residences are being proposed. The addition of employees will have a less than significant impact on population growth. Further, although the project will assist communities in meeting their waste diversion obligations, that fact alone will not induce substantial population growth. The project does not include the extension of roads or other infrastructure. Therefore, it is concluded that the project would have a less than significant impact on population growth.

- b) **Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**
- c) **Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

**No Impact.** The proposal would not displace existing housing or people within the area of the project. Construction of replacement housing would not be necessary with this proposal. Future activities associated with this project would not displace people or housing. Therefore, it is concluded that there will be no impact.

#### XIV. 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:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- 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:**

**i) Fire protection?**

**Less Than Significant Impact.** Glenn County is primarily serviced by volunteer fire protection districts. The community of Hamilton City and the City of Willows are the only areas that have paid firefighter personnel. The project site is serviced by the Artois Volunteer Fire District. It operates two water tenders, two pumpers, two quick-attack four-wheel-drive vehicles, and one rescue unit. The fire station is located approximately three miles west of the project site. County roads provide adequate transportation routes for the fire department to reach the project site in the event of a fire. Response time would not be affected by the proposed project. The fire district maintains mutual aid agreements with nearby fire districts, including districts in Orland and Willows.

Due to the chemical characteristics of the material mixture used in composting, fires from composting operations are extremely rare. Compost normally has high moisture content which helps to prevent fires. In the event of a feedstock fire, trained employees will use water from trucks and wheeled loaders to wet the feedstock and smother the fire. For equipment fires that cannot be extinguished with a fire extinguisher, Artois Fire District will be summoned. It is concluded that there will be a less than significant impact on fire protection as a result of this project.

**ii) Police protection?**

**Less Than Significant Impact.** The proposed project would have a less than significant impact on law enforcement services provided by the Glenn County Sheriff's Department. There is a Sheriff's Office located in the City of Willows and substations located in the City of Orland and within the unincorporated community of Hamilton City. Transportation routes to the project site are adequate for law enforcement to reach the

area in the event of an emergency. Response time would not be affected by the proposed project. This part of the County is used primarily for agricultural uses. This project will not require the staffing of additional peace officers or the purchase of additional equipment to support law enforcement activities. No housing is associated with the proposal and a maximum of two employees will be onsite at any time. The proposed project does not require an expansion of the existing facility boundary. Therefore, it is concluded that the impact from the proposal is less than significant.

**iii) Schools?**

**No Impact.** The project will not result in an increase in demand on the public schools system. The project site is located within the Willows Unified School District. There are no activities which would require or impact the services of the Willows Unified School District. Therefore, it is concluded that there is no impact from the project.

**iv) Parks?**

**No Impact.** The County provides for maintenance and upkeep of the existing parks within the unincorporated area. There are no park facilities located within the vicinity of the project site. There are no activities which would require additional parks or impact existing facilities. Therefore, it is concluded that there is no impact from the project.

**v) Other public facilities?**

**No Impact.** Public agencies have reviewed this project for impacts to public services and facilities and no potentially significant impact has been identified. Onsite equipment is diesel powered. A generator will be used to power the extra lighting required during the peak period of harvest operations. A well for applying water to compost windrows is located onsite. The same system may be utilized for filling water tanks used for dust control. Compost that needs water in its early stages of composting may have collected pond water applied to it. A portable toilet will be maintained for use at the compost facility in addition to the sanitary facilities located at California Olive Ranch. A septage contractor will remove the liquid waste. There are no public facilities in the area or in other parts of the County that would be impacted by this project. Therefore, there is no impact to other public facilities.

## XV. RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- 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?**

**No Impact.** Approval of this project would not increase the use of existing regional parks and other recreational facilities and no substantial physical deterioration of these facilities would occur or be accelerated. There are no park facilities within the area of the project. The project does not include uses that will attract additional residents to the area; therefore, there will be no need to build additional recreational facilities or expand existing facilities. Therefore, it is concluded that there will be no impact.

## XVI. TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to design feature (e.g. sharp curves, dangerous intersections) or incompatible uses (e.g. farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) **Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**

**Less Than Significant Impact.** The project will not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.

The project site is adjacent to County Road 35. Traffic in the area of the project is generally agricultural and limited residential. The majority of truck traffic for this project is directed east on County Road 35 to Interstate 5. Current vehicle traffic in the area consists of farm vehicles, trucks, and equipment. Additional vehicle traffic as a result of this project would not have a significant impact on current access roads or nearby connecting roads.

Up to three employees are planned at maximum facility capacity, equaling six small vehicle trips per day. Parking is available at the California Olive Ranch for truck traffic and employee needs.

The following composting feedstocks and bulking agents with estimated daily maximum tonnages may be received at the facility. The final materials to be used in the compost mix will be a function of the price and availability of bulking agents and feedstock. The majority of materials will be received over the three-month olive harvest window, as the pomace will be mixed directly for composting as it is generated at the facility. COR will control the shipment and delivery of all incoming raw materials.

	<b>Max per Day<sup>1</sup> (tons)</b>	<b>Total Tons</b>	<b>Total Cubic Yards</b>
Olive Pomace (vegetative food material)	700	70,000	78,000
Almond Waste	500	31,500	78,000
MOO/Orchard Prunings (leaves and stems)	20	2,100	15,500
Manure (Dairy)	60	5,600	7,700
Greenwaste	100	10,000	20,000
Other Agricultural Waste Materials	TBD	--	--
Totals:	~1,660	--	~199,000

<sup>1</sup>The facility max tons per day are based on loading during the peak 100-day harvest period

Historically, up to 3,900 truckloads of pomace per season have been hauled to the Wilbur-Ellis facility at the airport. It is anticipated that bulking agents and mix materials will require approximately 1,220 truckloads over the composting period. Approximately 2,700 truckloads of completed compost are anticipated to be removed to local COR orchards. This was calculated based on 35 percent shrinkage at mixing and 30 percent shrinkage following composting. The additional vehicle trips per day would fall within the expected traffic volumes of County Road 35.

The pomace will be mixed as it is generated during the pressing process. Bulking agents and other mix materials will be delivered as needed during the mixing period September through December. The mixing area is designed to hold one to two days of mix materials.

The Glenn County General Plan establishes a level of service (LOS) for road segments and signal-controlled intersections. LOS is used to grade road conditions from a designation of “A” to a designation of “F.” The County defines LOS using the methodologies presented in the *Highway Capacity Manual* (Transportation Research Board 2000).

The following table summarizes the LOS descriptions as taken from the 2005 Regional Transportation Plan:

Table XVI-2, Roadway Level of Service		
LOS	Condition	Description
A	Free flow	Individual users are virtually unaffected by the presence of others in the traffic stream. Speeds are controlled by drivers' desires, stipulated speed limits, or physical roadway conditions.
B	Stable flow	The presence of others in the traffic stream begins to be noticeable. Speeds begin to be restricted; there are few or no restrictions on maneuverability from other vehicles.
C	Stable flow	LOS C marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by the interactions with others in the traffic stream. Speeds and maneuverability are more closely restricted; there are occasional backups behind left-turning vehicles at intersections.
D	Approaching unstable flow	Tolerable speeds can be maintained, but temporary restrictions may cause extensive delays. There is little freedom to maneuver, comfort and convenience are low, and at intersections some motorists, especially those making left turns, may wait through one or more signal changes.
E	Unstable operations	LOS E represents operating conditions at or near the capacity level. There is unstable flow with stoppages of momentary duration, and maneuverability is severely limited.
F	Forced flow	LOS F represents a forced breakdown of flow. There are stoppages for long periods, and vehicles operate at low speeds. Delays at intersections average 60 seconds or more.

These traffic projections represent a level of service "A." The additional vehicle trips per day would not have a significant impact on current access roads or nearby connecting roads. The increase is not substantial based on roadway capacity. The increase in traffic will not exceed applicable County standards and guidelines for Level of Service on streets near the site. Consequently, it is concluded that there will be a less than significant impact on transportation and traffic.

- b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?**

**Less Than Significant Impact.** See the discussion in section XVI a) above.

The Glenn County General Plan states that Level of Service (LOS) "C" is the standard for all road segments in the County. Primary access to the project site is from County Road 35, which connects to Interstate 5. County Road 35 is currently at a LOS "A."

The additional traffic would not adversely affect the level of service that currently exists on the aforementioned county roads. Additionally, all roads will continue to operate at or better than the level of service "C" standard as prescribed by the County General Plan. Therefore, projected traffic increases on affected roadways are concluded to have less than significant impacts.

The additional traffic is not anticipated to adversely affect the level of service that currently exists on the aforementioned county roads. Additionally, all roads will continue to operate at or better than the level of service "C" standard as prescribed by the County General

Plan. Therefore, projected traffic increases on affected roadways are concluded to have less than significant impacts.

Glenn County Public Works made the following comments regarding the proposal:

**Comments**

*That prior to any work being done in the County Right-of-Way an Encroachment Permit shall be applied for and received from the Glenn County Planning and Public Works Agency.*

*That the applicant shall construct off-street parking in accordance with the requirements of Title 15.610 of the Glenn County Code. Said parking areas shall be designed to accommodate all employees and customers.*

*This project has the potential to increase truck traffic in the area. It is recommended that a Road Maintenance Agreement is added to this Conditional Use Permit. A similar fee based formula that we have used recently on other truck traffic generating Conditional Use Permits is recommended. The fee would be based on the weight of the product exported from the site. The applicant should give us the route used by their trucks so that we can apply the fees collected to those roads.*

**Conditions**

*That no off-site parking associated with this development shall be allowed on County Road “35”. That the driveway shall be constructed in accordance with Glenn County Standard S-19 for a Private Road Intersection, except that the minimum driveway width shall be 24 feet in anticipation of trucks and equipment utilizing the driveway*

A conditional use permit generally requires the applicant to enter into a Road Maintenance Agreement with the Glenn County Public Works. Glenn County Public Works recommends that in lieu of a Road Maintenance Agreement, the applicant agree to a funding mechanism with the County to provide a funding source for wear of County roads due to trucks.

The following is proposed as a Condition of Approval:

**Condition of Approval:**

*That the applicant/operator shall pay money into a road maintenance fund (paid to the Glenn County Planning & Public Works Agency) to be paid on an annual basis to maintain County roadways. The payment shall be equal to \$0.00002314 (July 1, 2016 to June 30, 2017) per pound (approx. \$4.63 per 100 tons). The fee is based on the weight of the product exported from the site. The payment described above shall be amended on an annual basis, based on the All-Urban Consumers, Consumer Price Index (computed by the U.S. Department of Labor, Bureau of Labor Statistics).*

- c) **Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

**No Impact.** The proposed project would not result in a change in air traffic patterns that would result in safety risks. The project is not dependent upon air-transport-related materials, manpower, or services, and would therefore not result in increases of air traffic

levels or changes in air traffic locations. No project design feature will obstruct air traffic patterns. Therefore, it is concluded that there will be no impact as a result of this project.

- d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**Less Than Significant Impact.** The proposed project would not substantially increase traffic hazards due to a design feature or incompatible uses. The project does not include potentially hazardous design features such as sharp curves or dangerous intersections. The project will not render existing features of nearby roadways hazardous. The project will not be incompatible with other uses of nearby roadways. This project does not involve changes to existing access roads. The increase in traffic along access roads will not be significant and should not create conflicts with agricultural equipment in the area. The project proposes to have all parking and loading conducted onsite.

The proposed project would be required to meet the standard parking requirements established in the Glenn County Code. In order to assure that parking is confined to the project area, the following Condition of Approval shall apply:

**Condition of Approval:**

*No on-street parking associated with this development shall be allowed.*

Glenn County Code §15.610.050.A states that the minimum width of a driveway for two-way traffic shall be 18 feet. The Glenn County Engineering and Surveying Division has determined that the driveway width should be a minimum of 24 feet in anticipation of large equipment trailers utilizing the driveway. The following Condition of Approval shall apply:

**Condition of Approval:**

*That the driveway shall be constructed in accordance with Glenn County Standard S-19 for a Private Road Intersection except that the minimum drive width shall be twenty-four (24) feet in anticipation of large equipment trailers utilizing the driveway.*

- e) Would the project result in inadequate emergency access?**

**No Impact.** The project would not result in inadequate emergency access because County Road 35 provides for adequate ingress and egress to the site. Baseline traffic and projected operational traffic volumes will not change and will not hinder emergency response time. It is concluded that the project would have no impact on emergency access.

- f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

**No Impact.** The project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Glenn County has a deviated fixed bus system (Glenn Ride). There are no stops located in the vicinity of the project site. This project will not conflict with plans, policies or programs related to the transit system. There are

no bicycle or pedestrian facilities located within the vicinity of the project. It is concluded that the project would have no impact.

**XVII. TRIBAL CULTURAL RESOURCES**

**Would the project:**

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:

<b>Potentially Significant Impact</b>	<b>Less Than Significant with Mitigation Incorporation</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
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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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**a) 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.**

**a) i) and ii)**

**No Impact.** Also see section V. Cultural Resources. The property is already in use as an agricultural orchard. The proposed amendments will not increase the agricultural use footprint or require disturbing additional ground.

## XVIII. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable RWQCB?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

**No Impact.** The project will not require the services of a wastewater treatment provider. All onsite wastewater will be managed in the onsite septic system, or by use of a portable sanitation unit. An approved and licensed sanitation hauler will dispose of wastewater. Disposal will take place at an approved offsite facility and will comply with applicable requirements. It is concluded that there will be no impact.

**b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

**No Impact.** The project will not require the services of a wastewater treatment provider. All onsite wastewater will be managed in the onsite septic system, or by use of a portable sanitation unit. An approved and licensed sanitation hauler will dispose of wastewater. No wastewater treatment facilities will need to be constructed or expanded. The project will utilize an onsite irrigation well to supply needed water. The project will not require or

result in new or expanded facilities which could cause significant environmental effects. Therefore, it is concluded that there is no impact.

- c) **Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

**No Impact.** The project site will be graded and compacted to manage stormwater drainage. New stormwater drainage facilities include a bioswale. There will be no impact.

- d) **Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

**Less Than Significant Impact.** The project does not require new or expanded entitlements for water supplies. A well for applying water to compost windrows is located onsite. The same system may be utilized for filling water tanks used for dust control. No additional wells are proposed with this project, although California Olive Ranch has obtained a permit for an additional site well. Existing groundwater entitlements and resources would be sufficient to serve the project. There will be a less than significant impact on water supplies.

- e) **Would the project 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?**

**No Impact.** There is no municipal wastewater treatment provider for the area. Individual sewage disposal systems are currently the only method of providing sewage disposal for the project area. All onsite wastewater will be managed in the onsite septic system or by use of a portable sanitation unit. An approved and licensed sanitation hauler will dispose of wastewater. No wastewater treatment facilities will need to be constructed or expanded. Therefore, there is no impact.

- f) **Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

**Less Than Significant Impact.** Composting of agricultural wastes and other materials offers an efficient, environmentally safe and cost-effective method to divert materials from the waste stream. Composting is a proven, viable management alternative that complements landfill disposal, directly resulting in reduced disposal costs and environmental impacts. The project benefits the landfill by diverting waste. Therefore, the net effect of the project may be to increase landfill capacity.

No litter is anticipated to be generated by the facility. The municipal greenwaste is the only imported feedstock that contains significant quantities of plastic film that can be carried by the wind. Large pieces of film will be removed from the feedstock by hand when recognized. After high wind events, fugitive film that has left the facility is picked up by facility employees.

Solid waste disposal is provided at the Glenn County landfill. At this time, waste disposal is not anticipated to be a significant issue. It is concluded that there will be a less than significant impact.

**g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?**

**No Impact.** The composting process does not generate process waste. Overall, the project site will generate small quantities of solid waste. The project will operate in compliance with all federal, state, and local statutes governing solid waste. As a result, there would be no impact on solid waste regulations.

## XIX. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to 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, 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a) Does the project have the potential to 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, 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?**

**Less Than Significant Impact.** All impacts associated with the project have been identified in this document. Impacts on biological resources and cultural resources were discussed in sections IV and V above. The project would not 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, 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. Impacts have been reduced to a less than significant level through incorporation of mitigation measures and conditions of approval and implementation of adopted best management practices and codified federal, state, and local regulations. Therefore, all impacts associated with the project would be less than significant.

- 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)?

**Less Than Significant Impact.** The project may have cumulative impacts on air quality, greenhouse gas emissions, hydrology and water quality, noise, and transportation and traffic; however, impacts will be reduced either through mitigation measures, adopted best practices, or implementation of applicable federal, state, and county standards.

- c) **Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?**

**Less Than Significant With Mitigation Incorporation.**

***Exposure to a common fungus known as *Aspergillus fumigates*, endotoxins, or other allergens and pathogens:*** The project will utilize a variety of organic materials such as green material and agricultural waste. Composting utilizes fungi and bacteria that are a normal and integral part of the composting process to bring about the everyday decay of leaves, wood, and other organic matter. Leachate from the composting process can contain active pathogens and other contaminants.

*Aspergillus* is a fungus that occurs naturally in plant materials and normally obtains its nutrients from decaying organic matter. Although the body's immune system protects people from potential infections caused by this fungus, inhalation of *aspergillus* spores can cause skin rashes and burning eyes. While healthy individuals may not be affected, certain high-risk individuals, in particular those who are immunocompromised, may be at greater risk. (Epstein, 1998).

During one of the stages of the fungus' lifecycle, spores are produced that may be dispersed into the ambient environment and are easily spread through air currents. *Aspergillus* is a hearty fungus that is frequently found in airborne spore surveys. In addition to compost, *aspergillus* is found in soils, moldy grains, straw, bark, woodchips, house dust, and sewage sludge. Spores are often found in bird, cattle, horse, and sheep manures. There is a demonstrated lack of health risk to healthy people, whether they are working at a composting facility or living nearby, attributable to the *aspergillus* fungus.

*Aspergillus* is the most pathogenic fungus species to humans, yet there has not been a dose-to-response curve, threshold concentration, or duration to sensitization data developed. Only two cases of illness have been identified in the world with links to *aspergillus*: an asthmatic individual contracted acute bronchopulmonary in the United States and a compost worker developed hypersensitivity pneumonitis in Belgium.

***Exposure to disease and nuisance from vectors and vermin:*** Compost can potentially harbor vectors, such as flies, mosquitoes and fleas that can transit pathogens to human hosts. Unlike composting facilities that primarily process food waste, rodents and birds are not attracted to or associated with the feedstock planned for receipt at the facility. These compostable materials are not "food" sources for these pests. Vector control will normally be carried out as a part of the compost rotation process. These activities subject compost and windrow piles to disturbances that will deter species from nesting and breeding within compost material while reducing odors that attract vector species to compost areas.

**Vector Control:** Feedstock will be composted within a few days after being delivered. Fly populations are controlled by frequent turnings of the compost windrows. The turnings do not allow the flies to complete their lifecycles and, therefore, populations are minimal. The compost will be covered and composted until attractive properties are removed. Composting will occur for approximately 30 days. Proper sanitation throughout the facility is required to minimize breeding material for flies. The proposed vector control measures, and federal regulations identified for vector attraction reduction will reduce impacts to a less than significant level.

**Mitigations:**

**Mitigation Measure MFS-1 (Mandatory Findings of Significance):**

*That all vehicles and equipment shall be washed at regular intervals to reduce dust and spore levels.*

*Timing/Implementation: In Perpetuity*

*Enforcement/Monitoring: Glenn County Planning & Public Works Agency*

**Mitigation Measure MFS-2 (Mandatory Findings of Significance):**

*That the following Vector Control Plan shall be implemented:*

- 1. There will be no standing water on the site related to the composting facility.*
- 2. Weeds and grasses will be chopped to limit rodent habitat.*
- 3. Manure and other fly-attracting materials will be tarped.*
- 4. Manure will be brought on-site and mixed into the windrows just prior to commencement of the composting system.*
- 5. The compost turning system will heat windrows to 140 + degrees, which will kill fly larvae.*

*Timing/Implementation: In Perpetuity*

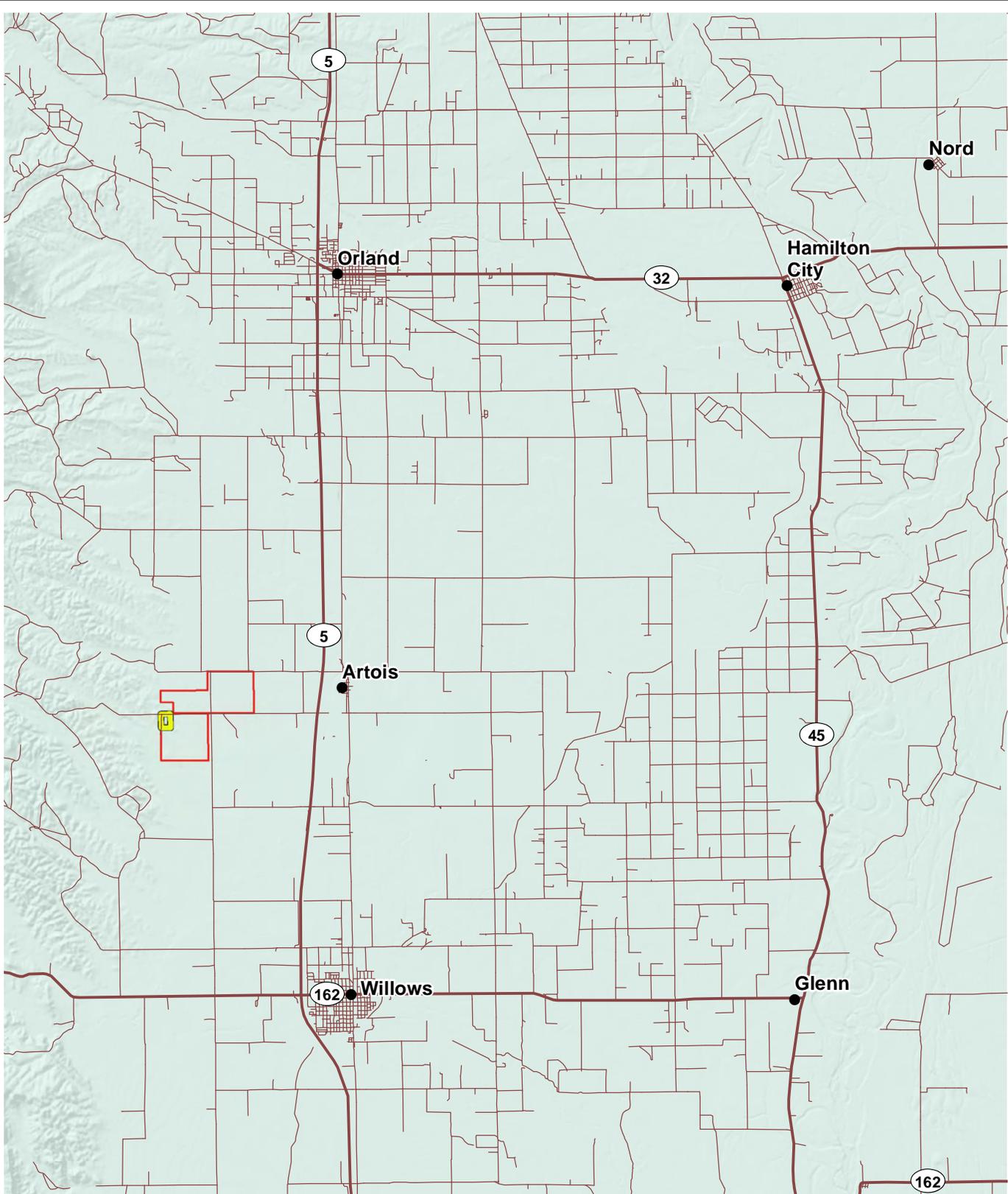
*Enforcement/Monitoring: Glenn County Environmental Health, Glenn County Air Pollution Control District*

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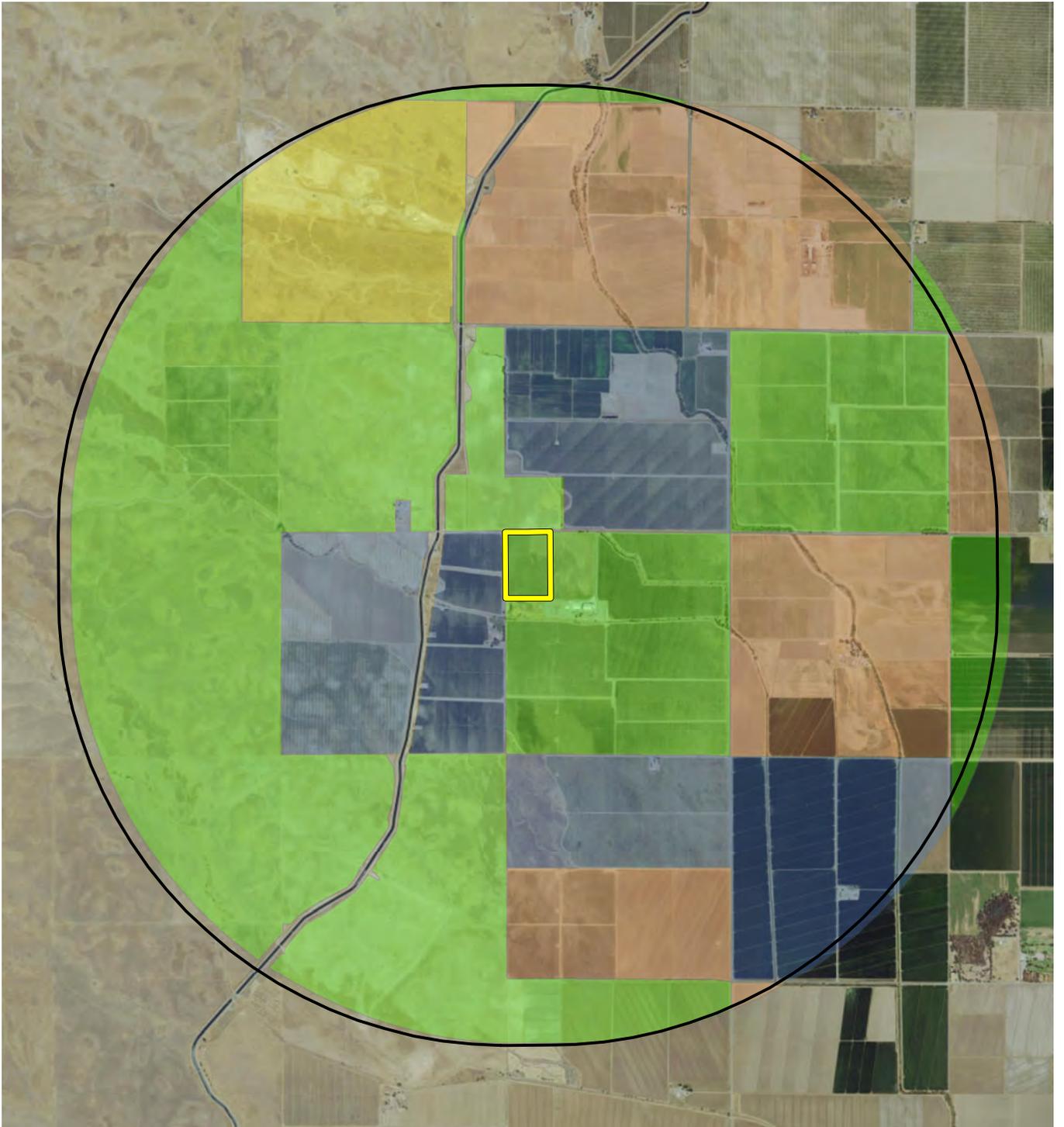
- Proposed Compost Facility
- California Olive Ranch Ownership



FIGURE 1  
 SITE LOCATION  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA







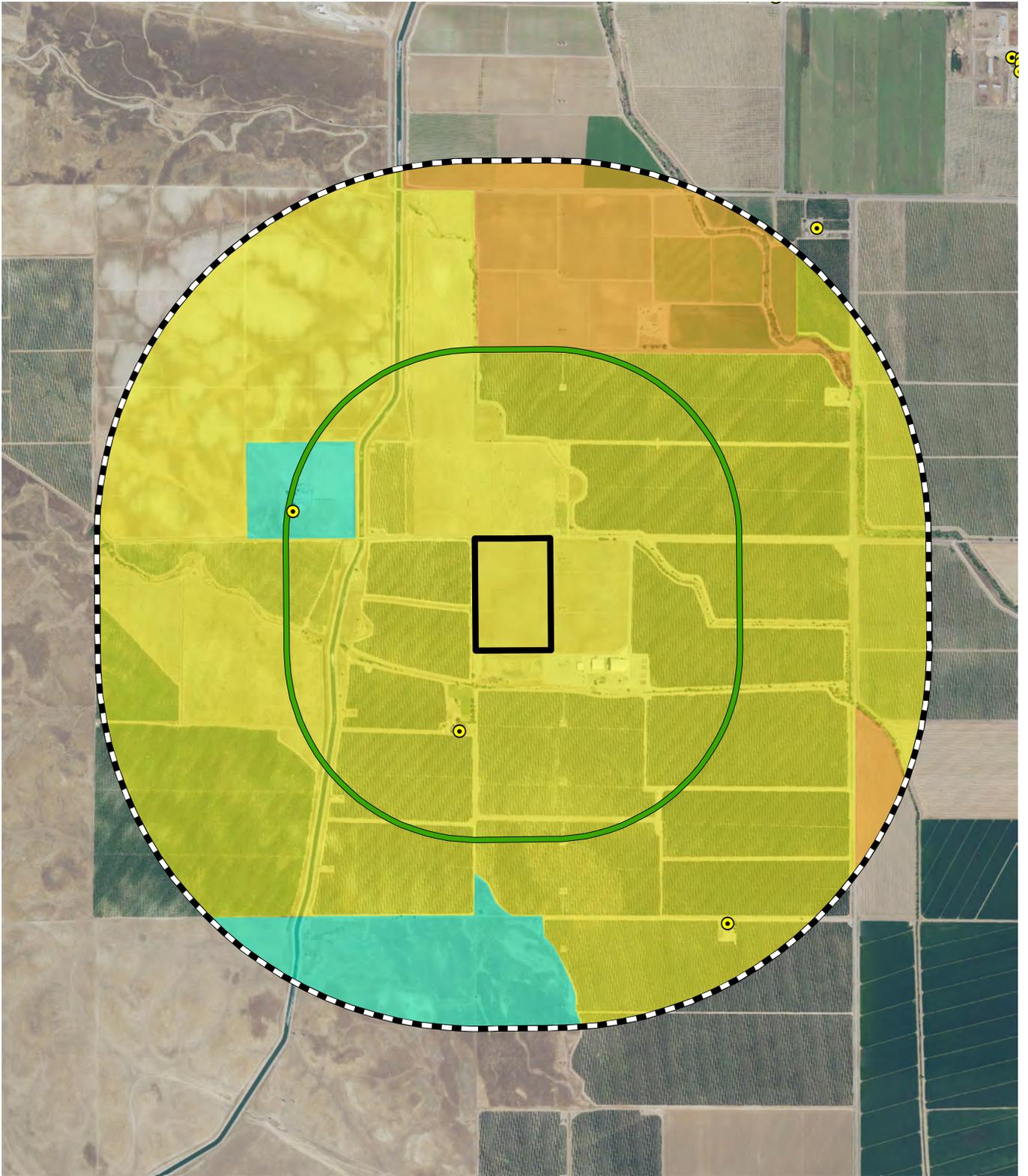
- Proposed Compost Facility
- 2-Mile Buffer Around Proposed Compost Facility
- AE-40 (Exclusive Agricultural Zone - Minimum Parcel Size 36 Acres)
- AE-80 (Exclusive Agricultural Zone - Minimum Parcel Size 72 Acres)
- AP-80 (Agricultural Preserve Zone - Minimum Parcel Size 72 Acres)
- FS-80 (Farmland and Security Zone - Minimum Parcel Size 72 Acres)

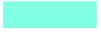


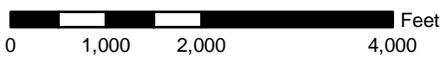
SOURCE: GLENN COUNTY 2016



FIGURE 4  
ZONING DESIGNATIONS  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA

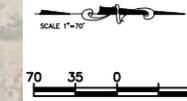
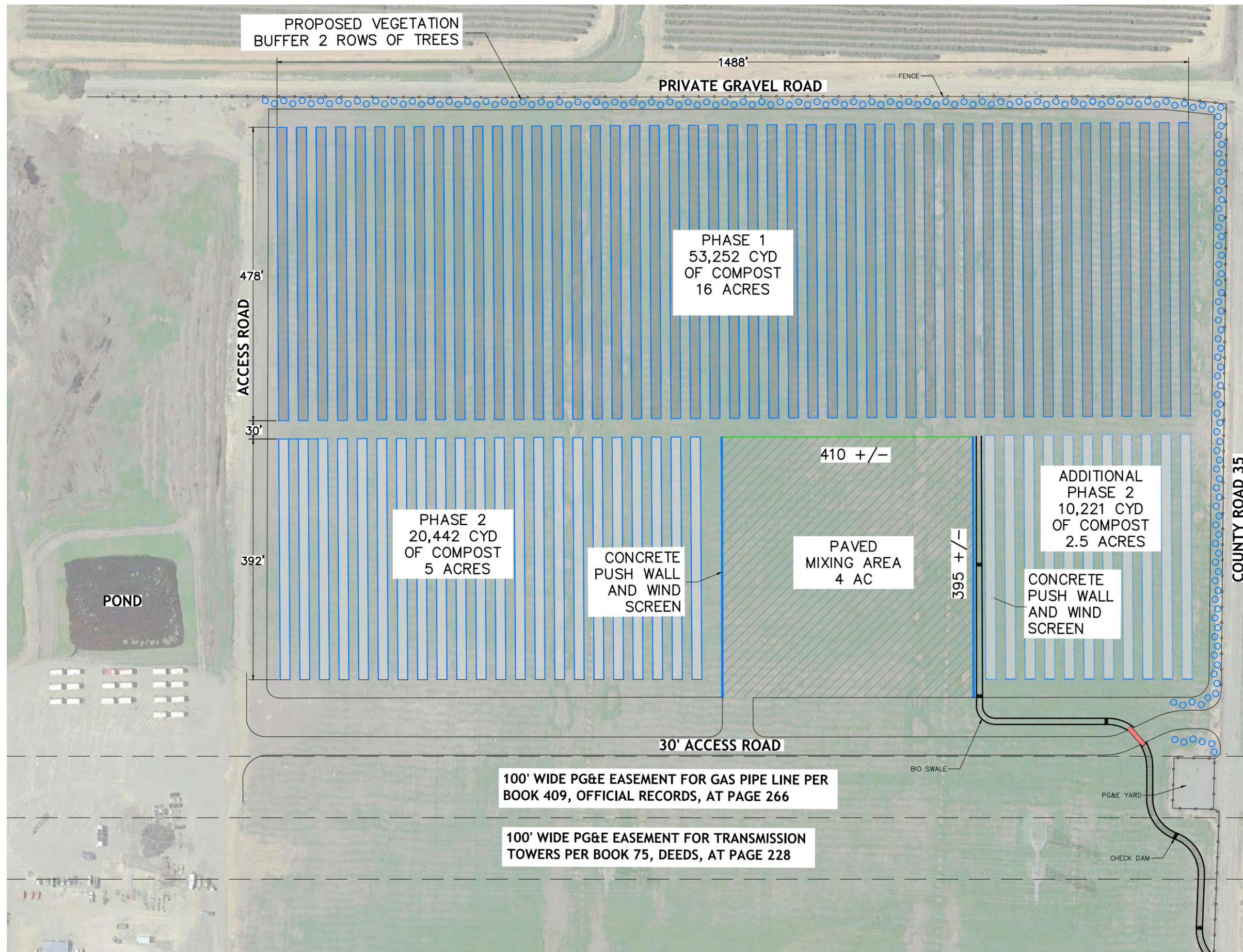


-  Nearby Residence
  -  Proposed Compost Facility
  -  0.5-Mile Buffer Around Proposed Compost Trial Facility
  -  1-Mile Buffer Around Proposed Compost Trial Facility
-  Grazing
  -  Rice
  -  Trees



SOURCE: USDA NAIP 2014 AERIAL PHOTOGRAPH

  
**FIGURE 3**  
 RESIDENCES WITHIN ONE MILE  
 AND SURROUNDING LAND USE  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



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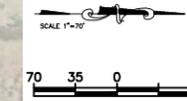
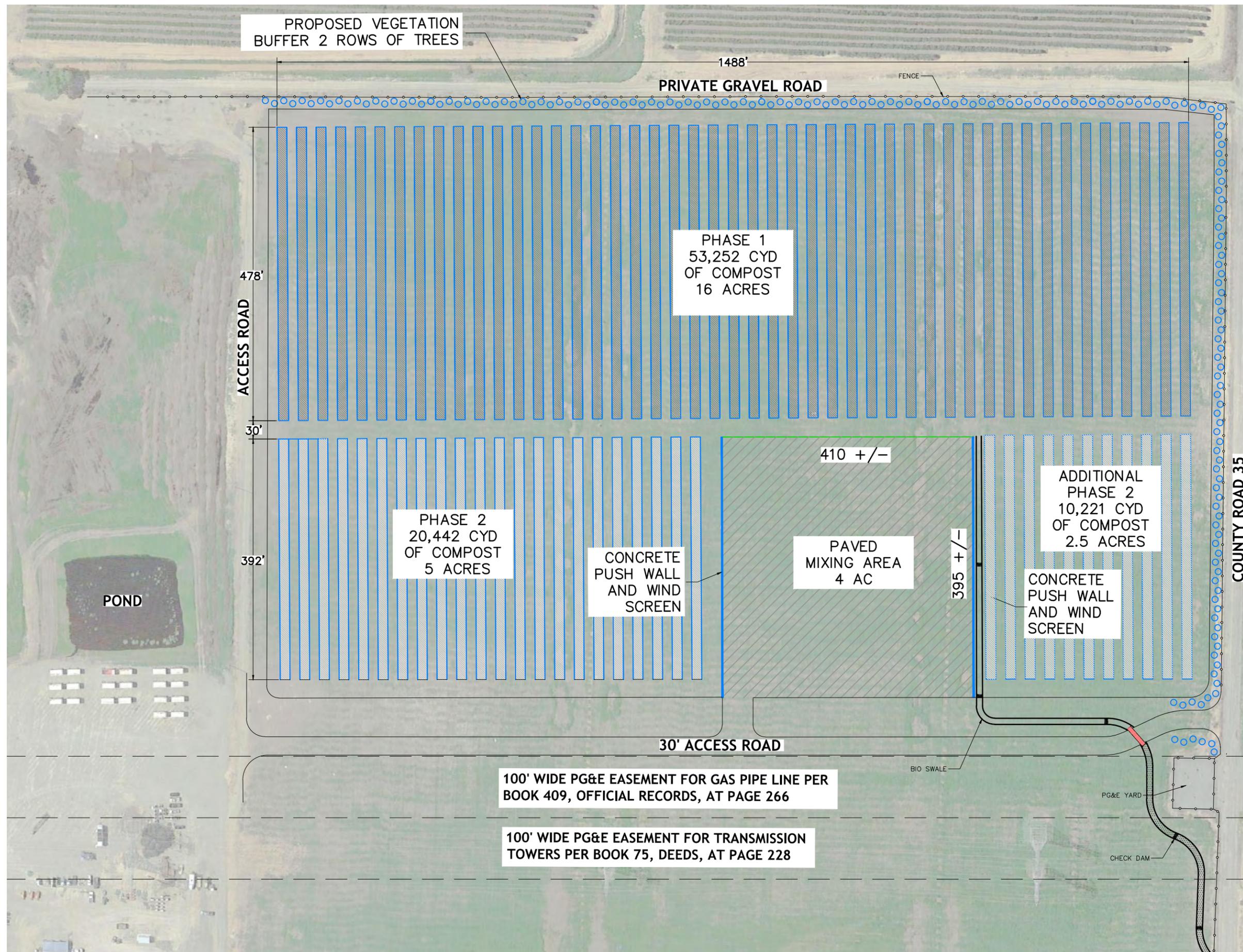
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 DRAWING: \_\_\_\_\_  
 CHECK: \_\_\_\_\_  
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CALIFORNIA OLIVE RANCH  
 PROPOSED SITE PLAN  
 GLENN COUNTY, CALIFORNIA

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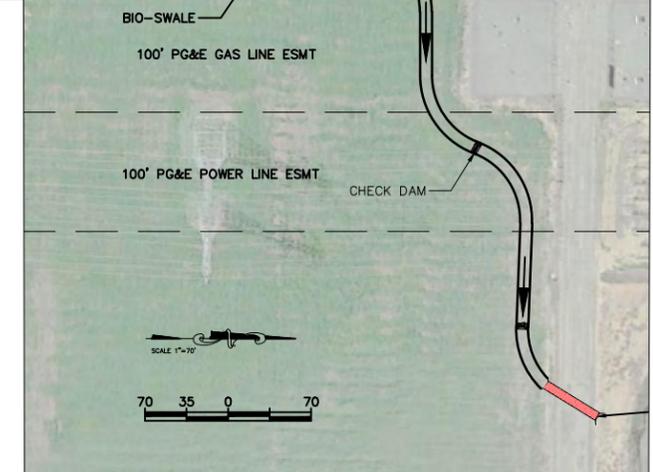
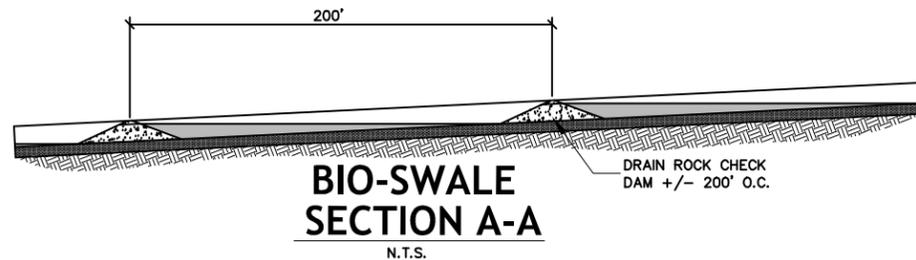
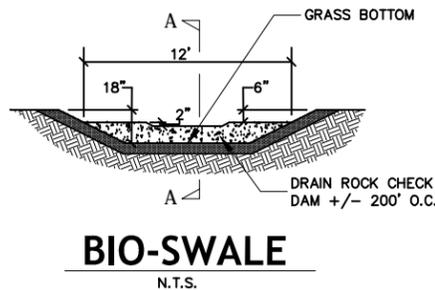
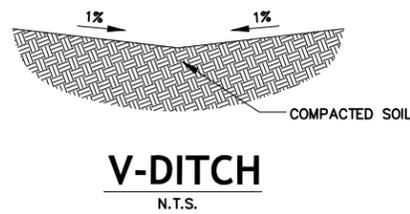
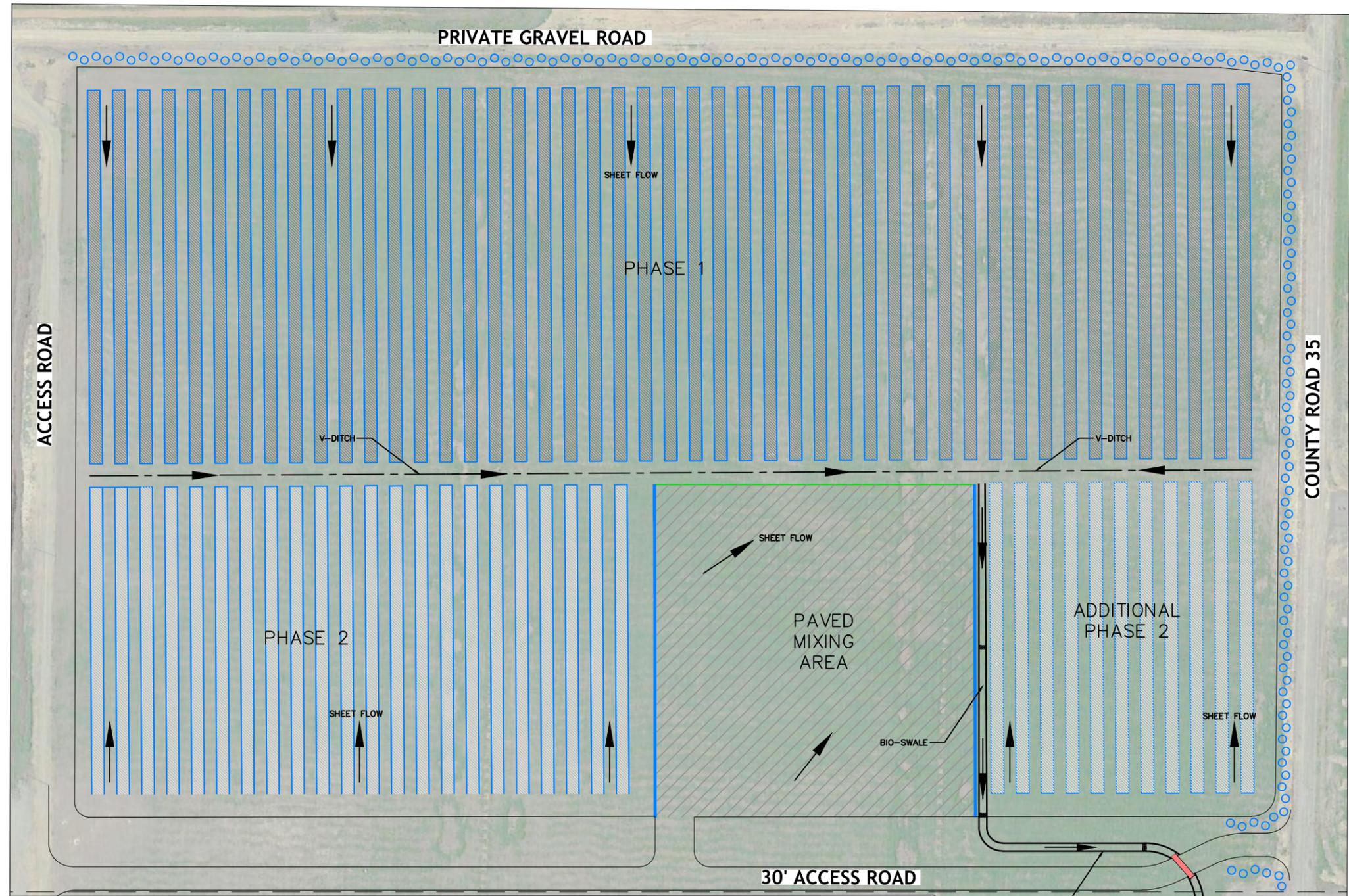
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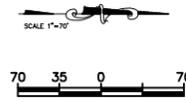
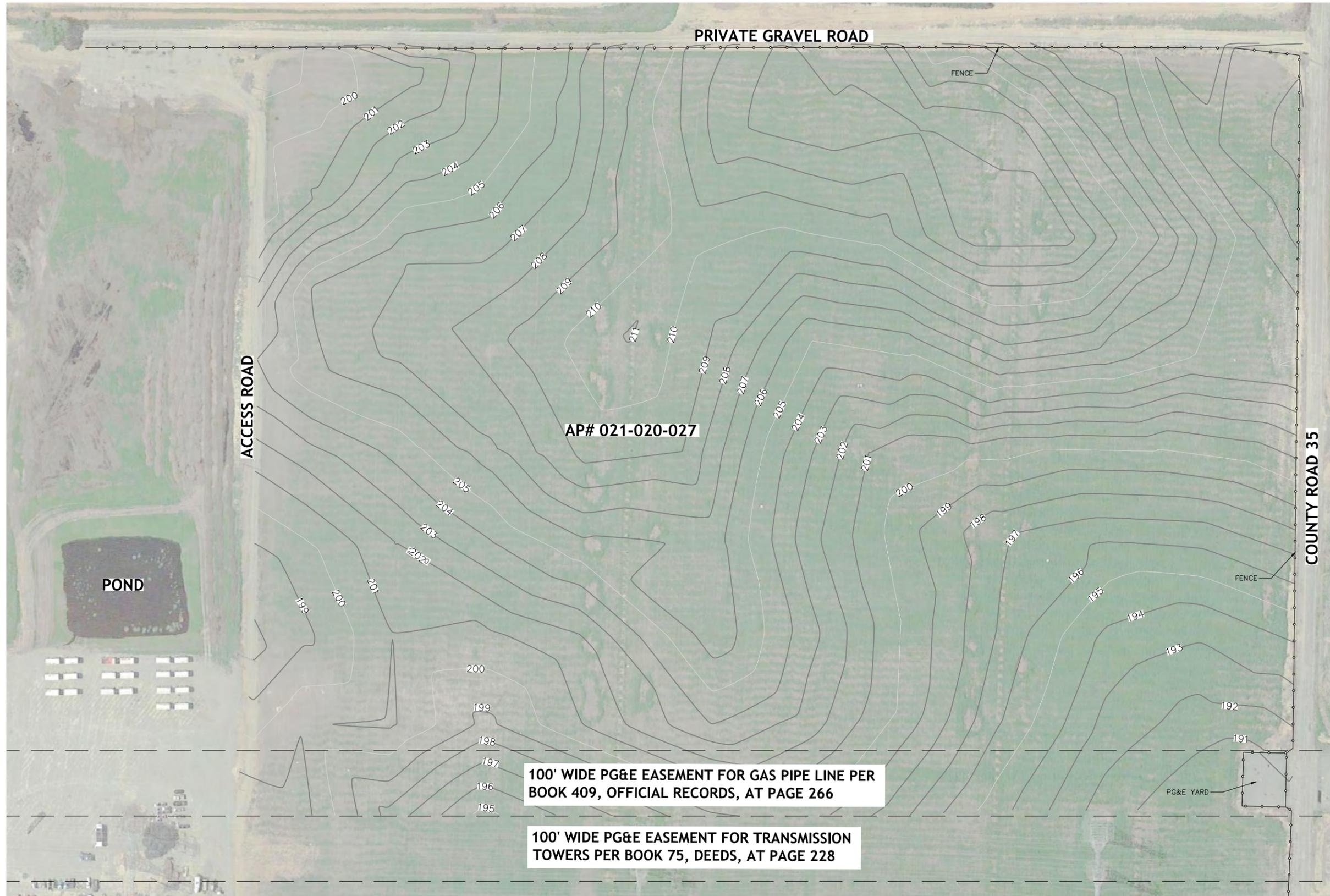
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CALIFORNIA OLIVE RANCH  
DRAINAGE PLAN & BMP'S  
GLENN COUNTY, CALIFORNIA

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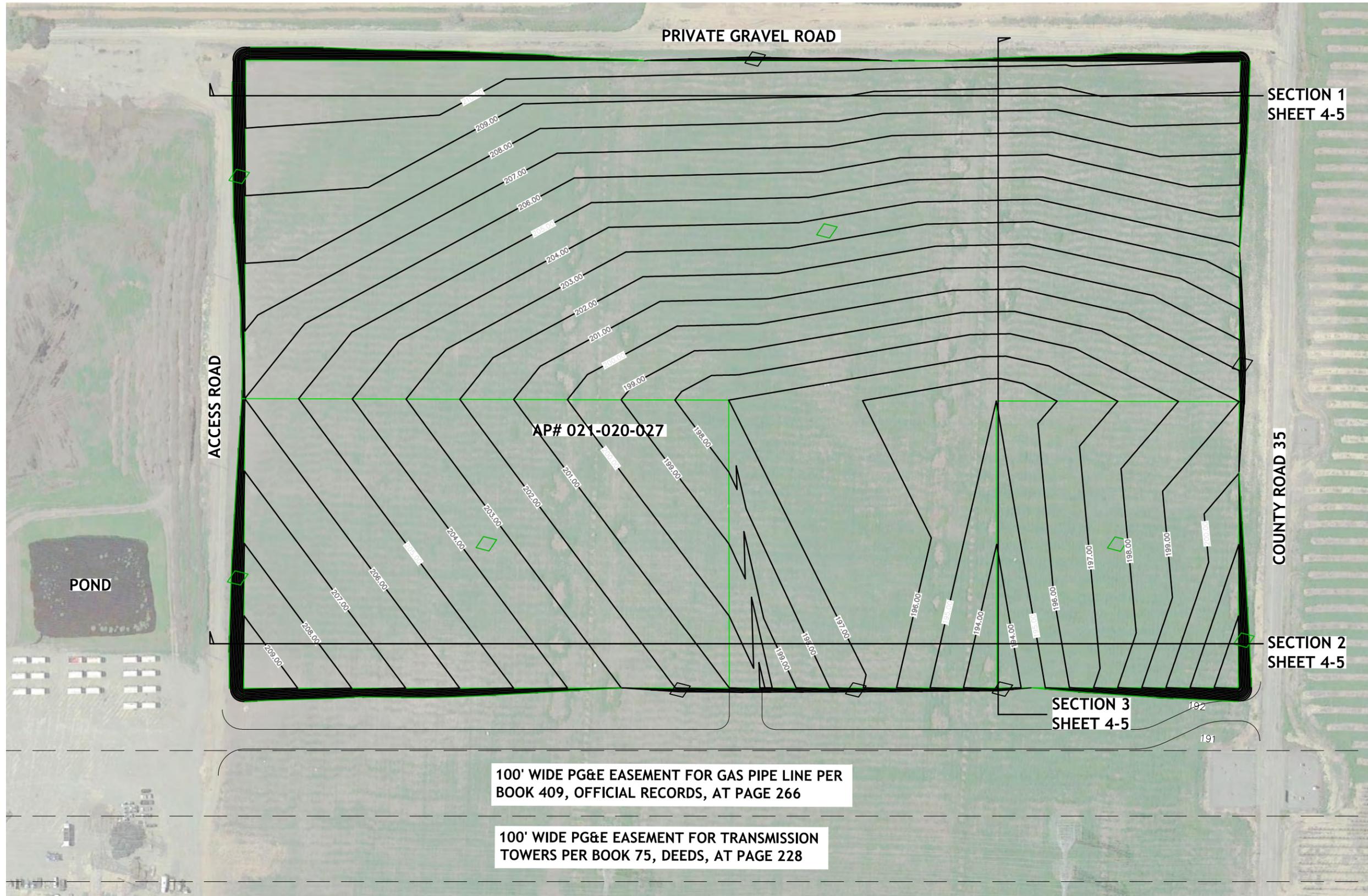
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CALIFORNIA OLIVE RANCH  
 EXISTING TOPOGRAPHY  
 GLENN COUNTY, CALIFORNIA

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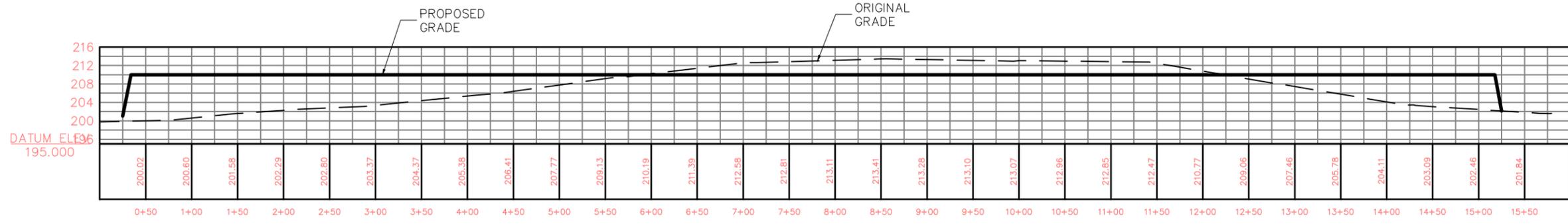
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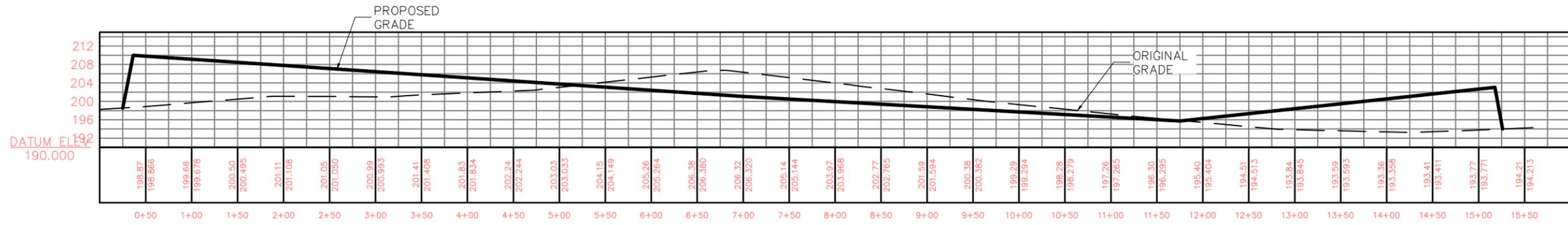
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CALIFORNIA OLIVE RANCH  
 PROPOSED TOPOGRAPHY  
 GLENN COUNTY, CALIFORNIA

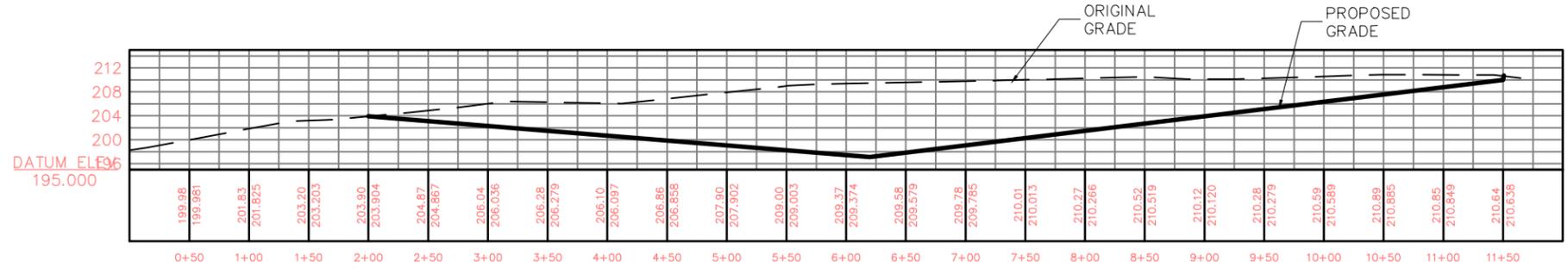
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**SECTION 1**



**SECTION 2**



**SECTION 3**

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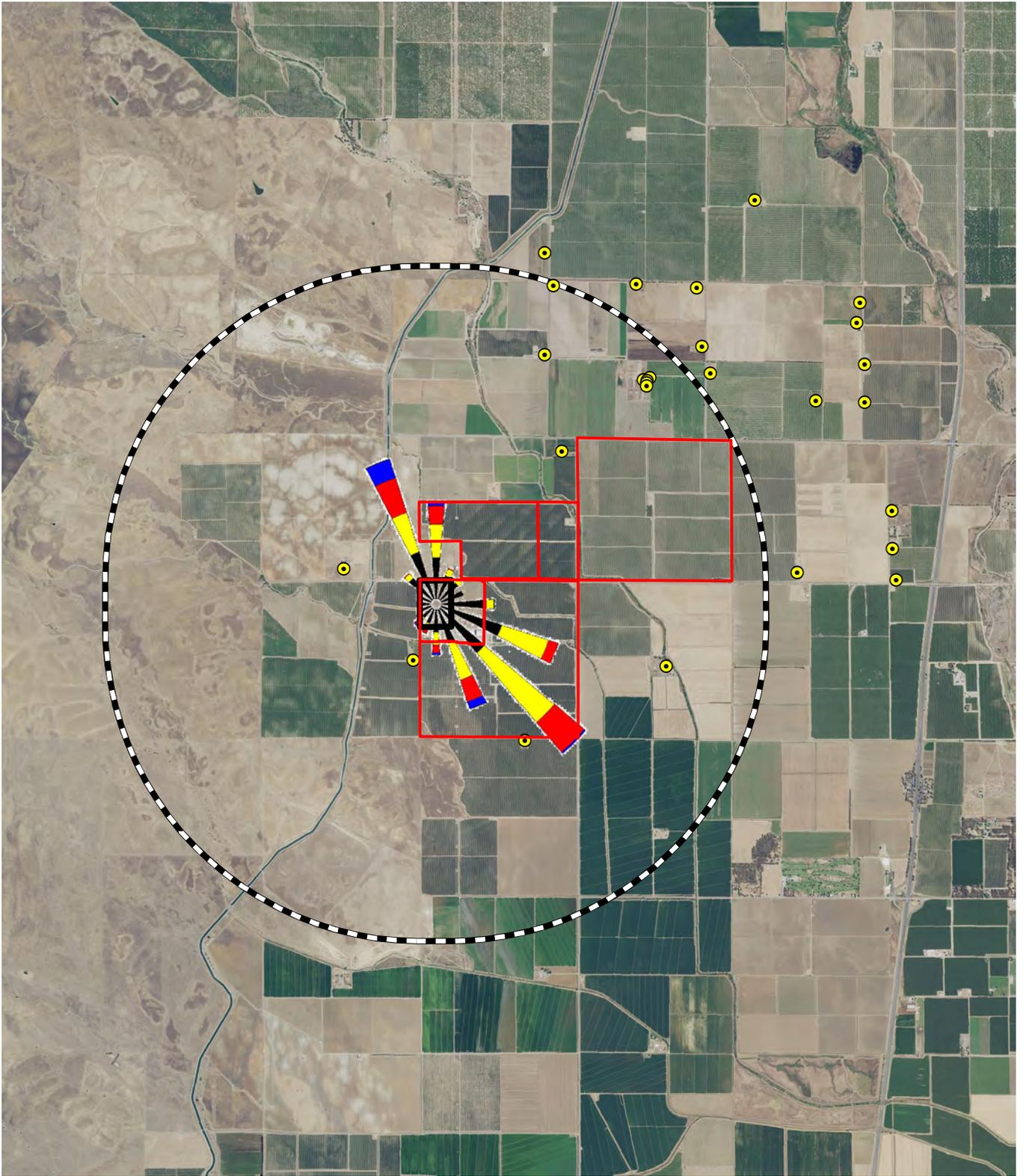
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CALIFORNIA OLIVE RANCH  
 CROSS - SECTION  
 GLENN COUNTY, CALIFORNIA

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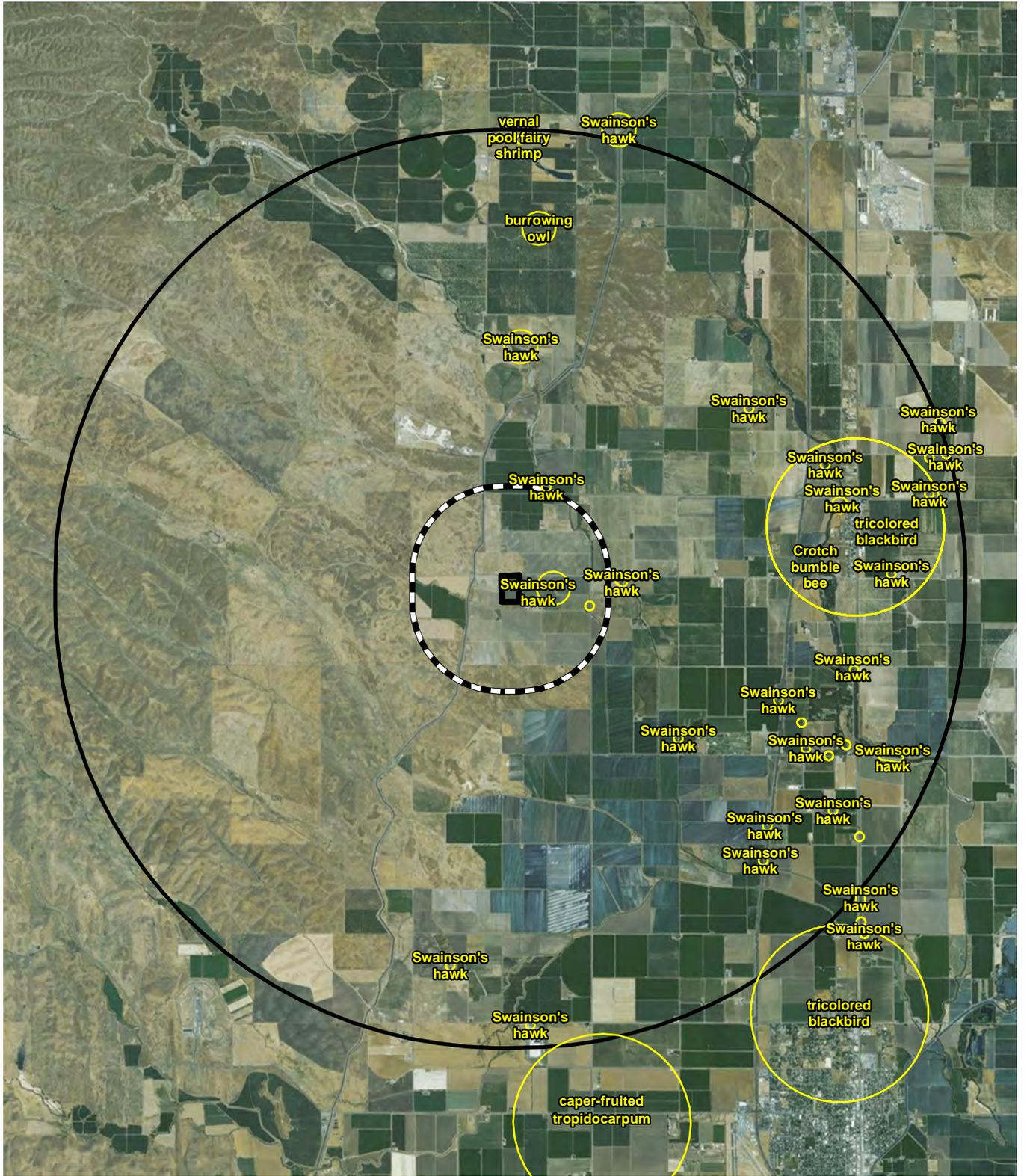


-  Nearby Residence
-  2-Mile Buffer Around Proposed Compost Facility
-  Proposed Compost Facility
-  California Olive Ranch Ownership



SOURCE: GLENN COUNTY 2016; FEMA 2014

FIGURE 11  
 NEARBY RESIDENCES  
 AND WIND ROSE  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



- CNDDDB Occurrence
- Proposed Compost Facility
- 1-Mile Buffer Around Proposed Compost Trial Facility
- 5-Mile Buffer Around Proposed Compost Trial Facility

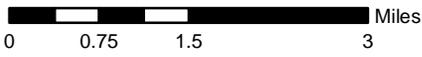
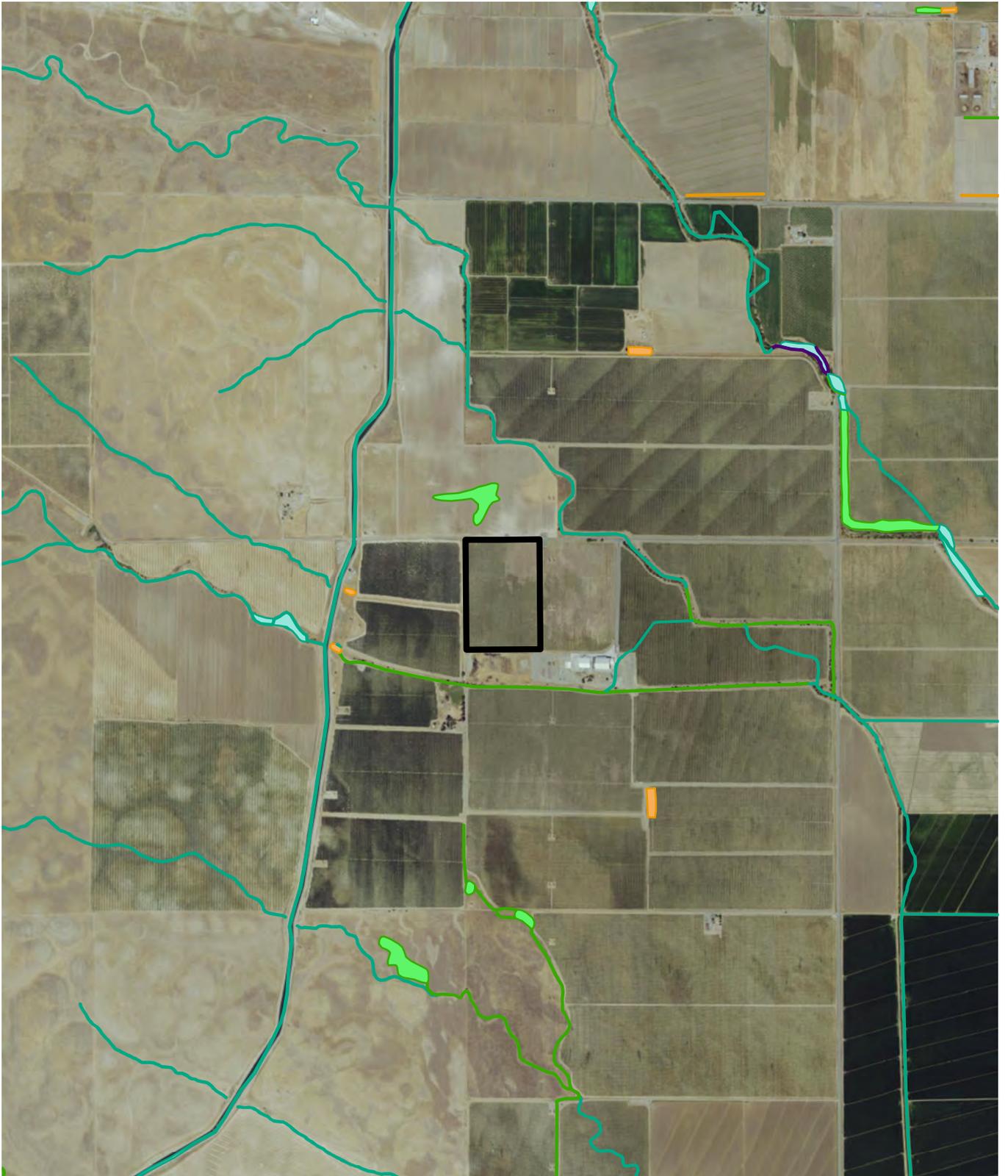


FIGURE 12  
 CNDDDB OCCURRENCES  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

SOURCE: CDFW CNDDDB DECEMBER 2016



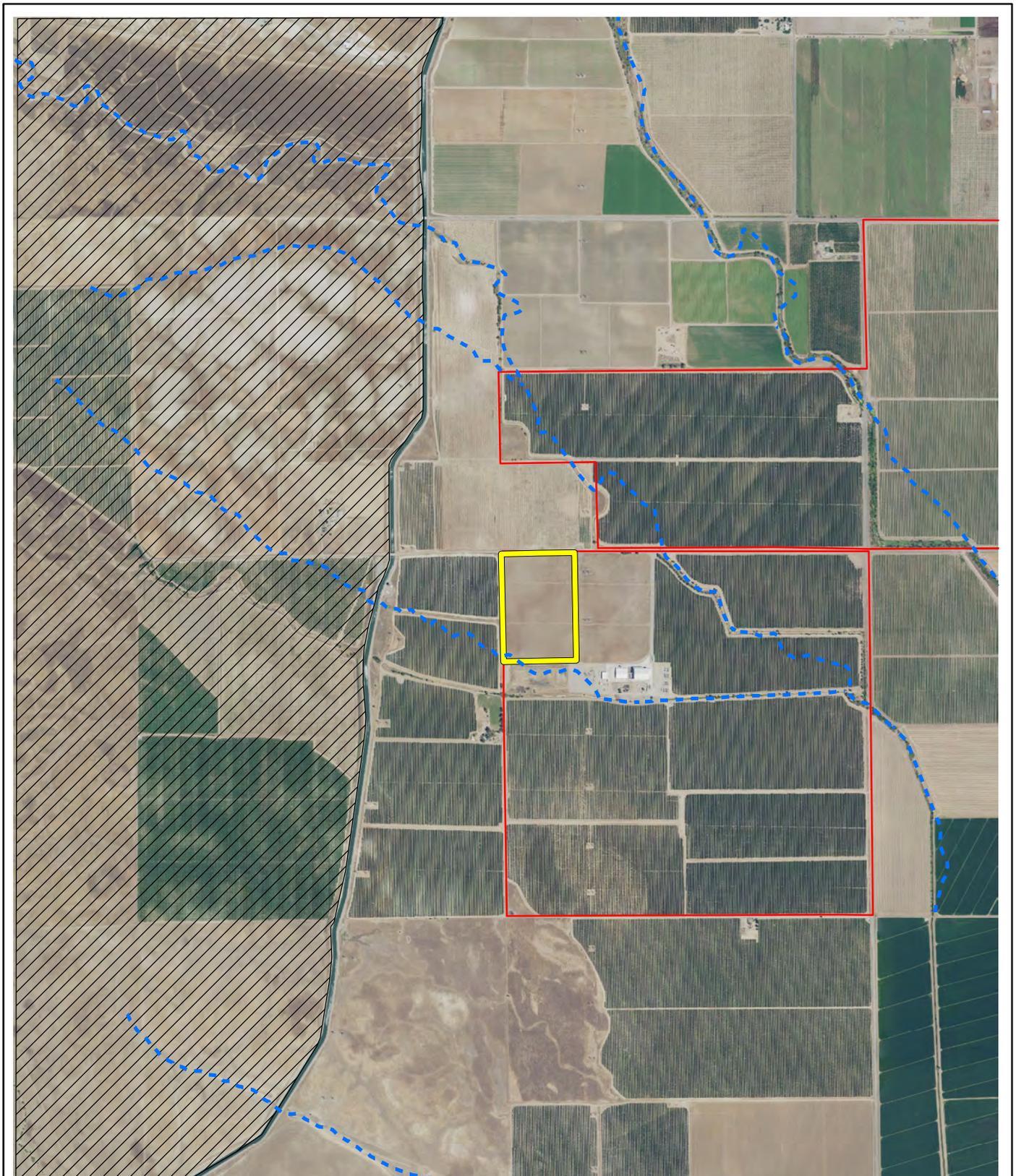
- |   |   |
|---|---|
|  Proposed Compost Facility         |  Freshwater Pond |
|  Freshwater Emergent Wetland       |  Riverine        |
|  Freshwater Forested/Shrub Wetland |   |



FIGURE 13  
 NATIONAL WETLANDS INVENTORY  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

SOURCE: USFWS JANUARY 2017





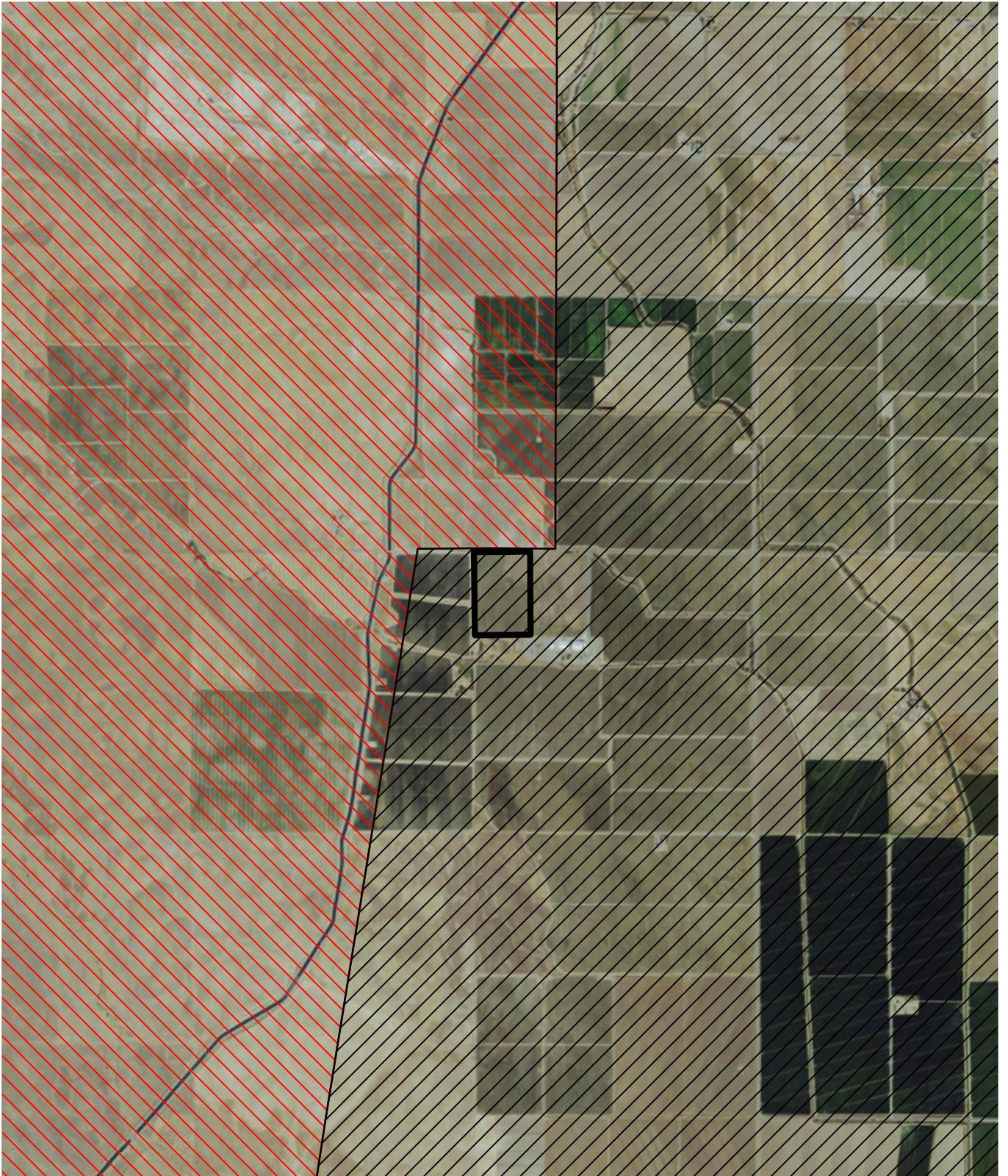
- Stream Bank Erosion
- Dry Cropland Area Prone to Erosion
- Proposed Compost Facility
- California Olive Ranch Ownership

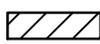


FIGURE 15  
 EROSION POTENTIAL  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: DWR 2016; USDA NAIP 2016 AERIAL PHOTOGRAPH



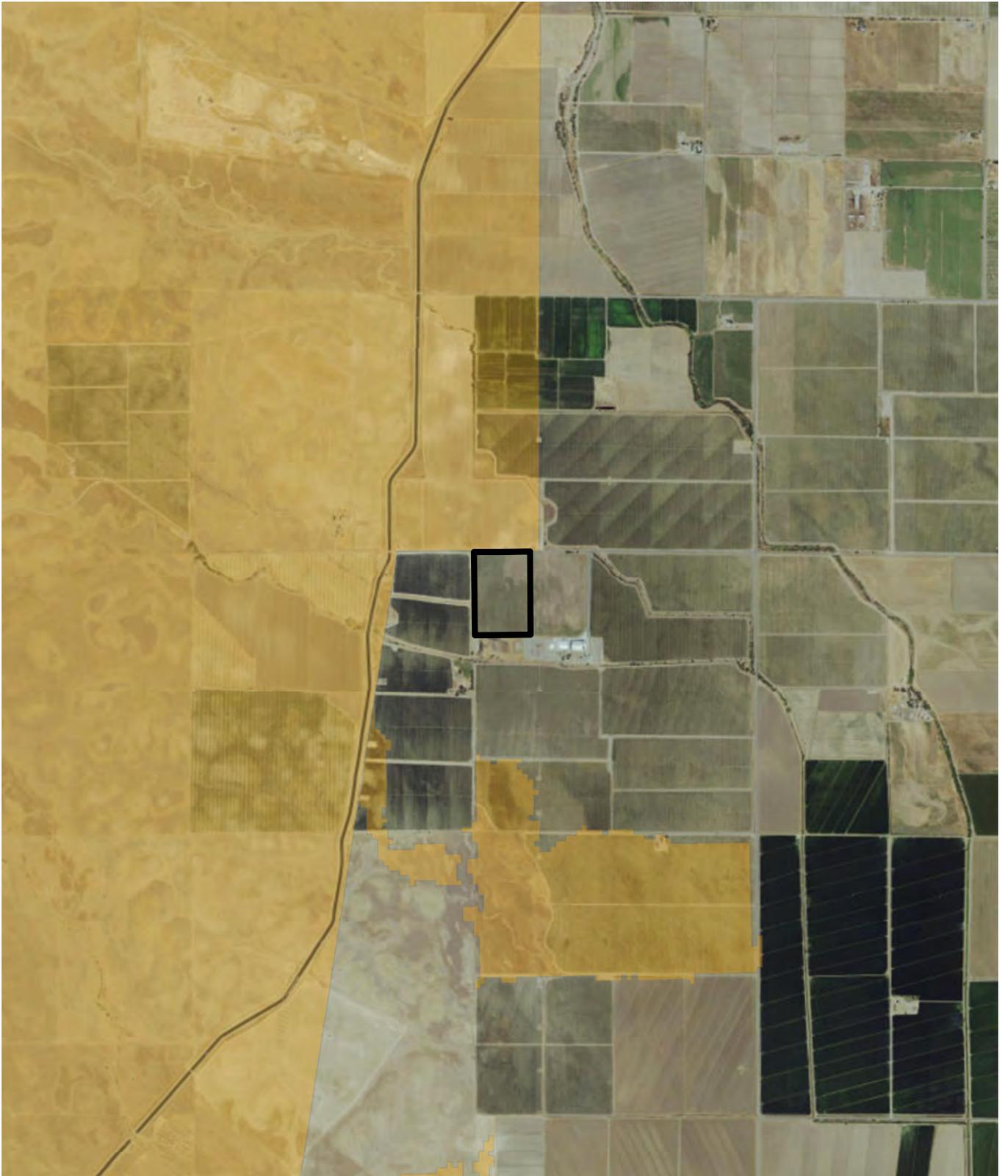
-  Proposed Compost Facility
-  Local Responsibility Area
-  State Responsibility Area

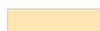


SOURCE: CALFIRE 2007



FIGURE 16  
 STATE AND LOCAL RESPONSIBILITY AREAS  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



-  Proposed Compost Facility
-  Moderate Fire Hazard Severity Zone



SOURCE: CALFIRE 2007

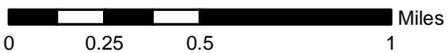


FIGURE 17  
FIRE HAZARD SEVERITY ZONES  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA

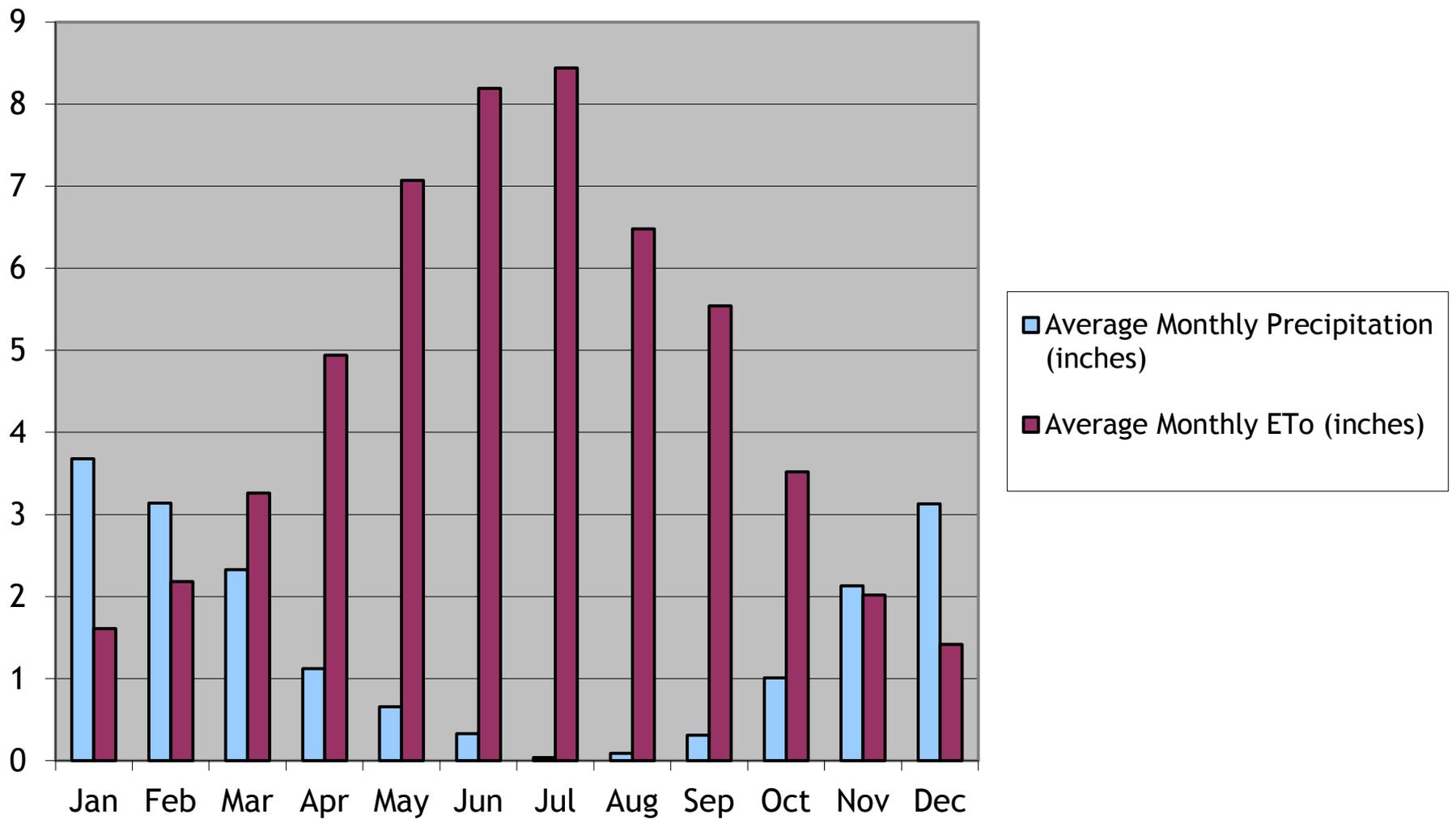
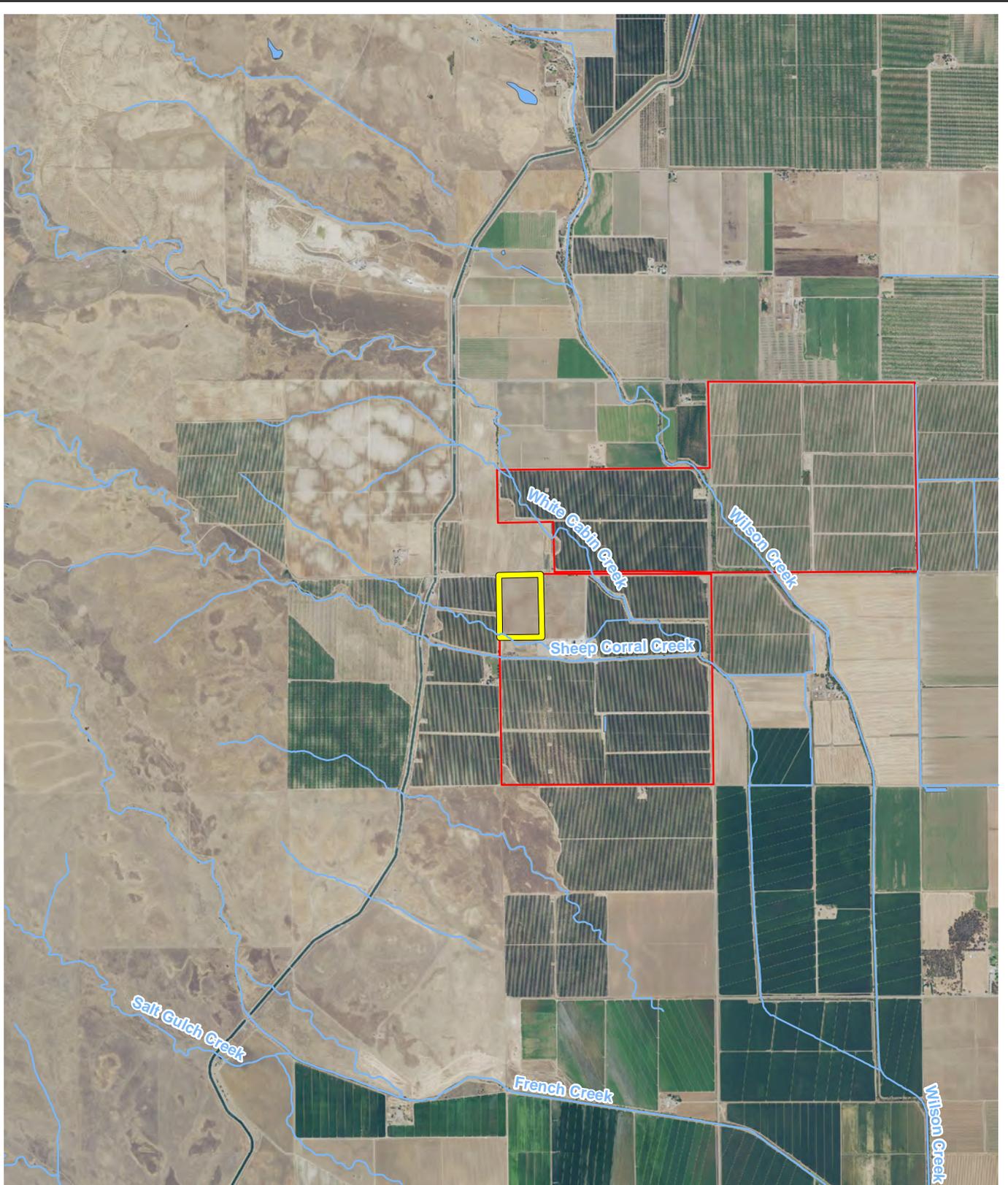


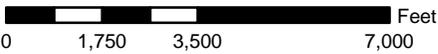
FIGURE 18  
 AVERAGE MONTHLY ETo  
 AND PRECIPITATION  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: PRECIPITATION - WILLOWS 6W WEATHER STATION 049699; ETo - GERMBER CIMIS STATION



- Proposed Compost Facility
- California Olive Ranch Ownership



SOURCE: DWR 2016; USDA NAIP 2016 AERIAL PHOTOGRAPH

FIGURE 19  
 SURFACE HYDROLOGY  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

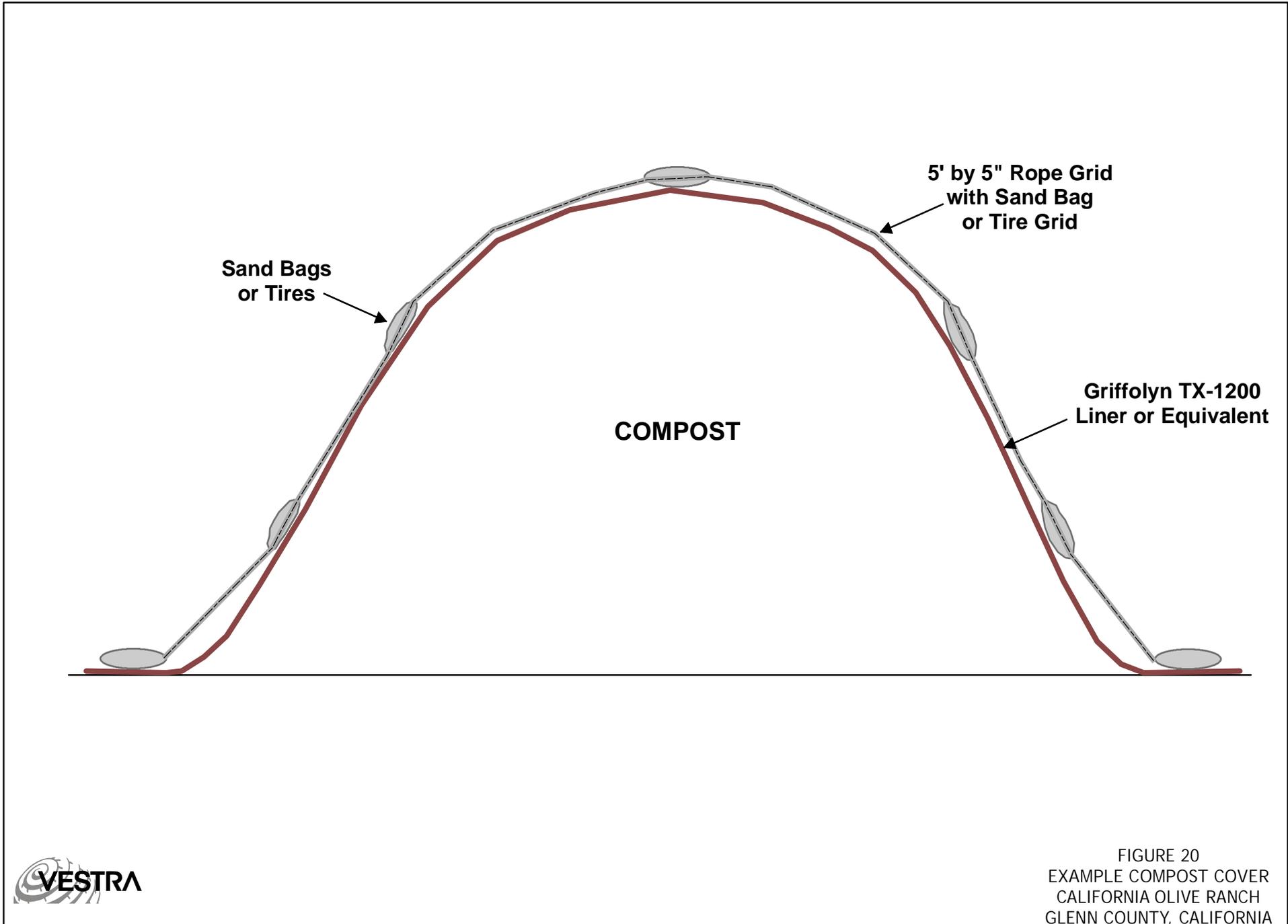
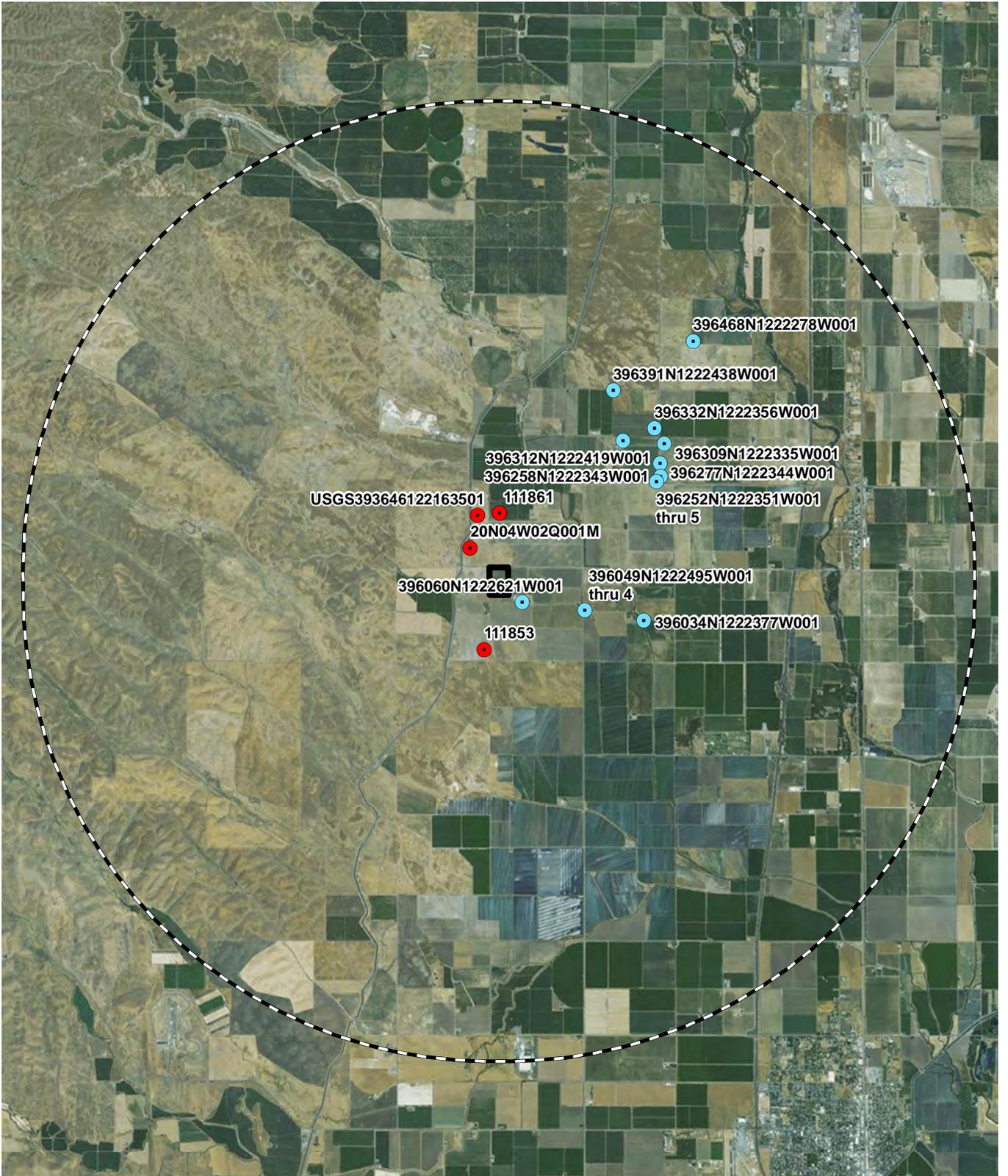


FIGURE 20  
EXAMPLE COMPOST COVER  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA

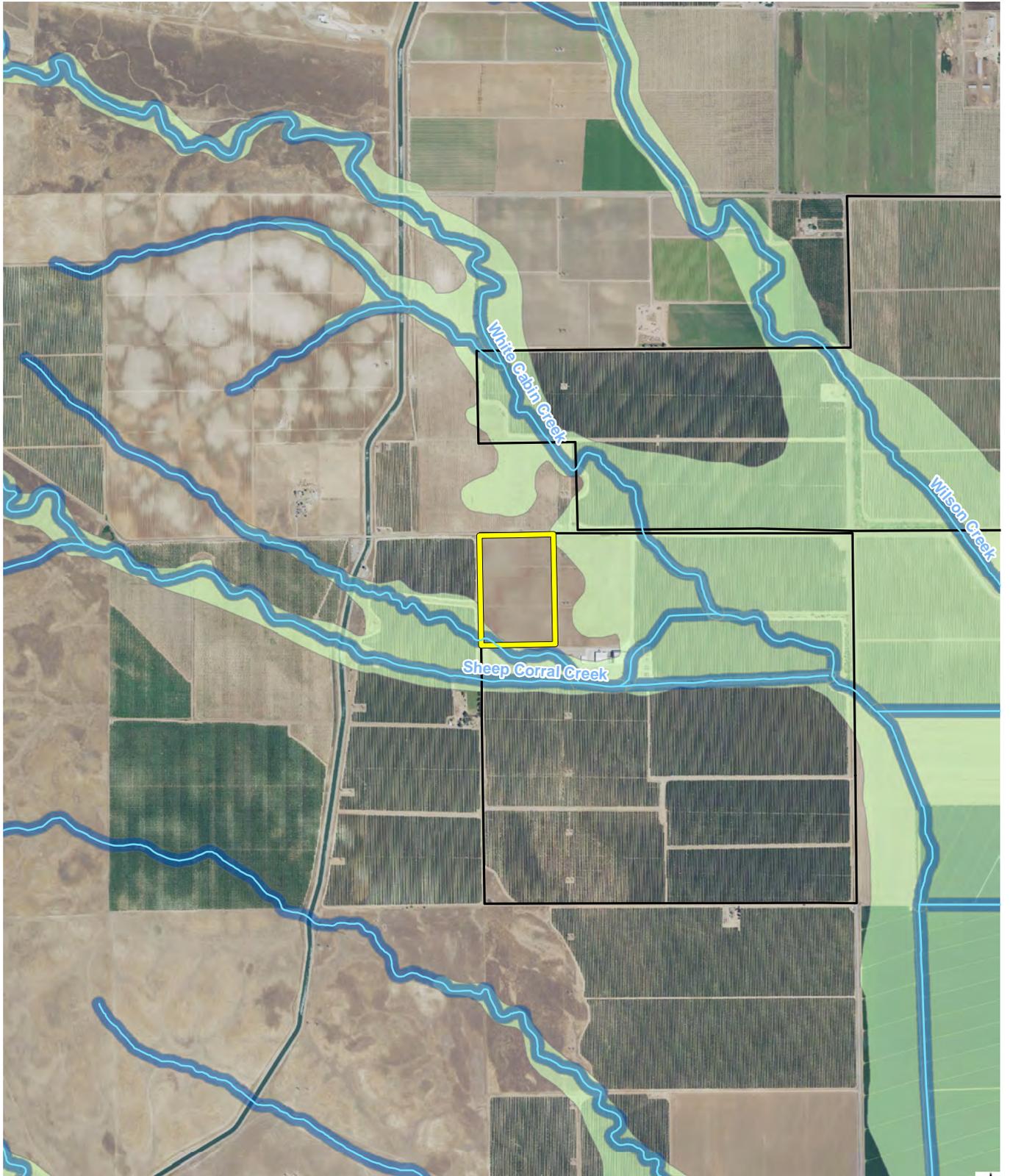


- Groundwater Elevation Level Well Location
- Water Quality Data Well Location
- ▭ 5-Mile Buffer Around Proposed Compost Facility
- ▭ Proposed Compost Facility

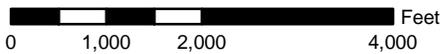


FIGURE 21  
 DWR WATER DATA LIBRARY  
 GROUNDWATER LEVEL WELLS  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

SOURCE: USDA NAIP 2014 AERIAL PHOTOGRAPH



- Watercourse
- Proposed Compost Facility
- California Olive Ranch Ownership
- FEMA Flood Zone A - Area Subject to Inundation
- 100-Foot Buffer from Watercourse



SOURCE: GLENN COUNTY 2016; FEMA 2014; DWR 2016

FIGURE 22  
 FLOODPLAIN  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

# ODOR IMPACT MINIMIZATION PLAN CALIFORNIA OLIVE RANCH COMPOST FACILITY

## 1.0 INTRODUCTION

This Odor Impact Minimization Plan (OIMP) has been prepared for the California Olive Ranch (COR) olive pomace composting facility in Artois, California. It is intended to provide guidance to onsite personnel in the handling, storage, and removal of compostable materials, in accordance with Title 14, California Code of Regulations, Section 17863.4. This OIMP will be maintained onsite and revised as necessary to reflect any changes in the design or operation of the site. A copy of the revisions will be provided to the enforcement agency within 30 days of the changes. In addition, this OIMP will be reviewed annually to determine if any revisions are necessary.

### 1.1 Project Contacts

**Project Name:** California Olive Ranch Compost Facility

**Project Location:** 5945 County Road 35  
Artois, California 95913

**Mailing Address:** 1367 East Lassen Ave, Suite A-1  
Chico, California 95973

**Landowner:** California Olive Ranch, Inc.  
1367 East Lassen Ave, Suite A-1  
Chico, California 95973

**Project Contact:** James Lipman, Vice President Production Operations  
California Olive Ranch  
1367 East Lassen Ave, Suite A1  
Chico, California 95973

**Regulatory Contact:** John H. Wells, M.S. REHS  
Glenn County Environmental Health  
247 North Villa Avenue  
Willows, California 95988

### 1.2 Project Description

California Olive Ranch (COR) farms approximately 5,500 acres of olives and processes the olives, from their farm and from other growers, into “extra-virgin” olive oil at their processing and bottling facility in Artois, California. The pressing of extra-virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the

pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive. COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller etc. All of the olive pomace is generated during the pressing window.

The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace (vegetative food waste)
- Almond trash (floor sweepings, etc., from almond harvest)
- MOO (materials other than olives generated during processing)
- Orchard trimmings and stems
- Manure (dairy)
- Agricultural processing waste
- Greenwaste
- Other agricultural waste materials

The compost facility will include compacted compost areas, paved mixing area, stormwater detention pond, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back from property lines and County Road 35. The facility will be surrounded by a vegetative buffer of two to three rows of olives. Mix materials will be received via a separate entrance off County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a bioswale and hence discharged.

The pomace will be mixed directly out of the olive processing facility in the mix trucks. The trucks will be topped off with the mixing/bulking agents and then proceed to a windrow location. It is anticipated that material will be mixed and windrowed until November 1<sup>st</sup>, after which point the materials will be mixed, stockpiled, and covered until March or April. Approximately two-thirds of the total pomace produced will be mixed and windrowed before November 1<sup>st</sup>. The remaining one-third will be mixed, stockpiled, and covered for the winter season. Once temperatures begin to warm in the spring, the mixed material will be placed in windrows and turned until complete.

When COR is not using portions of the composting pads in late spring and summer, these areas may be used by others to produce a higher-quality compost product.

It is anticipated that the early windrowed material will be turned as needed and composting be completed by April or May. This first batch of completed compost will be applied to the COR orchards beginning in April or May. The stockpiled material that was covered and windrowed in December will be uncovered and windrowed in March or April, depending on the weather, and will compost until July or August and be applied to orchards under the control of COR. The target application rate is 5 tons per acre to the orchard cropland. This will be applied between the tree rows and seeded to a cover crop.

The composting will be completed using similar techniques to other composting operations in the county. The exception herewith is that the pomace and other bulking materials will be mixed in large mixing trucks and the material conveyed in the truck to the windrow location. Once a windrow is complete, it will be turned as needed using a standard turning machine. The windrows will be on 32-foot centers and measure 16 feet wide and approximately 6 feet high. When composting is completed, three to four windrows will be combined into a large row to facilitate removal to orchards.

Because the composting will be conducted during a relatively short window, only a few days of mixable materials will be stockpiled in the weeks prior to harvest. Mix materials will be delivered via truck off County Road 35 and stockpiled in or near the “mix area.” If necessary, the mix materials will be covered prior to use. Mix materials planned for use are not planned to be pretreated prior to mixing.

The material mixing area, where the dry material will be added to the pomace-filled mix truck, will be paved and have concrete push bins and walls to contain mix products. Wind screens will contain fine materials from blowing offsite.

### **1.3 Sources of Odor**

The primary sources of composting-related odors are:

- (1) Feedstock management (delivery, storage and handling)
- (2) Active composting (surface emissions, turning windrows, tearing down piles)
- (3) Curing (surface emissions, turning windrows, and tearing down piles)

Other minor sources of composting-related odor include mixing of feedstocks into windrows, finished product loading, and poor site management (runoff, leachate, surface ponding, and road spillage).

Type of feedstock, condition of the feedstock, and the stage of composting will determine odor contribution. Feedstocks that decompose rapidly may produce odors at higher concentrations than those feedstocks that decompose at a slower rate. The delivery, storage, and handling of feedstocks can also greatly affect odors. If incoming feedstocks are not expeditiously processed, they may decay and begin to produce odors.

If portions of the windrows become anaerobic, actual turning of the windrow can result in the release of odors. Odors produced at early stages of composting are principally the result of the decomposition or breakdown of proteins that contain sulfur and nitrogen compounds. These compounds generally break down during the first 14 days of composting, and odor generation is significantly reduced after this initial stage of decomposition.

Odors can be released from windrow surfaces during non-turning periods. Although surface emissions are the greatest overall source of odors from windrows, turning results in higher short-term spikes in concentration and intensity of odors. The fresher the material in the windrow, the greater the odor potential. Material that has been in the windrow for long periods of time is more stable and generates fewer odors.

When the windrows are torn down, the potential for odors is considerably lower than for the initial composting process, because the compost has become more stable with time. In addition, odors from finished compost are usually not considered to be offensive, unlike fresh composting feedstocks. Odor levels are generally minimal during final loading of the finished compost product for shipment offsite, and the characteristics of the odor from this process is that of a soil-like material. Odors can also be generated if runoff and leachate remain on the composting facility surface in sufficient amounts to form ponds.

Epstein (2004) identifies sources of odors during the composting process and the relative contribution of individual sources in comparison to total odor generation by composting facility operations. These are shown in Table 1. The relative odor contributions are expressed as a percentage of the total odor emissions typically generated.

<b>Table 1            ODOR RELATIVE CONTRIBUTIONS BY PROCESS            AND POTENTIAL CHARACTERISTICS</b>		
<b>Odor Sources &amp; Area Sources</b>	<b>Relative Odor Contribution</b>	<b>Potential Odor Characteristics</b>
Feedstock Storage	4%	Woody
Composting Windrows, 0-6 days old	30%	Stinky, sulfurous, fish, ammonia
Composting Windrows, 7-11 days old	10%	Stinky, sulfurous
Composting Windrows, 12-27 days old	40%	Earthy, mulch
Curing Windrows, 28-61 days old	11%	Earthy, soil-like
Curing Windrows, 61-90 days old	3%	Earthy, soil-like

## **2.0 ODOR MONITORING PROTOCOL**

### **2.1 Proximity of Odor Receptors**

The compost trial site is surrounded by agricultural land uses. The closest receptors to the composting trial site would be COR employees responsible for monitoring and/or managing the compost, COR employees working in the processing plant or olive orchards located adjacent to the composting site, or adjacent residences.

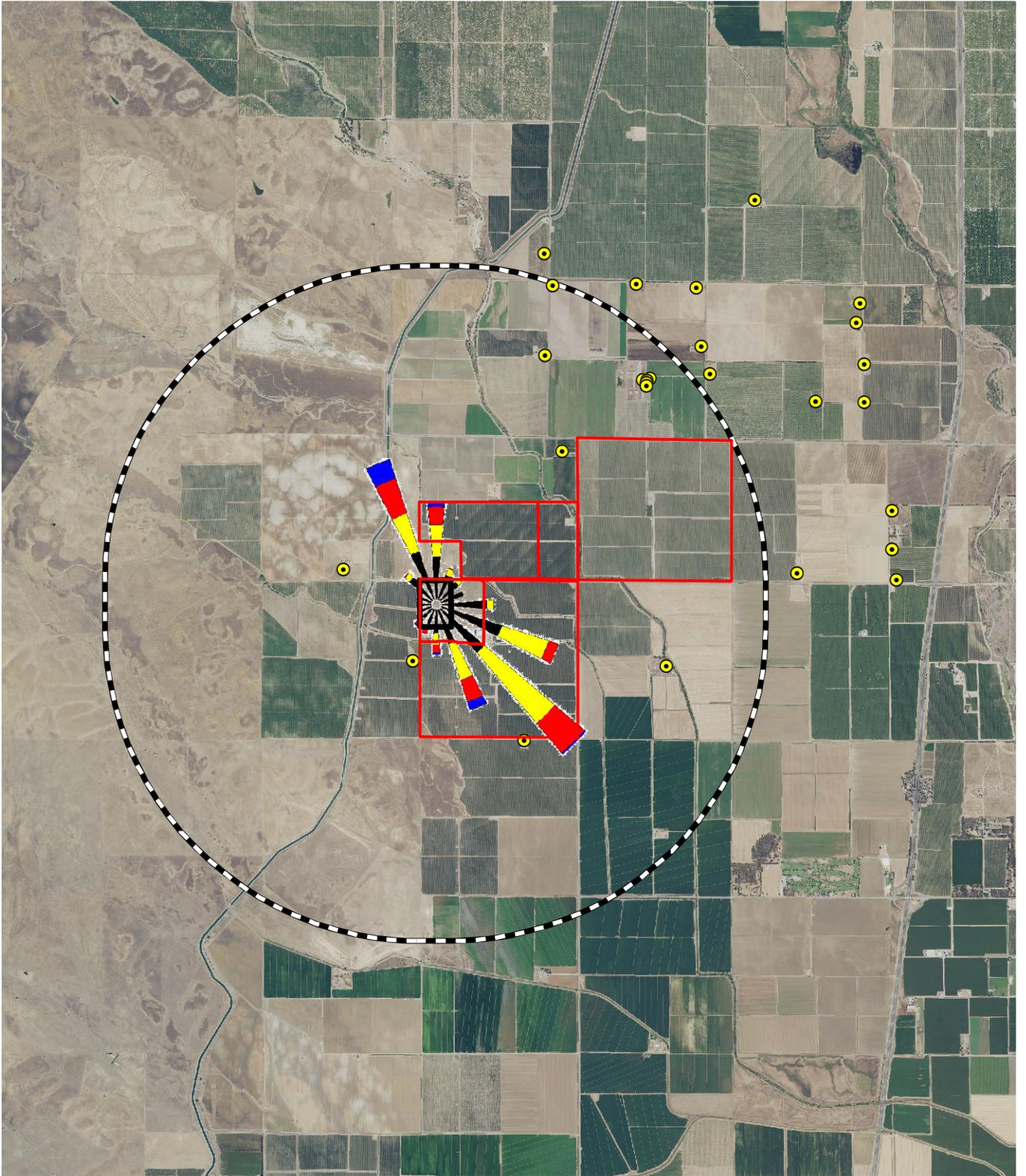
Three residences are located within a one-mile radius of the compost trial site. The closest residence is 1,000 feet southwest of the site. The locations of the 11 residential receptors within a two-mile radius of the compost trial location and a wind rose are shown on Figure 1. The majority of the receptors are located north or east of the compost trial site outside of the predominant wind directions.

The Glenn County Landfill is located approximately two miles northwest of the compost trial site. The landfill and trucks hauling waste to the landfill on County Road 33 are potential competing odor sources.

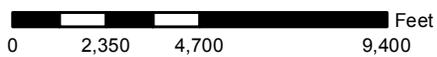
### **2.2 Method of Assessing Odor Impacts**

Each operating day, COR personnel will evaluate onsite odors and operations for potential release of objectionable odors in the course of their usual work. If questionable or objectionable onsite odors are detected by site personnel, the following protocol will be implemented:

1. Investigate and determine the likely source of the odor.
2. Assess the effectiveness of available onsite management practices to resolve the odor event and immediately take steps to reduce the odor-generating capacity of the onsite material. Possible management practices are shown in Table 2.
3. Determine if the odor traveled offsite by surveying the site perimeter and noting existing wind patterns.
4. If it is determined possible odor impacts occurred, contact appropriate enforcement agency and/or neighboring residences.
5. Record the event for further operational review in an odor log.



-  Nearby Residence
-  2-Mile Buffer Around Proposed Compost Facility
-  Proposed Compost Facility
-  California Olive Ranch Ownership



SOURCE: GLENN COUNTY 2016; FEMA 2014

**FIGURE 1**  
**NEARBY RESIDENCES**  
**AND WIND ROSE**  
**CALIFORNIA OLIVE RANCH**  
**GLENN COUNTY, CALIFORNIA**

**Table 2  
SOURCES OF ODOR AND POSSIBLE MANAGEMENT TECHNIQUES**

<b>Source of Odor</b>	<b>Possible Cause</b>	<b>Management Approach</b>
Feedstock receiving	Materials arrive with odors	<ul style="list-style-type: none"> <li>• Mix materials upon receipt</li> <li>• Stockpile bulking agent or high carbon amendments as receiving basin</li> <li>• Make smaller piles</li> <li>• Consider blanketing odiferous materials with a six-inch to one-foot layer of bulking agent, high carbon amendments or finished compost</li> <li>• Add lime or wood ash to piles to adjust pH</li> </ul>
	Material sitting too long prior to being processed or mixed	<ul style="list-style-type: none"> <li>• Expedite material processing</li> <li>• Consider blanketing odiferous materials with a 6-inch to 1-foot layer of bulking agent, high carbon amendments or finished compost</li> </ul>
Grinding	Grinding volatilizes particles	<ul style="list-style-type: none"> <li>• Add light misting of water or odor neutralizer to grinder at discharge points</li> <li>• Consider scheduling grinding to coincide with favorable atmospheric dispersion conditions</li> <li>• Consider grinding green materials with woodier materials</li> </ul>
Mixing and Material Handling	Mixing volatilizes particles	<ul style="list-style-type: none"> <li>• Create windrows/piles that are sufficiently blended</li> <li>• Combine materials to achieve high C:N ratio (greater than 30:1)</li> <li>• Create piles with good porosity</li> <li>• Reduce mixing/materials handling activity during stagnant air conditions</li> <li>• Reduce mixing/materials handling activity when wind is in direction of receptors</li> <li>• Mist water or odor neutralizer at dust generation points</li> </ul>
Composting	Less than ideal conditions	<ul style="list-style-type: none"> <li>• Reduce turning and/or material handling activity during stagnant air conditions</li> <li>• Reduce turning/material handling activity when wind is in direction of nearby receptors</li> <li>• Turn regularly to reinvigorate the composting process</li> <li>• Maintain sufficient moisture in windrows</li> <li>• Avoid over-watering windrows</li> <li>• Make smaller windrows to increase passive aeration</li> <li>• Diligently monitor and manage the composting process</li> <li>• Increase porosity and bulk density</li> <li>• Consider blanketing odiferous materials in a six inch to one-foot layer of bulking agent, high carbon amendments or finished compost (water lightly to reduce odor releases)</li> <li>• Adopt forced aeration</li> </ul>
Screening	Screening volatilizes particles	<ul style="list-style-type: none"> <li>• Reduce screening activity during stagnant air conditions</li> <li>• Reduce screening activity when wind is in direction of nearby receptors</li> <li>• Mist water or neutralizer at dust generation points</li> </ul>
Site	Water allowed to pond	<ul style="list-style-type: none"> <li>• Grade the site to eliminate puddles, depressions, and wheel ruts where water collects</li> <li>• Absorb ponded water with wood chips/other absorbent, fill pothole with soil/pad material</li> </ul>

**Table 2**  
**SOURCES OF ODOR AND POSSIBLE MANAGEMENT TECHNIQUES**

Source of Odor	Possible Cause	Management Approach
Curing Piles	Excessive temperature	<ul style="list-style-type: none"> <li>• Decrease curing pile size (height)</li> <li>• Review moisture content of in-process compost</li> <li>• Screen after curing to maintain porosity</li> <li>• Aerate curing piles</li> </ul>
Stormwater Pond	Excessive nutrients in stormwater runoff	<ul style="list-style-type: none"> <li>• Remove particles from water draining into stormwater pond</li> <li>• Filter stormwater through filter berm or sock</li> </ul>

## 3.0 METEOROLOGICAL CONDITIONS

### 3.1 Precipitation

The precipitation data used for the Artois area was estimated on Willows 6W Weather Station (No. 049699), located approximately 7.5 miles southwest of the proposed compost trial facility, with years of record from 1906 to 2016. Precipitation at the Willows station averages 17.95 inches per year, 80 percent of which falls between November and March. Precipitation data for the Willows station are summarized in Table 3.

<b>Month</b>	<b>Willows</b>	<b>Percent of Year</b>
January	3.68	20.5
February	3.14	17.5
March	2.33	13.0
April	1.12	6.2
May	0.66	3.7
June	0.33	1.8
July	0.04	0.2
August	0.09	0.5
September	0.31	1.7
October	1.01	5.6
November	2.13	11.9
December	3.13	17.4
<b>Average</b>	<b>17.95</b>	---

### 3.2 Temperature

Based on data for the Willows 6W Weather Station (No. 049699), average daily minimum temperatures in the project area range from 35.9 degrees Fahrenheit (°F) in January to 60.8 °F in July. Average daily maximum temperatures range from 54.6 °F in January to 65.2 °F in July. Figure 2 shows the average monthly minimum and maximum temperatures for the Willows station.

### 3.3 Wind Rose

Wind data are available from the Colusa CIMIS station (No. 99032) located about 30 miles southeast of the proposed compost trial facility. Winds in the Colusa area are generally from the south during the summer and fall (May through October), averaging 3 to 6 miles per hour (mph). Average wind directions shift to the north-northwest during November and December, averaging 6 to 9 mph. A wind rose for data collected between 1993 and 1997 at the Colusa CIMIS station is included on Figure 3.

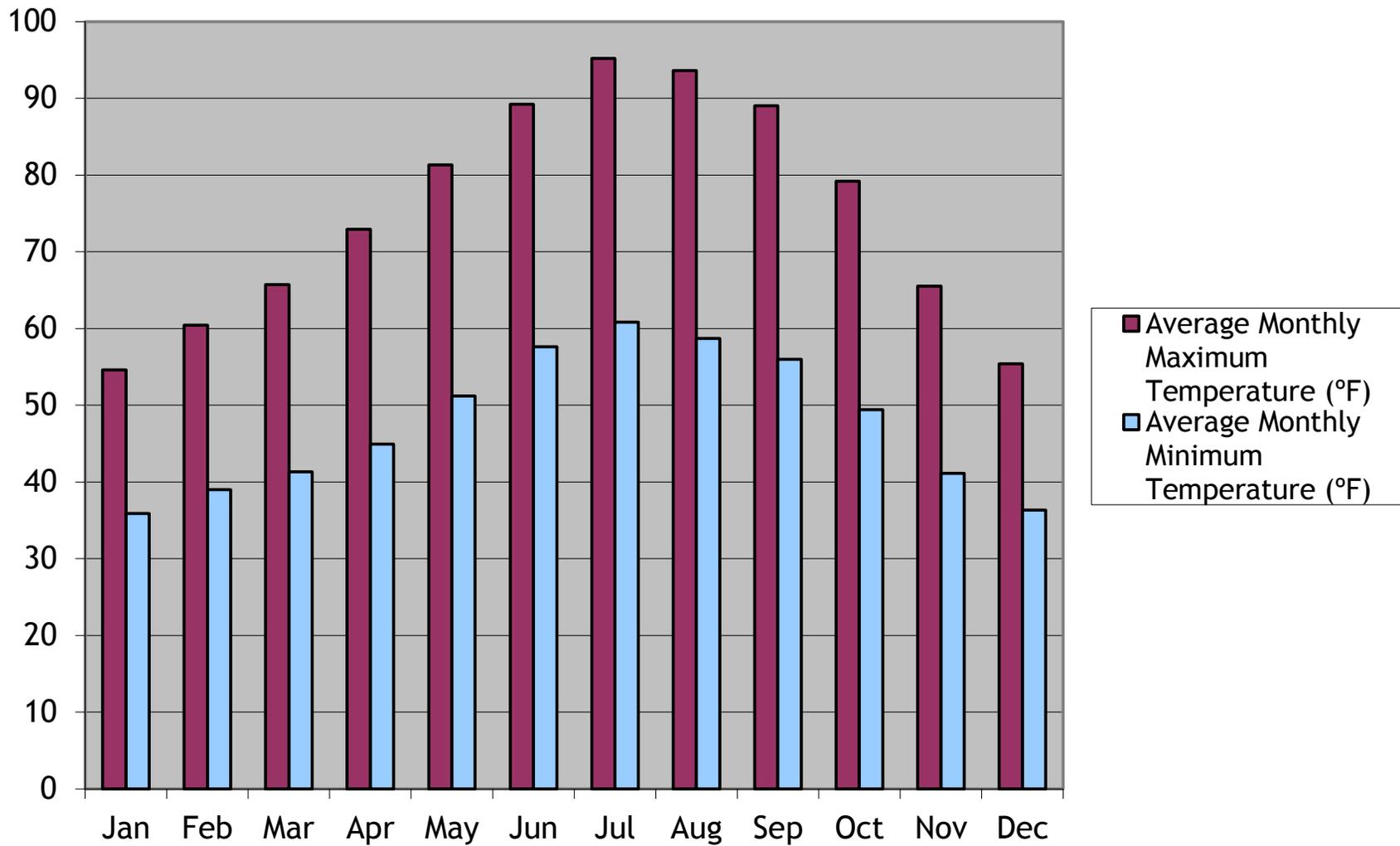


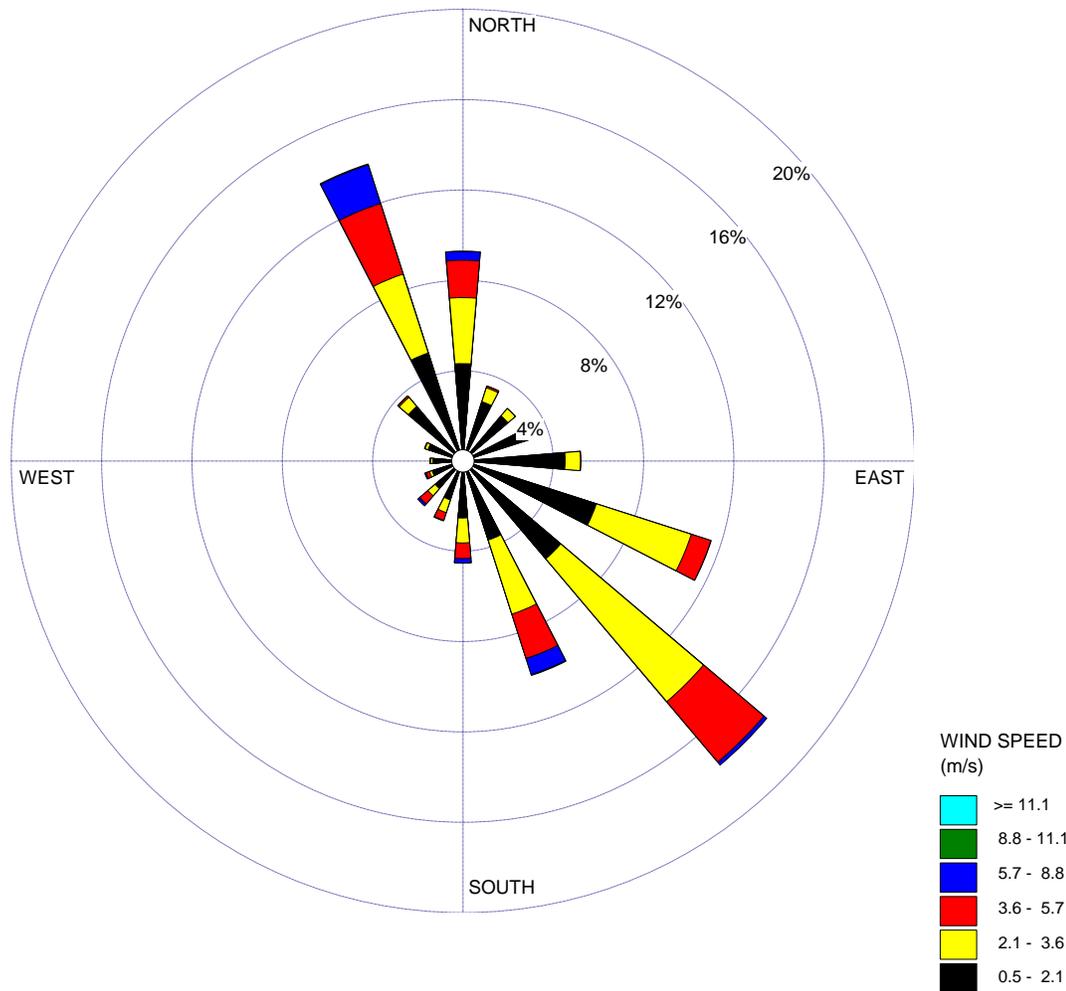
FIGURE 2  
 AVERAGE MONTHLY MINIMUM AND  
 MAXIMUM TEMPERATURES  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: WILLOWS 6W WEATHER STATION 049699

WIND ROSE PLOT:  
**Station #99032**

DISPLAY:  
**Wind Speed  
 Direction (blowing from)**



COMMENTS:	DATA PERIOD: <b>1993 1994 1996 1997 Jan 1 - Dec 31 00:00 - 23:00</b>	COMPANY NAME:	
	CALM WINDS: <b>3.93%</b>	MODELER:	
	AVG. WIND SPEED: <b>2.37 m/s</b>	TOTAL COUNT: <b>35064 hrs.</b>	DATE: <b>7/15/2003</b>



SOURCE: STATION 99032, COLUSA CIMIS STATION

**FIGURE 3  
 WIND ROSE  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA**

## 4.0 COMPLAINT RESPONSE PROTOCOL

In the event that an odor complaint is received, the following procedures will be followed by COR personnel:

1. If possible, the operator will visit the location of the complaint to verify if the site may be responsible for the odor. Otherwise, the operator shall investigate the probable source of the odor complaint and implement operational changes to minimize odors.
2. Discuss investigation and response with complainant.
3. Inform Local Enforcement Agency (LEA) of complaint and response.
4. Document the complaint(s) on the odor investigation report form (copy included as Appendix A).

## **5.0 DESIGN CONSIDERATIONS/OPERATING PROCEDURES TO MINIMIZE ODORS**

The composting site is located in a rural area. The compost area is surrounded by olive orchards and almond trees, which will provide a vegetative buffer between odor sources and any offsite receptors.

Effective odor management is dependent upon containing volatile organic compounds (VOCs). This is done primarily by limiting excess moisture in the feedstock and materials that are actively composting. In addition, a correct initial C:N ratio is essential in sequestering VOCs. COR will work to attain the proper C:N ratio and limit excess moisture in the initial compost feedstock blend. Additional water will be added to the compost on an as-needed basis only. Proper management of water additions eliminates excess moisture in the compost.

The material will be covered with tarps following November 1 and not composted until late spring. Additional possible management tools that could be employed at the compost trial site if needed were summarized in Table 2.

### **5.1 Feedstock Characteristic and Quality/Moisture Content**

The feedstock will consist of olive pomace and other agricultural materials. An olive pomace sample collected at the COR facility contained 65 percent moisture. The pomace will be composted with locally available materials to facilitate the compost process. The materials will include some type of manure to provide nutrients and one or more bulking agents.

Temperature will be monitored during composting too ensure that the process is progressing as planned. Monitoring these parameters could allow correction of conditions that may lead to excessive odors.

### **5.2 Aeration**

The processing at the COR facility will be passive. These will be turned regularly to provide aeration.

### **5.3 Airborne Emission Controls**

Activities such as material handling, grinding, turning, and screening could generate dust and odor emissions. Maintaining proper moisture in materials onsite would prevent generation of dust. If necessary, water can be added to material to prevent dust. Additional measures to control airborne emissions from the site include reducing turning and material handling when wind is in the direction of nearby receptors, and reducing turning and material handling during stagnant air conditions.

## **5.4 Drainage Controls**

The compost area will be compacted and directed to drain to a bioswale to be constructed adjacent to the site. There is no run-on to the site and runoff from the site will be managed by windrow piles and drainage controls.

## **5.5 Pad Maintenance**

The pad will be graded and maintained to discourage any ponding of water which could lead to odors at the site.

## **5.6 Process/Wastewater Controls**

The compost facility will not generate a process/wastewater. Leachate generation is expected to be minimal as the heat of the windrows will result in water evaporation. Any wastewater generated by watering the piles would drain into the drainage control system and hence to the bioswale prior to discharge.

## **5.7 Storage Practices**

The olive pomace feedstock will be processed immediately upon generation and mixed with drier feedstocks. Compost piles will be trapezoidal in cross-section. With the exception of an initial two-week supply, mix materials will not be stored in piles on the site and delivered as needed. All feedstock materials delivered with the exception of a small amount of manure are anticipated to be dry to offset the moisture content of the pomace.

## **5.8 Weather Event Impacts**

It is not anticipated that extreme weather events could significantly interfere with composting operations. Winds could cause migration of odor from the site, but will not result in odor-causing material leaving the property. Measures to control airborne emissions from the piles include reducing turning and material handling when wind is in the direction of nearby receptors, and reducing turning and material handling during stagnant air conditions.

## **5.9 Contingency Plans**

Water will be supplied by an onsite well. If needed, water could be delivered to the site by tanker truck if the water supply was interrupted. The composting equipment onsite will be diesel-powered and will not require electricity. Power outage would not impact composting operations. All equipment will be maintained per the manufacturer recommendations. In the event of equipment failure, the operator will rent or lease equipment if needed while repairs are made. Multiple employees will be trained in composting procedures and equipment operation to ensure operations can continue in the absence of key personnel.

## **5.10 Personnel Training**

Personnel will be trained in the proper use of facility equipment. Potential hazards and safety features will be stressed as well as handling procedures to minimize production of odors. All equipment operators will be trained before running each piece of machinery. Training records will be kept on file.

## **5.11 Load Enclosure/Tarping**

Olive pomace will be transported to the mix area directly from the olive processing facility in mix trucks. Pomace will not be deposited onsite. Only dry mix ingredients will be used. Mix materials will be tarped as necessary. The one-third of the total compost mix that is stored over the winter will be piled and covered. The composting windrows of the other two-thirds will not be covered.



## **ODOR INCIDENT INVESTIGATION REPORT (OIR)**

*Note: This is not intended to be an "inspection" report per se (to indicate the regulatory agent's verification of the odor). It is more of an evaluation to determine the cause of the odor incident.*

GENERAL

Date: \_\_\_\_\_

Facility Name: \_\_\_\_\_

Address:

\_\_\_\_\_

Town: \_\_\_\_\_, State: \_\_\_\_\_, Zip code: \_\_\_\_\_ County:

\_\_\_\_\_

Facility contact:

\_\_\_\_\_

Phone:

\_\_\_\_\_

Email:

\_\_\_\_\_

Regulatory jurisdiction:

\_\_\_\_\_

Regulatory contact:

\_\_\_\_\_

**ODOR COMPLAINT:**

Nature of the complaint:

\_\_\_\_\_

Date of 1<sup>st</sup> complaint: \_\_\_\_\_ Day of week: \_\_\_\_\_

Time(s) during day:

\_\_\_\_\_

Source of Complaint(s):

Residence     School     Business     Vehicle

Other: \_\_\_\_\_

Odor character:  Pungent     Rotten     Putrid     Other

\_\_\_\_\_

Intensity     Strong     Strong-mild     Mild    \_\_\_\_\_  
Faint

Consistency:     Constant     Irregular/consistent     Irregular/sporadic  
                           Rare/brief

Duration of incident:                    \_\_\_\_\_ hours

Time of day first detected \_\_\_\_\_

Time of day no longer apparent: \_\_\_\_\_

Location(s) where odor detected:

Direction from facility (circle all that apply): N    NE    E    SE    S    SW    W    NW

Distance to nearest complaint:    \_\_\_\_\_     Upslope or  down slope?

Distance to FURTHEST complaint:    \_\_\_\_\_     Upslope or  down slope?

Facility and Community history

Previous complaints for site:             Many     Occasional     Few    \_\_\_\_\_  
None

Previous complaints by complainant(s)                     Many                     Occasional  
   Few                             None

SITE CONDITIONS AT TIME OF COMPLAINT

Feedstocks generally handled :

\_\_\_\_\_

Feedstocks received on day of complaint and/or previous day:

Material	Day	AM/PM	Condition
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Activities on day of complaint and/or previous day:

Activity (e.g. turning, pile moved, delivery)	Day of Week	AM/PM
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Extraordinary circumstances

(e.g. spill, equipment breakdown, employee incident, odorous load, etc.):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Resolution of the above:

\_\_\_\_\_

APPROXIMATE WEATHER CONDITIONS (e.g.warm, hot, windy, sunny, light rain, etc)

At time	Morning	Afternoon	
of 1 <sup>st</sup>	of Same	of Same	Previous
Previous			

	complaint	Day	Day	Afternoon	Night
Temperature	_____		_____		
	_____		_____		
	_____				
Cloud cover	_____		_____		
	_____		_____		
	_____				
Prevailing wind	_____		_____		
	_____		_____		
	_____				
Wind conditions	_____		_____		
	_____		_____		
	_____				
Precipitation	_____		_____		
	_____		_____		
	_____				
Humidity	_____		_____		
	_____		_____		
	_____				

Unusual weather conditions (e.g. very strong wind, temperature inversion):

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Description of weather character for previous five days (e.g. hot and humid for 3 days followed by heavy rain and mild temperatures):

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# ODOR IMPACT MINIMIZATION PLAN CALIFORNIA OLIVE RANCH COMPOST FACILITY

## 1.0 INTRODUCTION

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247 North Villa Avenue  
Willows, California 95988

### 1.2 Project Description

California Olive Ranch (COR) farms approximately 5,500 acres of olives and processes the olives, from their farm and from other growers, into “extra-virgin” olive oil at their processing and bottling facility in Artois, California. The pressing of extra-virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the

pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive. COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller etc. All of the olive pomace is generated during the pressing window.

The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace (vegetative food waste)
- Almond trash (floor sweepings, etc., from almond harvest)
- MOO (materials other than olives generated during processing)
- Orchard trimmings and stems
- Manure (dairy)
- Agricultural processing waste
- Greenwaste
- Other agricultural waste materials

The compost facility will include compacted compost areas, paved mixing area, stormwater detention pond, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back from property lines and County Road 35. The facility will be surrounded by a vegetative buffer of two to three rows of olives. Mix materials will be received via a separate entrance off County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a bioswale and hence discharged.

The pomace will be mixed directly out of the olive processing facility in the mix trucks. The trucks will be topped off with the mixing/bulking agents and then proceed to a windrow location. It is anticipated that material will be mixed and windrowed until November 1<sup>st</sup>, after which point the materials will be mixed, stockpiled, and covered until March or April. Approximately two-thirds of the total pomace produced will be mixed and windrowed before November 1<sup>st</sup>. The remaining one-third will be mixed, stockpiled, and covered for the winter season. Once temperatures begin to warm in the spring, the mixed material will be placed in windrows and turned until complete.

When COR is not using portions of the composting pads in late spring and summer, these areas may be used by others to produce a higher-quality compost product.

It is anticipated that the early windrowed material will be turned as needed and composting be completed by April or May. This first batch of completed compost will be applied to the COR orchards beginning in April or May. The stockpiled material that was covered and windrowed in December will be uncovered and windrowed in March or April, depending on the weather, and will compost until July or August and be applied to orchards under the control of COR. The target application rate is 5 tons per acre to the orchard cropland. This will be applied between the tree rows and seeded to a cover crop.

The composting will be completed using similar techniques to other composting operations in the county. The exception herewith is that the pomace and other bulking materials will be mixed in large mixing trucks and the material conveyed in the truck to the windrow location. Once a windrow is complete, it will be turned as needed using a standard turning machine. The windrows will be on 32-foot centers and measure 16 feet wide and approximately 6 feet high. When composting is completed, three to four windrows will be combined into a large row to facilitate removal to orchards.

Because the composting will be conducted during a relatively short window, only a few days of mixable materials will be stockpiled in the weeks prior to harvest. Mix materials will be delivered via truck off County Road 35 and stockpiled in or near the “mix area.” If necessary, the mix materials will be covered prior to use. Mix materials planned for use are not planned to be pretreated prior to mixing.

The material mixing area, where the dry material will be added to the pomace-filled mix truck, will be paved and have concrete push bins and walls to contain mix products. Wind screens will contain fine materials from blowing offsite.

### **1.3 Sources of Odor**

The primary sources of composting-related odors are:

- (1) Feedstock management (delivery, storage and handling)
- (2) Active composting (surface emissions, turning windrows, tearing down piles)
- (3) Curing (surface emissions, turning windrows, and tearing down piles)

Other minor sources of composting-related odor include mixing of feedstocks into windrows, finished product loading, and poor site management (runoff, leachate, surface ponding, and road spillage).

Type of feedstock, condition of the feedstock, and the stage of composting will determine odor contribution. Feedstocks that decompose rapidly may produce odors at higher concentrations than those feedstocks that decompose at a slower rate. The delivery, storage, and handling of feedstocks can also greatly affect odors. If incoming feedstocks are not expeditiously processed, they may decay and begin to produce odors.

If portions of the windrows become anaerobic, actual turning of the windrow can result in the release of odors. Odors produced at early stages of composting are principally the result of the decomposition or breakdown of proteins that contain sulfur and nitrogen compounds. These compounds generally break down during the first 14 days of composting, and odor generation is significantly reduced after this initial stage of decomposition.

Odors can be released from windrow surfaces during non-turning periods. Although surface emissions are the greatest overall source of odors from windrows, turning results in higher short-term spikes in concentration and intensity of odors. The fresher the material in the windrow, the greater the odor potential. Material that has been in the windrow for long periods of time is more stable and generates fewer odors.

When the windrows are torn down, the potential for odors is considerably lower than for the initial composting process, because the compost has become more stable with time. In addition, odors from finished compost are usually not considered to be offensive, unlike fresh composting feedstocks. Odor levels are generally minimal during final loading of the finished compost product for shipment offsite, and the characteristics of the odor from this process is that of a soil-like material. Odors can also be generated if runoff and leachate remain on the composting facility surface in sufficient amounts to form ponds.

Epstein (2004) identifies sources of odors during the composting process and the relative contribution of individual sources in comparison to total odor generation by composting facility operations. These are shown in Table 1. The relative odor contributions are expressed as a percentage of the total odor emissions typically generated.

<b>Table 1            ODOR RELATIVE CONTRIBUTIONS BY PROCESS            AND POTENTIAL CHARACTERISTICS</b>		
<b>Odor Sources &amp; Area Sources</b>	<b>Relative Odor Contribution</b>	<b>Potential Odor Characteristics</b>
Feedstock Storage	4%	Woody
Composting Windrows, 0-6 days old	30%	Stinky, sulfurous, fish, ammonia
Composting Windrows, 7-11 days old	10%	Stinky, sulfurous
Composting Windrows, 12-27 days old	40%	Earthy, mulch
Curing Windrows, 28-61 days old	11%	Earthy, soil-like
Curing Windrows, 61-90 days old	3%	Earthy, soil-like

## **2.0 ODOR MONITORING PROTOCOL**

### **2.1 Proximity of Odor Receptors**

The compost trial site is surrounded by agricultural land uses. The closest receptors to the composting trial site would be COR employees responsible for monitoring and/or managing the compost, COR employees working in the processing plant or olive orchards located adjacent to the composting site, or adjacent residences.

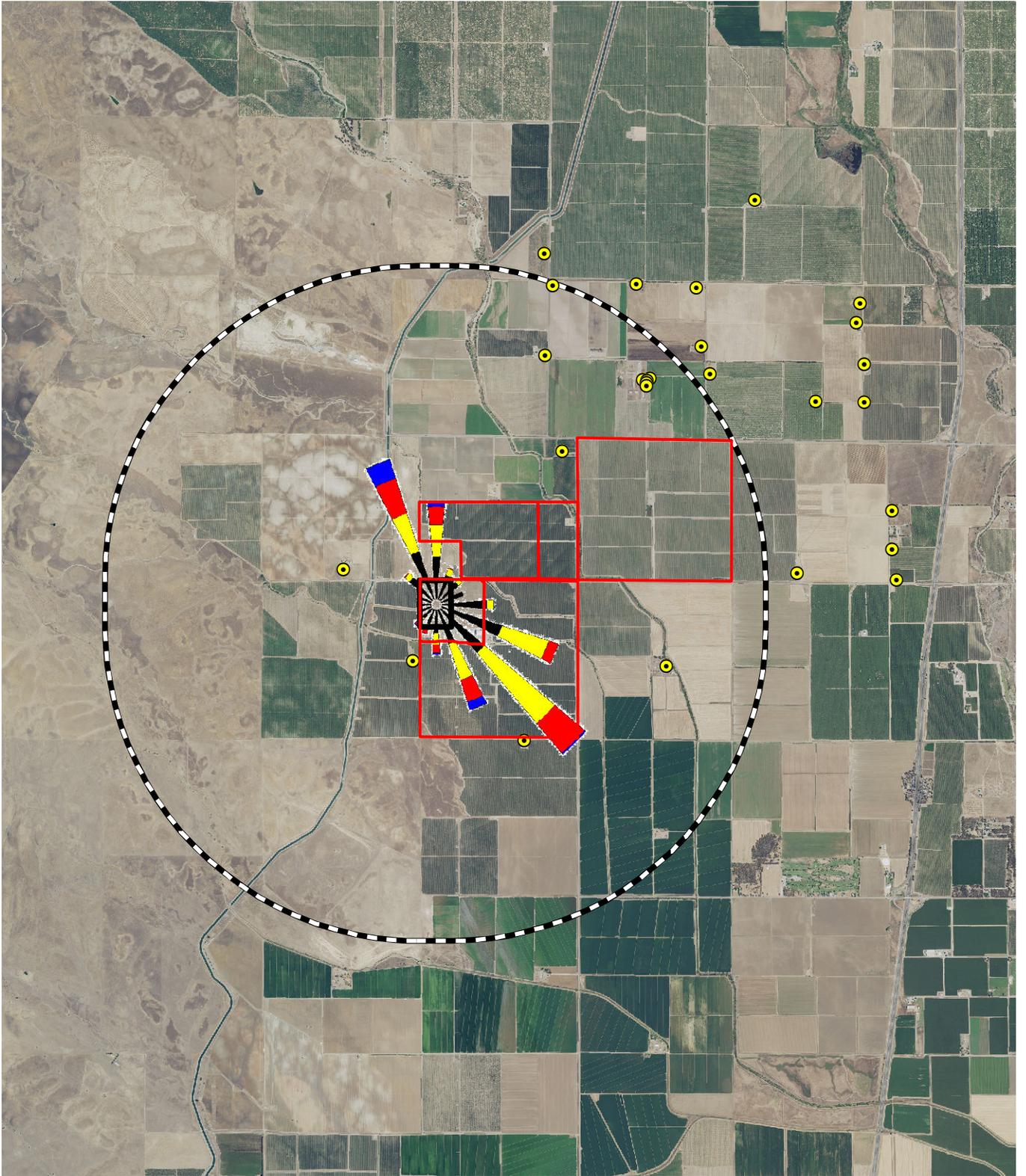
Three residences are located within a one-mile radius of the compost trial site. The closest residence is 1,000 feet southwest of the site. The locations of the 11 residential receptors within a two-mile radius of the compost trial location and a wind rose are shown on Figure 1. The majority of the receptors are located north or east of the compost trial site outside of the predominant wind directions.

The Glenn County Landfill is located approximately two miles northwest of the compost trial site. The landfill and trucks hauling waste to the landfill on County Road 33 are potential competing odor sources.

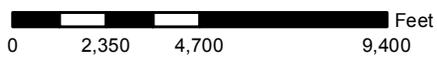
### **2.2 Method of Assessing Odor Impacts**

Each operating day, COR personnel will evaluate onsite odors and operations for potential release of objectionable odors in the course of their usual work. If questionable or objectionable onsite odors are detected by site personnel, the following protocol will be implemented:

1. Investigate and determine the likely source of the odor.
2. Assess the effectiveness of available onsite management practices to resolve the odor event and immediately take steps to reduce the odor-generating capacity of the onsite material. Possible management practices are shown in Table 2.
3. Determine if the odor traveled offsite by surveying the site perimeter and noting existing wind patterns.
4. If it is determined possible odor impacts occurred, contact appropriate enforcement agency and/or neighboring residences.
5. Record the event for further operational review in an odor log.



-  Nearby Residence
-  2-Mile Buffer Around Proposed Compost Facility
-  Proposed Compost Facility
-  California Olive Ranch Ownership



**FIGURE 1**  
**NEARBY RESIDENCES**  
**AND WIND ROSE**  
**CALIFORNIA OLIVE RANCH**  
**GLENN COUNTY, CALIFORNIA**



SOURCE: GLENN COUNTY 2016; FEMA 2014

**Table 2  
SOURCES OF ODOR AND POSSIBLE MANAGEMENT TECHNIQUES**

<b>Source of Odor</b>	<b>Possible Cause</b>	<b>Management Approach</b>
Feedstock receiving	Materials arrive with odors	<ul style="list-style-type: none"> <li>• Mix materials upon receipt</li> <li>• Stockpile bulking agent or high carbon amendments as receiving basin</li> <li>• Make smaller piles</li> <li>• Consider blanketing odiferous materials with a six-inch to one-foot layer of bulking agent, high carbon amendments or finished compost</li> <li>• Add lime or wood ash to piles to adjust pH</li> </ul>
	Material sitting too long prior to being processed or mixed	<ul style="list-style-type: none"> <li>• Expedite material processing</li> <li>• Consider blanketing odiferous materials with a 6-inch to 1-foot layer of bulking agent, high carbon amendments or finished compost</li> </ul>
Grinding	Grinding volatilizes particles	<ul style="list-style-type: none"> <li>• Add light misting of water or odor neutralizer to grinder at discharge points</li> <li>• Consider scheduling grinding to coincide with favorable atmospheric dispersion conditions</li> <li>• Consider grinding green materials with woodier materials</li> </ul>
Mixing and Material Handling	Mixing volatilizes particles	<ul style="list-style-type: none"> <li>• Create windrows/piles that are sufficiently blended</li> <li>• Combine materials to achieve high C:N ratio (greater than 30:1)</li> <li>• Create piles with good porosity</li> <li>• Reduce mixing/materials handling activity during stagnant air conditions</li> <li>• Reduce mixing/materials handling activity when wind is in direction of receptors</li> <li>• Mist water or odor neutralizer at dust generation points</li> </ul>
Composting	Less than ideal conditions	<ul style="list-style-type: none"> <li>• Reduce turning and/or material handling activity during stagnant air conditions</li> <li>• Reduce turning/material handling activity when wind is in direction of nearby receptors</li> <li>• Turn regularly to reinvigorate the composting process</li> <li>• Maintain sufficient moisture in windrows</li> <li>• Avoid over-watering windrows</li> <li>• Make smaller windrows to increase passive aeration</li> <li>• Diligently monitor and manage the composting process</li> <li>• Increase porosity and bulk density</li> <li>• Consider blanketing odiferous materials in a six inch to one-foot layer of bulking agent, high carbon amendments or finished compost (water lightly to reduce odor releases)</li> <li>• Adopt forced aeration</li> </ul>
Screening	Screening volatilizes particles	<ul style="list-style-type: none"> <li>• Reduce screening activity during stagnant air conditions</li> <li>• Reduce screening activity when wind is in direction of nearby receptors</li> <li>• Mist water or neutralizer at dust generation points</li> </ul>
Site	Water allowed to pond	<ul style="list-style-type: none"> <li>• Grade the site to eliminate puddles, depressions, and wheel ruts where water collects</li> <li>• Absorb ponded water with wood chips/other absorbent, fill pothole with soil/pad material</li> </ul>

**Table 2**  
**SOURCES OF ODOR AND POSSIBLE MANAGEMENT TECHNIQUES**

Source of Odor	Possible Cause	Management Approach
Curing Piles	Excessive temperature	<ul style="list-style-type: none"> <li>• Decrease curing pile size (height)</li> <li>• Review moisture content of in-process compost</li> <li>• Screen after curing to maintain porosity</li> <li>• Aerate curing piles</li> </ul>
Stormwater Pond	Excessive nutrients in stormwater runoff	<ul style="list-style-type: none"> <li>• Remove particles from water draining into stormwater pond</li> <li>• Filter stormwater through filter berm or sock</li> </ul>

## 3.0 METEOROLOGICAL CONDITIONS

### 3.1 Precipitation

The precipitation data used for the Artois area was estimated on Willows 6W Weather Station (No. 049699), located approximately 7.5 miles southwest of the proposed compost trial facility, with years of record from 1906 to 2016. Precipitation at the Willows station averages 17.95 inches per year, 80 percent of which falls between November and March. Precipitation data for the Willows station are summarized in Table 3.

<b>Month</b>	<b>Willows</b>	<b>Percent of Year</b>
January	3.68	20.5
February	3.14	17.5
March	2.33	13.0
April	1.12	6.2
May	0.66	3.7
June	0.33	1.8
July	0.04	0.2
August	0.09	0.5
September	0.31	1.7
October	1.01	5.6
November	2.13	11.9
December	3.13	17.4
<b>Average</b>	<b>17.95</b>	---

### 3.2 Temperature

Based on data for the Willows 6W Weather Station (No. 049699), average daily minimum temperatures in the project area range from 35.9 degrees Fahrenheit (°F) in January to 60.8 °F in July. Average daily maximum temperatures range from 54.6 °F in January to 65.2 °F in July. Figure 2 shows the average monthly minimum and maximum temperatures for the Willows station.

### 3.3 Wind Rose

Wind data are available from the Colusa CIMIS station (No. 99032) located about 30 miles southeast of the proposed compost trial facility. Winds in the Colusa area are generally from the south during the summer and fall (May through October), averaging 3 to 6 miles per hour (mph). Average wind directions shift to the north-northwest during November and December, averaging 6 to 9 mph. A wind rose for data collected between 1993 and 1997 at the Colusa CIMIS station is included on Figure 3.

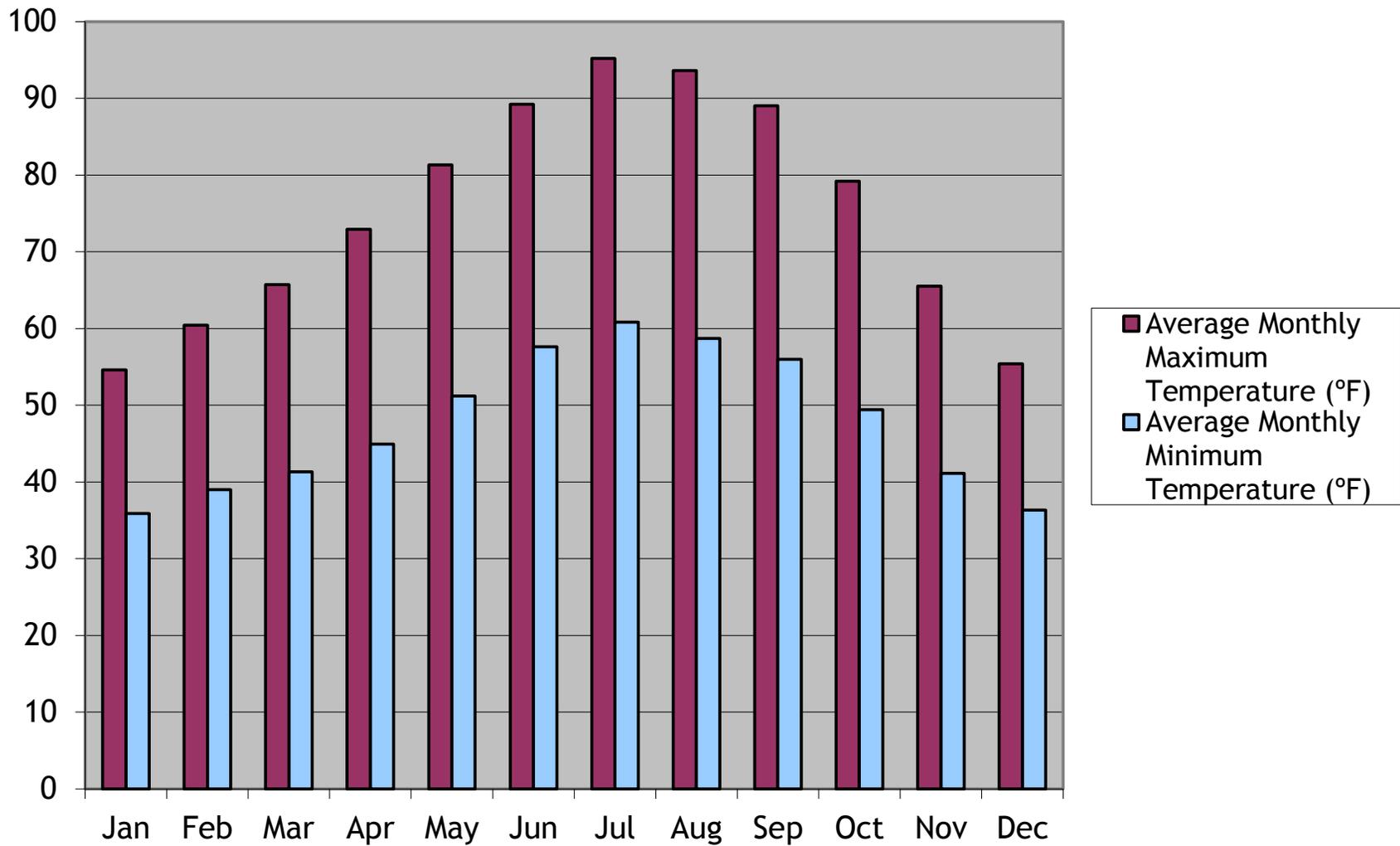


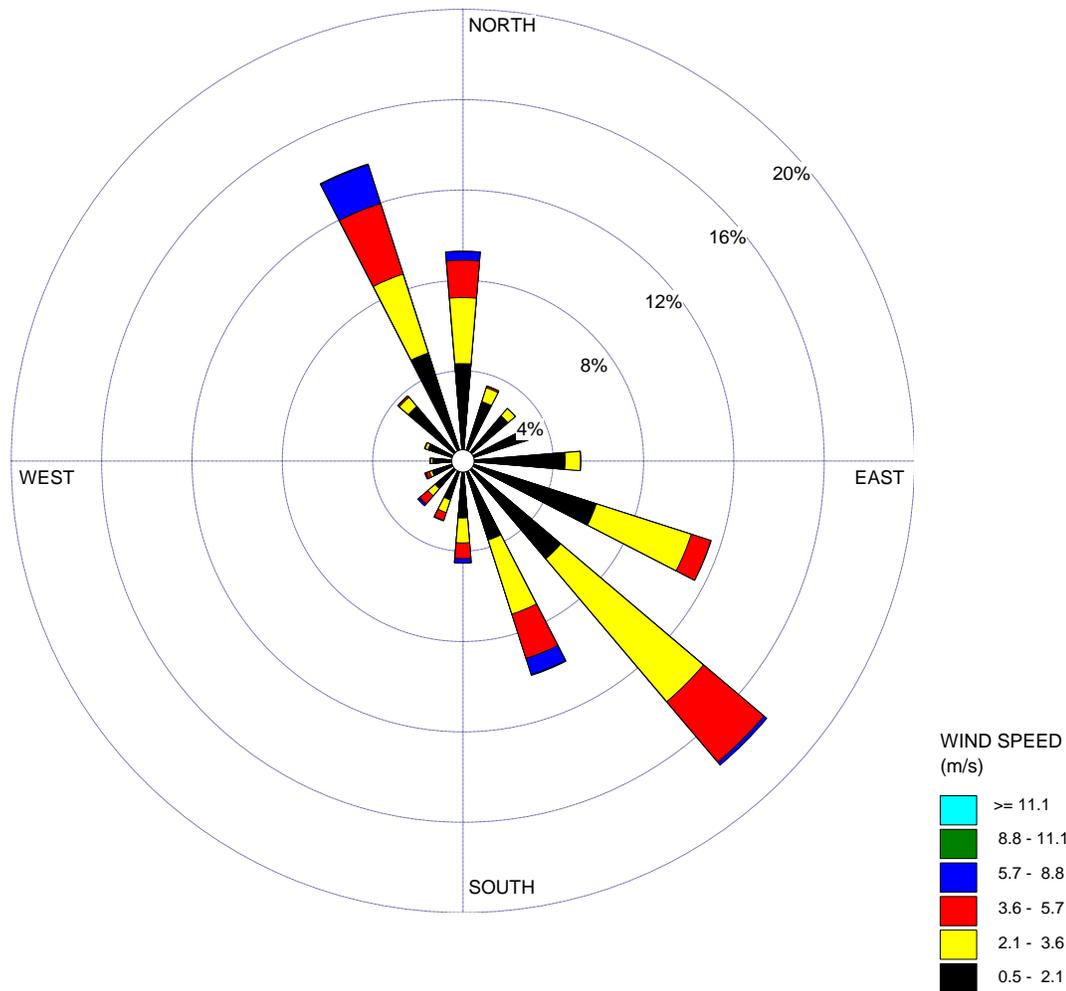
FIGURE 2  
 AVERAGE MONTHLY MINIMUM AND  
 MAXIMUM TEMPERATURES  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: WILLOWS 6W WEATHER STATION 049699

WIND ROSE PLOT:  
**Station #99032**

DISPLAY:  
**Wind Speed  
 Direction (blowing from)**



COMMENTS:	DATA PERIOD: <b>1993 1994 1996 1997 Jan 1 - Dec 31 00:00 - 23:00</b>	COMPANY NAME:	
	CALM WINDS: <b>3.93%</b>	MODELER:	
	AVG. WIND SPEED: <b>2.37 m/s</b>	TOTAL COUNT: <b>35064 hrs.</b>	DATE: <b>7/15/2003</b>



SOURCE: STATION 99032, COLUSA CIMIS STATION

**FIGURE 3  
 WIND ROSE  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA**

## 4.0 COMPLAINT RESPONSE PROTOCOL

In the event that an odor complaint is received, the following procedures will be followed by COR personnel:

1. If possible, the operator will visit the location of the complaint to verify if the site may be responsible for the odor. Otherwise, the operator shall investigate the probable source of the odor complaint and implement operational changes to minimize odors.
2. Discuss investigation and response with complainant.
3. Inform Local Enforcement Agency (LEA) of complaint and response.
4. Document the complaint(s) on the odor investigation report form (copy included as Appendix A).

## **5.0 DESIGN CONSIDERATIONS/OPERATING PROCEDURES TO MINIMIZE ODORS**

The composting site is located in a rural area. The compost area is surrounded by olive orchards and almond trees, which will provide a vegetative buffer between odor sources and any offsite receptors.

Effective odor management is dependent upon containing volatile organic compounds (VOCs). This is done primarily by limiting excess moisture in the feedstock and materials that are actively composting. In addition, a correct initial C:N ratio is essential in sequestering VOCs. COR will work to attain the proper C:N ratio and limit excess moisture in the initial compost feedstock blend. Additional water will be added to the compost on an as-needed basis only. Proper management of water additions eliminates excess moisture in the compost.

The material will be covered with tarps following November 1 and not composted until late spring. Additional possible management tools that could be employed at the compost trial site if needed were summarized in Table 2.

### **5.1 Feedstock Characteristic and Quality/Moisture Content**

The feedstock will consist of olive pomace and other agricultural materials. An olive pomace sample collected at the COR facility contained 65 percent moisture. The pomace will be composted with locally available materials to facilitate the compost process. The materials will include some type of manure to provide nutrients and one or more bulking agents.

Temperature will be monitored during composting too ensure that the process is progressing as planned. Monitoring these parameters could allow correction of conditions that may lead to excessive odors.

### **5.2 Aeration**

The processing at the COR facility will be passive. These will be turned regularly to provide aeration.

### **5.3 Airborne Emission Controls**

Activities such as material handling, grinding, turning, and screening could generate dust and odor emissions. Maintaining proper moisture in materials onsite would prevent generation of dust. If necessary, water can be added to material to prevent dust. Additional measures to control airborne emissions from the site include reducing turning and material handling when wind is in the direction of nearby receptors, and reducing turning and material handling during stagnant air conditions.

## **5.4 Drainage Controls**

The compost area will be compacted and directed to drain to a bioswale to be constructed adjacent to the site. There is no run-on to the site and runoff from the site will be managed by windrow piles and drainage controls.

## **5.5 Pad Maintenance**

The pad will be graded and maintained to discourage any ponding of water which could lead to odors at the site.

## **5.6 Process/Wastewater Controls**

The compost facility will not generate a process/wastewater. Leachate generation is expected to be minimal as the heat of the windrows will result in water evaporation. Any wastewater generated by watering the piles would drain into the drainage control system and hence to the bioswale prior to discharge.

## **5.7 Storage Practices**

The olive pomace feedstock will be processed immediately upon generation and mixed with drier feedstocks. Compost piles will be trapezoidal in cross-section. With the exception of an initial two-week supply, mix materials will not be stored in piles on the site and delivered as needed. All feedstock materials delivered with the exception of a small amount of manure are anticipated to be dry to offset the moisture content of the pomace.

## **5.8 Weather Event Impacts**

It is not anticipated that extreme weather events could significantly interfere with composting operations. Winds could cause migration of odor from the site, but will not result in odor-causing material leaving the property. Measures to control airborne emissions from the piles include reducing turning and material handling when wind is in the direction of nearby receptors, and reducing turning and material handling during stagnant air conditions.

## **5.9 Contingency Plans**

Water will be supplied by an onsite well. If needed, water could be delivered to the site by tanker truck if the water supply was interrupted. The composting equipment onsite will be diesel-powered and will not require electricity. Power outage would not impact composting operations. All equipment will be maintained per the manufacturer recommendations. In the event of equipment failure, the operator will rent or lease equipment if needed while repairs are made. Multiple employees will be trained in composting procedures and equipment operation to ensure operations can continue in the absence of key personnel.

## **5.10 Personnel Training**

Personnel will be trained in the proper use of facility equipment. Potential hazards and safety features will be stressed as well as handling procedures to minimize production of odors. All equipment operators will be trained before running each piece of machinery. Training records will be kept on file.

## **5.11 Load Enclosure/Tarping**

Olive pomace will be transported to the mix area directly from the olive processing facility in mix trucks. Pomace will not be deposited onsite. Only dry mix ingredients will be used. Mix materials will be tarped as necessary. The one-third of the total compost mix that is stored over the winter will be piled and covered. The composting windrows of the other two-thirds will not be covered.



## **ODOR INCIDENT INVESTIGATION REPORT (OIR)**

*Note: This is not intended to be an "inspection" report per se (to indicate the regulatory agent's verification of the odor). It is more of an evaluation to determine the cause of the odor incident.*

GENERAL

Date: \_\_\_\_\_

Facility Name: \_\_\_\_\_

Address:

\_\_\_\_\_

Town: \_\_\_\_\_, State: \_\_\_\_\_, Zip code: \_\_\_\_\_ County:

\_\_\_\_\_

Facility contact:

\_\_\_\_\_

Phone:

\_\_\_\_\_

Email:

\_\_\_\_\_

Regulatory jurisdiction:

\_\_\_\_\_

Regulatory contact:

\_\_\_\_\_

**ODOR COMPLAINT:**

Nature of the complaint:

\_\_\_\_\_

Date of 1<sup>st</sup> complaint: \_\_\_\_\_ Day of week: \_\_\_\_\_

Time(s) during day:

\_\_\_\_\_

Source of Complaint(s):

Residence     School     Business     Vehicle

Other: \_\_\_\_\_

Odor character:  Pungent     Rotten     Putrid     Other

\_\_\_\_\_

Intensity     Strong     Strong-mild     Mild    \_\_\_\_\_  
Faint

Consistency:     Constant     Irregular/consistent     Irregular/sporadic  
                           Rare/brief

Duration of incident:                    \_\_\_\_\_ hours

Time of day first detected \_\_\_\_\_

Time of day no longer apparent: \_\_\_\_\_

Location(s) where odor detected:

Direction from facility (circle all that apply): N    NE    E    SE    S    SW    W    NW

Distance to nearest complaint:    \_\_\_\_\_     Upslope or  down slope?

Distance to FURTHEST complaint:    \_\_\_\_\_     Upslope or  down slope?

Facility and Community history

Previous complaints for site:             Many     Occasional     Few    \_\_\_\_\_  
None

Previous complaints by complainant(s)                     Many             Occasional  
   Few                 None

**SITE CONDITIONS AT TIME OF COMPLAINT**

Feedstocks generally handled :

\_\_\_\_\_

Feedstocks received on day of complaint and/or previous day:

Material	Day	AM/PM	Condition
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Activities on day of complaint and/or previous day:

Activity (e.g. turning, pile moved, delivery)	Day of Week	AM/PM
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Extraordinary circumstances

(e.g. spill, equipment breakdown, employee incident, odorous load, etc.):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Resolution of the above:

\_\_\_\_\_

APPROXIMATE WEATHER CONDITIONS (e.g.warm, hot, windy, sunny, light rain, etc)

At time	Morning	Afternoon	
of 1 <sup>st</sup>	of Same	of Same	Previous
Previous			

	complaint	Day	Day	Afternoon	Night
Temperature	_____		_____		
	_____		_____		
	_____				
Cloud cover	_____		_____		
	_____		_____		
	_____				
Prevailing wind	_____		_____		
	_____		_____		
	_____				
Wind conditions	_____		_____		
	_____		_____		
	_____				
Precipitation	_____		_____		
	_____		_____		
	_____				
Humidity	_____		_____		
	_____		_____		
	_____				

Unusual weather conditions (e.g. very strong wind, temperature inversion):

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Description of weather character for previous five days (e.g. hot and humid for 3 days followed by heavy rain and mild temperatures):

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February 21, 2017

**GIS, Environmental, & Engineering Services**

71630

Mr. Andy Popper  
Associate Planner  
Glenn County Planning Department  
777 North Colusa Street  
Willows, CA 95988

**RE: Conditional Use Permit Application – Revision 1  
California Olive Ranch Composting Facility**

Dear Mr. Popper:

Attached are the following to address the proposed California Olive Ranch composting facility:

- Conditional Use Permit Application
- Project Narrative
- Site Maps/Plot Plan (15 copies) (PREVIOUSLY SUBMITTED)
- Fee (check for \$2,813.00 to Glenn County; \$2,216.25 to CDFW) (PREVIOUSLY SUBMITTED)
- Copy of Grant Deed
- Resolution

California Olive Ranch has submitted an application to the Local Enforcement Agency (John Wells) for a Solid Waste Facility Permit and applied for coverage under the General Order for Composting Operations (WQ Order 2015-0121-DWQ) through the California Regional Water Quality Control Board.

Please call me at (530) 223-2585 with questions.

Sincerely,

**VESTRA Resources, Inc.**

A handwritten signature in black ink, appearing to read "Wendy Johnston".

Wendy Johnston  
Project Manager

CC: Mayo Ryan/COR  
Jim Lipman/COR  
John Wells/Glenn County Environmental Health  
Melissa Buciak/RWQCB, Central Valley Region

**Conditional Use Permit Application**

CUP \_\_\_\_\_

GLENN COUNTY  
PLANNING AND PUBLIC WORKS AGENCY  
777 North Colusa Street  
WILLOWS, CA 95988  
(530) 934-6540  
FAX (530) 934-6533  
[www.countyofglenn.net](http://www.countyofglenn.net)

**APPLICATION FOR CONDITIONAL USE PERMIT**

NOTE: FAILURE TO ANSWER APPLICABLE QUESTIONS AND REQUIRED ATTACHMENTS COULD DELAY THE PROCESSING OF YOUR APPLICATION.

1. Applicant(s):

Name: California Olive Ranch, Inc.

Address: 1367 East Lassen Ave., Suite A1, Chico, CA 95973

Phone: (Business) (530) 592-3743 <sup>Mobile</sup> (530) 519-8740  
(Home)

Fax: (530) 592-3710 E-mail: JLipman@cal-olive.com

2. Property Owner(s):

Name: Same

Address: \_\_\_\_\_

Phone: (Business) \_\_\_\_\_ (Home) \_\_\_\_\_

Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

3. Engineer/Person who Prepared Site Plan (if applicable):

Name: Wendy Johnston, VESTRA Resources

Mailing Address: 5300 Aviation Drive, Redding, CA 96002

Phone: (Business) 530-223-2585 <sup>Mobile</sup> (530) 949-9704  
(Home)

Fax: (530) 223-1145 E-mail: WJohnston@vestra.com

4. Name and address of property owner's duly authorized agent (if applicable) who is to be furnished with notice of hearing (Section 65091 California Government Code).

Name: James Lipman, Vice President - Production Operations

Mailing Address: 1367 East Lassen Ave., Suite A1, Chico, CA 95973

5. Request or Proposal: Develop composting facility for olive pomace at Artois mill site

6. Address and Location of Project: 5945 County Road 35, Artois, CA 95913

7. Current Assessor's Parcel Number(s): 021-020-027-09

8. Existing Zoning: AP-80

9. Existing Use of Property: Agriculture

10. Provide any additional information that may be helpful in evaluating this request: See Project Narrative (attached)

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**DECLARATION UNDER PENALTY OF PERJURY**

(Must be signed by Applicant(s) and Property Owner(s))

(Additional sheets may be necessary)

The Applicant(s) and/or Property Owner(s), by signing this application, shall be deemed to have agreed to defend, indemnify, release and hold harmless the County, its agents, officers, attorneys, employees, boards and commissions from any claim, action or proceeding brought against the foregoing individuals or entities, the purpose of which is to attack, set aside, void or null the approval of this development entitlement or approval or certification of the environmental document which accompanies it, or to obtain damages relating to such action(s). This indemnification agreement shall include, but not be limited to, damages, costs expenses, attorney fees or expert witness fees that may be asserted by any person or entity, including the applicant, arising out of or in connection with the approval of the entitlement whether or not there is concurrent passive or active negligence on the part of the County.

Applicant(s):

Signed: \_\_\_\_\_

2-10-17

Print: James Lipman, Vice President- Production Operations

Date: \_\_\_\_\_

Address: 1367 East Lassen Ave., Suite A1, Chico, CA 95973

I am (We are) the owner(s) of property involved in this application and I (We) have completed this application and all other documents required.

I am (We are) the owner(s) of the property involved in this application and I (We) acknowledge the preparation and submission of this application. —

I (We) declare under penalty of perjury that the foregoing is true and correct.

Property Owner(s):

Signed: \_\_\_\_\_

2-10-17

Print: James Lipman

Date: \_\_\_\_\_

Address: 1367 East Lassen Ave., Suite A1, Chico, CA 95973

Case \_\_\_\_\_

GLENN COUNTY  
PLANNING AND PUBLIC WORKS AGENCY  
777 North Colusa Street  
WILLOWS, CA 95988  
(530) 934-6540  
FAX (530) 934-6533  
[www.countyofglenn.net](http://www.countyofglenn.net)

**ENVIRONMENTAL INFORMATION FORM**

**To be completed by applicant or engineer**

**Use extra sheets if necessary**

This list is intended to meet the requirements of State of California Government Code Section 65940.

I. GENERAL INFORMATION:

1. Name: California Olive Ranch Compost Facility/James Lipman  
Address, City, State, Zip: 1367 East Lassen Ave., Suite A1, Chico, CA 95973  
Telephone: (530) 592-3743 Fax: (530) 592-3710  
E-mail: JLipman@cal-olive.com
2. Name: VESTRA Resources/Wendy Johnston  
Address, City, State, Zip: 5300 Aviation Drive, Redding, CA 96002  
Telephone: (530) 223-2585 Fax: (530) 223-1145  
E-mail: WJohnston@vestra.com
3. Address and Location of Project: 5945 County Road 35, Artois, CA 95913;  
project location is north and west of the processing facility.
4. Current Assessor's Parcel Number(s): 021-020-027-09
5. Existing Zoning: AP-80
6. Existing Use: Agriculture - dryland grain/previously olives
7. Proposed Use of Site (project for which this form is prepared): Develop olive  
pomace composting facility
8. Indicate the type of permit(s) application(s) to which this form  
pertains: Conditional Use Permit  
Grading Permit (if required)

9. If the project involves a variance, conditional use permit, or rezoning application, state this and indicate clearly why the application is required:

Solid Waste Facility Permit requires Conditional Use Permit

10. List and describe any other related permit(s) and other public approvals required for this project, including those required by city, regional, state, and federal agencies: Solid Waste Facility Permit - LEA/CalRecycle

WDR/Notice of Intent for General Order for Composting Operations - RWQCB

Notice of Intent/NPDES Industrial Stormwater Discharge (if required) - RWQCB

11. Have any special studies been prepared for the project site that are related to the proposed project including, but not limited to traffic, biology, wetlands delineation, archaeology, etc? No - site is agricultural

II. ENVIRONMENTAL SETTING:

1. Describe in detail the project site as it exists before the project, including information on topography, soil stability, plants and animals (wetlands, if any), different crops, irrigation systems, streams, creeks, rivers, canals, water table depth, and any cultural historical or scenic aspects. Describe any existing structures on the site, and the use of the structures. Attach photographs of the site. Snapshots or Polaroid photos will be accepted.

The site has been used for agriculture previously. The site is generally flat. No wetlands or creeks are onsite, although the site is adjacent to Sheep Corral Creek. There are no structures onsite (see attached Technical Report for more detail).

2. Describe the surrounding properties, including information on plants, animals, and any cultural, historical or scenic aspects. Indicate the type of land use (residential, commercial, agricultural, etc.), intensity of land use (one-family, apartment houses, shops, department stores, dairy, row crops, orchards, etc.) Attach photographs of the vicinity. Snapshots or Polaroid photos will be accepted.

North: Agriculture (pasture, olives, walnuts)

East: Agriculture (olives, dryland wheat)

South: Agriculture (olives)

West: Agriculture (olives)

3. Describe noise characteristics of the surrounding area (include significant noise sources): Area is agricultural. Noise is limited to generation of crops such tractors, harvesters, and processing. The COR processing facility is directly adjacent to the site and operates 24/hours, seven days a week, during the harvest season, which is the same as the compost mixing season.

III. SPECIFIC ITEMS OF IMPACT:

1. Drainage:

Describe how increased runoff will be handled (on-site and off-site): Runoff will be directed away from site to the north through engineered channels, hence to a bioswale, and hence to White Cabin Creek.

Will the project change any drainage patterns? (Please explain): Yes, the south portion of the site will be sloped to drain to the east and north.

Will the project require the installation or replacement of storm drains or channels? If yes, indicate length, size, and capacity: Yes; see attached Figure 4-2

Are there any gullies or areas of soil erosion? (Please explain): No

Do you plan to grade, disturb, or in any way change swales, drainages, ditches, gullies, ponds, low lying areas, seeps, springs, streams, creeks, river banks, or other area on the site that carries or holds water for any amount of time during the year? Yes; see above and drainage Figure 4-2

If yes, you may be required to obtain authorization from other agencies such as the Army Corps of Engineers or California Department of Fish and Game. There are no jurisdictional waters onsite.

2. Water Supply:

Indicate and describe source of water supply (domestic well, irrigation district, private water company): California Olive Ranch Domestic Well; pumpage from bioswale or future wastewater ponds.

Will the project require the installation or replacement of new water service mains? No

3. Liquid Waste Disposal:

Will liquid waste disposal be provided by private on-site septic system or public sewer?: No new system is planned. Restrooms are available at the COR shop facility on septic.

If private on-site septic system, describe the proposed system (leach field or seepage pit) and include a statement and tests explaining percolation rates, soil types, and suitability for any onsite sewage disposal systems: N/A

Will any special or unique sewage wastes be generated by this project other than normally associated with resident or employee restrooms? Industrial, chemical, manufacturing, animal wastes? (Please describe) N/A

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Should waste be generated by the proposed project other than that normally associated with a single family residence, Waste Discharge Requirements may be required by the Regional Water Quality Control Board.

4. Solid Waste Collection:

How will solid waste be collected? Individual disposal, private carrier, city? Service is currently provided to COR; no new disposal service is planned.

5. Source of Energy:

What is the source of energy (electricity, natural gas, propane)?: None needed. Portable lighting during harvest period will be provided by diesel generators.

If electricity, do any overhead electrical facilities require relocation? Is so, please describe: No

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If natural gas, do existing gas lines have to be increased in size? If yes, please describe: No

---

Do existing gas lines require relocation? If yes, please describe: No

---

---

6. Fire Protection:

Indicate number and size of existing and/or proposed fire hydrants and distance from proposed buildings: N/A

---

Indicate number and capacity of existing and/or proposed water storage facilities and distance from proposed buildings: N/A

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IV. FOR ZONE CHANGE, ZONE VARIANCE, AND SPECIAL USE PERMIT APPLICATION:

1. Number and sizes of existing and proposed structures: None

\_\_\_\_\_

Square footage (structures) \_\_\_\_\_ S.F.; \_\_\_\_\_ S.F.  
(New) (Existing)

2. Percentage of lot coverage: N/A

3. Amount of off-street parking provided: N/A

4. Will the project be constructed in phases? If so, please describe each phase briefly: No

\_\_\_\_\_

5. If residential, include the number of units, schedule of unit sizes, range of sale prices or rents, and type of household size expected: N/A

\_\_\_\_\_

6. If commercial, indicate type, estimated employment per shift, days and hours of operation, estimated number of daily customers/visitors on site at peak time, and loading facilities: N/A

\_\_\_\_\_

7. If industrial, indicate type, estimated employment per shift, and loading facilities:  
3 employees per shift during harvest  
3 shifts

8. If institutional, indicate the major function, estimated employment per shift, estimated occupancy, loading facilities, and community benefits to be derived from the project: N/A

\_\_\_\_\_

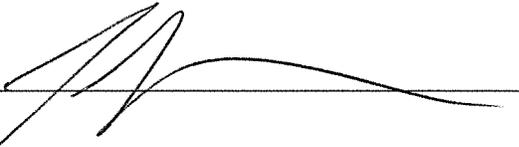
9. List types and quantities of any hazardous or toxic materials, chemicals, pesticides, flammable liquids, or other similar product used as a part of the operation and storage container sizes:  
None

Submit Material Safety Data Sheets (MSDS) for any proposed hazardous materials. If hazardous materials are proposed, it is recommended that the applicant contact the Air Pollution Control District/CUPA for permitting requirements.

10. Describe any earthwork (grading) to be done and dust control methods to be used during construction: The site will be sloped to control surface runoff and compacted. Dust will be controlled using a water truck.
11. Describe any potential noise or vibration sources associated with the project (i.e. compressor, machine noise, heavy equipment). Truck traffic during harvest and noise from light generators (portable)
12. Describe source, type, and amount of air pollutant emissions (smoke, odors, steam, gases, water vapor, dust, chemicals) from the project. Describe what methods would be used to reduce emissions: Diesel from trucks and turners.

V. CERTIFICATION:

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability, and that the facts, statements and information presented are true and correct to the best of my knowledge and belief.

Date: 2/10/17 Signature:   
For: California Olive Ranch

According to Section 65943 for the California Government Code, your application will be reviewed within 30 days and you or your agent will receive written notice regarding the completeness of your application. Any reviewing agency may, in the course of processing the application, request the applicant to clarify, amplify, correct, or otherwise supplement the information required for the application.

According to Section 65944 (C), additional information may be requested in order to comply with Division 13 of the State of California Public Resources Code.

**Project Narrative**

# **Narrative**

## **Conditional Use Permit Application**

### **Background**

California Olive Ranch (COR) farms approximately 5,500 acres of olives and processes the olives, from their farm and other growers, into extra-virgin olive oil at their processing and bottling facility in Artois, California. The pressing of extra-virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive; however, the cost associated with the disposal of this byproduct has been increasing. In response, COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra-virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller, etc. Each year, the olive pomace is generated during the pressing window.

### **Proposed Facility**

California Olive Ranch is proposing to compost up to 70,000 tons per year of olive pomace. The pomace has high moisture content (approximately 65 percent) and will be mixed with other agricultural products to facilitate composting. No commercial fertilizer additives are proposed. The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace
- Almond trash (floor sweepings, etc., from almond harvest)
- Manure (dairy)
- MOO (materials other than olives generated during processing)
- Orchard trimmings and stems/greenwaste
- Other agricultural waste materials

The facility will be located at 5945 County Road 35 in Artois, California, adjacent to the COR olive processing facility, in an unincorporated area of Glenn County (see Figure 1-1A). The facility will occupy the western portion of Glenn County Assessor’s Parcel Number (APN) 021-020-027-9 (see Figure 1-1B). The facility will encompass approximately 30 acres of the current 90-acre parcel. The 30 acres will consist of approximately 24 acres of compost

windrows and a 4-acre mixing area and the remainder of the parcel will be used for setbacks and roadway. The facility will be generally square in shape. See the Site Plan attached as Figure 1-2.

Surrounding land use within one mile of the proposed facility is agricultural as shown on Figure 1-5). All property adjacent to the proposed facility is used for agricultural crops; adjacent land use is for olives or nut trees. Three residences are located within one mile of the facility as shown on Figure 1-5. The nearest residence is greater than 1,000 feet from the site. The Butte County General Plan designation is *Intensive Agriculture* (see Figure 1-3). The zoning designation is AP-80 *Agricultural Preserve Zone*, 72-acre parcel size minimum (see Figure 1-4).

California Olive Ranch may subcontract a portion of the facility to another party during the late spring and summer months to produce a premium compost mix. This operator's mix may include greenwaste (less than 15 percent).

The compost facility will include compacted compost areas, paved mixing area, bioswale, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back from property lines and County Road 35 and surrounded by a vegetative buffer of two rows of olives. Mix materials will be received via a separate entrance off County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a bioswale prior to discharge. The water will discharge to an agricultural drainage ditch and hence to White Cabin Creek.

## **Operations**

The facility will operate year round. Composting will be completed using passive windrowing and turning techniques. During the olive harvest period, September through December, the facility will operate 24 hours a day, seven days a week, in conjunction with the 24-hour-per-day olive processing. Once the pomace and materials are mixed and windrowed, or piled and covered, the facility will return to a 40-hour week, Monday through Friday. Normal operating hours will occur no more than one hour before sunrise until one hour after sunset. The facility will not be open to the public. Two full-time employees will work a standard 40-hour work week. Two additional employees will be needed during the olive processing and mixing window.

Additional temporary lighting will be required during the harvest season. Lighting will be provided by one or two generator-driven light stands. The lighting will be temporary during the harvest period from September to December. This will not be a significant change from current conditions, as the area is already subject to artificial lighting and 24-hour-a-day activities (trucks, etc.) during the olive harvest.

The following composting feedstocks and bulking agents with estimated daily maximum tonnages may be received at the facility. The final materials to be used in the compost mix will be a function of the price and availability of bulking agents and feedstock. The majority of materials will be received over the three-month olive harvest window, as the pomace will be mixed directly for composting as it is generated at the facility. COR and the subcontracted operator will control the shipment and delivery of all incoming raw materials.

	<b>Max per Day<sup>1</sup></b> <b>(tons)</b>	<b>Total</b> <b>Tons</b>	<b>Total</b> <b>Cubic Yards</b>
Olive Pomace (vegetative food material)	700	70,000	78,000
Almond Waste	500	31,500	78,000
MOO/Orchard Prunings (leaves and stems)	20	2,100	15,500
Manure (Dairy)	60	5,600	7,700
Greenwaste	100	10,000	20,000
Other Agricultural Waste Materials	TBD	--	--
Totals:	1,380	--	198,000

<sup>1</sup> The facility max tons per day are based on loading during the peak 100-day harvest period

The facility will not receive any of the following:

- Food materials (non-vegetative)
- Biosolids (Class A, B, and/or EQ)
- Animal carcasses
- Liquid wastes other than those of food origin
- Medical wastes as defined in the Health and Safety Code, Section 117690
- Radioactive wastes
- Septage
- Sludges including, but not limited to, sewage sludge, water treatment sludge, and industrial sludge
- Wastes classified as “designated” as defined in Water Code Section 13173
- Wastes classified as “hazardous” as defined in CCR, Title 22, Section 66261.3
- Wood containing lead-based paint or wood preservatives, or ash from such wood

## Capacity

The facility has been designed to be able to windrow up to 78,000 cubic yards of pomace and other materials, which will equal approximately 110,000 cubic yards of compost mix onsite at any given time. The area not used for windrows will be used to stockpile covered, mixed material for windrowing in spring. The pomace will be mixed as it is generated during the pressing process. Bulking agents and other mix materials will be delivered as needed during the mixing period September through December. The mixing area is designed to hold one to two days of mix materials.

The maximum time for storage of mix materials onsite will be two to three weeks (in advance of olive harvest). Pomace will not be stored onsite as it will be mixed directly as it is produced. The maximum time for storage of late-season compost mix onsite prior to windrowing is four to five months (December to March or April). The maximum time for storage of completed compost mixture is two months. Early-harvest compost will be used on the COR orchards as soon as it is possible to work the ground in the spring, and in mid-summer for the spring-composted material.

The maximum mixed material onsite at any time will be 110,000<sup>A</sup> cubic yards of compost mix, either completed or in process. This includes the mixing of 78,000<sup>B</sup> cubic yards of pomace and

approximately 101,000<sup>C</sup> cubic yards of feedstock. Following mixing and composting, it is anticipated that 81,000<sup>D</sup> cubic yards of completed compost will be generated, 54,500<sup>E</sup> cubic yards in the spring and 28,500<sup>F</sup> cubic yards in the summer. The maximum amount of completed product stored at any given time is estimated to be 30,000 cubic yards.

<sup>A</sup> 1,532 (windrow volume (cyds)) \* 70 = 108,000 (reduction factor included)

<sup>B</sup> 1,110 (pomace (cyds)) \* 70 = 78,000 (no reduction factor)

<sup>C</sup> (222 + 1,110 + 111) (other (cyds)) \* 70 = 101,000 (no reduction factor)

<sup>D</sup> (101,000 + 78,000) \* 6 = 108,000 (reduction on mixing)

108,000 \* 3/4 = 81,000 (reduction on composting)

<sup>E</sup> 81,000 \* 0.65 = 54,000 (spring)

<sup>F</sup> 81,000 \* 0.35 = 28,000 (summer)

Operator 8,000 \* 3/4 = 6,000

Excess compost material not used by COR will be sold and transported offsite. In high-production years (every other year), COR will generate more compost than they will use, which will be available for sale or use elsewhere.

The facility has been designed to manage the peak loading associated with the generation of the olive pomace during harvest, up to 70,000 tons (78,000 cubic yards) of pomace from September to December. No other peak loading times are anticipated.

## Equipment

Equipment to be used onsite includes:

- 2 - Truck-mounted feed mixers, 10 cubic yards each (Kirby or equivalent)
- 1 - Rubber-tired wheel loader with 5-cubic-yard bucket (966 or equivalent)
- 1 - 18-foot-wide self-propelled windrow turner, 1,000 tons per hour capacity (likely a Midwest Bio-System 190)
- 1 - Water truck for dust suppression and water addition to windrows if needed

The onsite equipment will be diesel-powered. Equipment maintenance and fueling will be conducted at the existing COR maintenance shop located on the adjoining processing facility south of the compost area. The maintenance shop includes an aboveground diesel tank. All oil and grease are stored indoors at the maintenance facility. This facility has a Hazardous Materials Business Plan on file with Glenn County. Material storage and spill response is covered under that plan. The maintenance shop is also equipped with an employee lounge and restroom that will service employees working at the compost facility. Compost employees will park at the maintenance facility. For ease of operation, a portable toilet may be placed in the mixing area. During the harvest period, an additional mix truck and/or loader may be needed to accommodate repairs and breakdowns. The equipment is available locally for rent.

It is anticipated that the early windrowed material will be turned as needed and composting be completed by April or May. This first batch of completed compost will be applied to the COR orchards beginning in April or May. The stockpiled material that was covered in December will be uncovered and windrowed in March or April, depending on the weather, and will compost until July or August and be applied to orchards under the control of COR. The target

application rate is 5 tons per acre to the orchard cropland. This will be applied between the tree rows and seeded to a cover crop.

The composting will be completed using similar techniques to the composting operations on other nearby facilities. The exception herewith is that the pomace and other bulking materials will be mixed in large mixing trucks that will mix and transport the material to the windrow location. Once a windrow is complete, it will be turned as needed using a standard turning machine.

California Olive Ranch intends to use the compost on the 5,500 acres of orchards that they control adjacent to the processing facility and, if additional material is available, the additional 1,000 acres of contract growers will receive compost as well.

Mix materials will be delivered by end-dump trucks. The estimated number of trucks to deliver mix materials will vary with the weight and volume of material received, but is estimated to be 12 truckloads per day during composting, or a total of 1,220 truck trips over the estimated 100-day harvest window (September, October, November, and part of December). In 2016, 1,700 truckloads of pomace were transferred to the Orland Airport. This amount is less than in previous years where the total number of truckloads of pomace exceeded 3,900. The pomace will no longer be transported offsite.

Water will be added as necessary to the windrows to maintain optimum moisture. The source of the water will be the existing well at the olive processing facility or pumpage from the bioswale or future wastewater ponds. The well is identified as DWR Well 39606N1222621W001. The water will be applied to the windrows by water truck with a specially designed boom.

The composting process generally takes 90 to 120 days, dependent on weather. After the compost period has ended and the compost had reached the required 131°F for 15 consecutive days, the windrows are combined into large rows to await transport to the olive orchards. The material will be sampled for nutrient and metal content. Determining the required nutrient rates for application to olive orchards will be completed by a professional Certified Crop Advisor. Field application will follow protocols issued by the RWQCB and will not be located within 100 feet of water supply wells or in floodplain areas.

Application to the olive orchards will be completed using spreaders. The final composted product will be loaded either directly into spreaders or into end-dump trucks for transport to specific agricultural blocks as needed for field application. The compost will then be seeded with a cover crop.

The “extra” windrowing area not used by COR during the summer period may be used by others to prepare a premium compost product. The operation’s mix will be similar to the COR compost and contain much of the same ingredients. The possible addition is the use of limited greenwaste (source separated and ground offsite). It is estimated that this material will be onsite from April until August, after which time the site will be scraped and prepared for the COR pomace composting associated with olive harvest.

## Facility Drawings and Improvements

Run-on and runoff from the site are controlled by the completed site topography. All stormwater is designed to flow toward the east and center of the property and hence to the bioswale. All drainage structures were designed to meet the 25-year, 24-hour storm event of 3.94 inches and an intensity of 0.154 inches per hour, based on data from the Orland Station.

The site naturally meets the  $1 \times 10^{-5}$  cm/sec requirements for Tier II of the General Order for Composting Operations. Compaction testing showed the site soils can meet greater than  $1 \times 10^{-7}$  cm/sec hydraulic conductivity at 90 percent compaction. The site will slope at 0.5 percent to ensure that water is conveyed to drainage structures and that water flows off of the site away from the compost windrows. Windrows will be positioned parallel to the direction of water flow.

No covers or structures are planned for the facility. The mixing area and feedstock storage area will be paved and contain wind screens for blowing material. If necessary, feedstock storage piles prior to harvest will be covered. Late-harvest compost mix will be covered prior to windrowing.

The paved mixing area will include concrete pushwalls to control blowing and movement of mix materials. Pomace will be loaded directly into mix trucks. Stormwater will be directed to a bioswale and hence to discharge. No detention pond is currently planned.

## Composting Facility Controls

**Leachate:** The site will be situated on a compacted soil pad with a minimum  $1 \times 10^{-5}$  cm/sec permeability. The pad is on a 0.5 percent slope. The facility is sloped to drain into a bioswale. The proper management of compost via turning and moisture management will limit the generation of leachate. Residual feedstock (of which none is planned) and mixed materials will be covered for storage during the period after November 1. Leachate generation is not anticipated to be a problem at the site. Any leachate generated will be conveyed to the bioswale and stored through the winter season prior to being applied as compost water.

**Groundwater Monitoring:** Groundwater monitoring is not anticipated to be required under this permit.

**Drainage:** The site has been designed to drain into a bioswale. All stormwater generated is directed to this swale. The facility is not subject to the *General Permit for Stormwater Discharges Associated with Industrial Facilities* Order No. 2014-0057-DWQ, as no fertilizer additives are planned to be added. The swale has been designed to meet the 25-year, 24-hour storm per the General Order for Compost Operations requirements.

**Nuisance Control:** The facility is located in a rural area surrounded by agricultural and pasture land uses. These uses are compatible with the compost operation. Adjoining properties are used for production of olives, walnuts, almonds, and pasture. The closest residence is located adjacent to the site and 1,000 feet to the west. An additional residence is located 1,500 feet to the south of the site.

**Dust Control:** The mixing of compost to approximately 50 percent moisture limits the generation of dust from compost turning operations. To assist in control of dust from feedstocks during the mixing process, the mixing area includes windscreens and concrete pushwalls. A water truck will be used to suppress dust on the unpaved roadway between the olive pomace source and the compost mixing area. The feedstock receiving areas are paved to reduce dust and mud.

In summary, control of dust will be accomplished by:

- Use of windscreens and pushwalls
- Watering unpaved portions of the access road a minimum of two times per day
- Washdown of loading and mixing area if dust is an issue
- Covering of loads
- Retention of truck freeboard of 6 inches

**Vector Control:** Because the mixing is completed over a rather short harvest window, feedstock does not sit for long periods that will attract rodents or birds. The actual composting process is initiated shortly after feedstock arrival. Pomace is not stored in the mixing area or unmixed on the site where it would attract vectors. In the event rodents or birds are found to be an issue, flagging, tape, and sound guns can be used to reduce populations. Poison bait will be used as necessary, if needed.

Fly populations are controlled by the proper management and handling of feedstock materials and the frequent turning of the compost rows. The frequent turnings increase the windrow temperatures and do not allow flies to complete their lifecycle. Following each compost cycle, the pad area will be backbladed to remove areas for water to pond and any residual compost. The site will be maintained always in a clean and orderly manner to limit possible vector issues.

Fly bait can be used during the warm summer months when they are more likely to be an issue. If populations are observed, chemical sprays will be used. Specific vector control actions include:

- No standing water on the site related to the composting facility
- Weeds and grasses will be cut to limit rodent habitat
- Manure and other fly-attracting materials will be tarped
- Manure will be brought onsite and mixed into the windrows just prior to commencement of the composting system
- The compost turning system will heat windrows to 140-plus degrees, which will kill fly larvae
- Direct mixing of pomace
- Short storage time for feedstocks

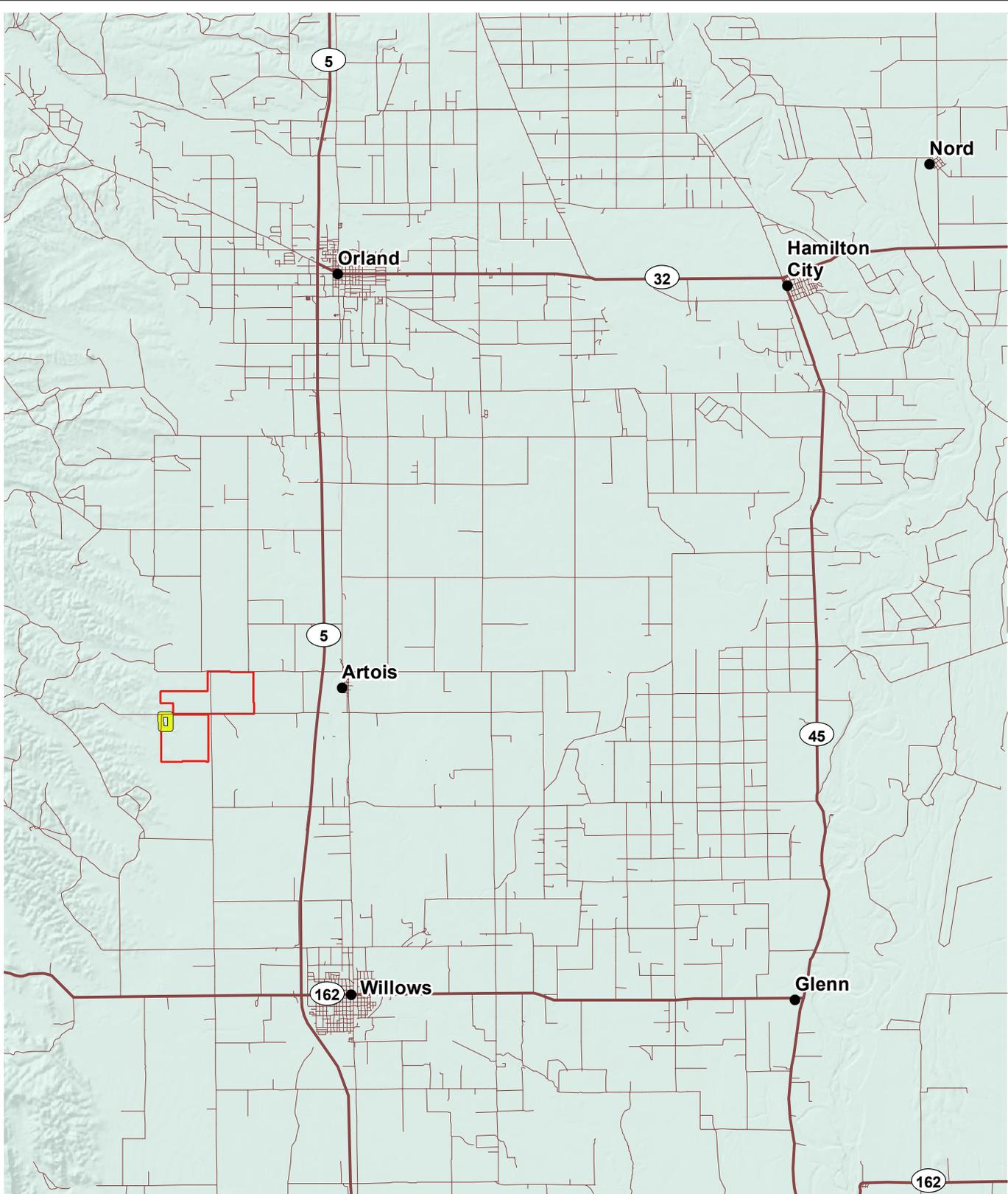
**Noise Control:** Due to the short harvest window at COR, the facility will operate 24 hours a day during the harvest period. The facility currently operates 24 hours a day during the harvest season and trucks arrive at all hours. The facility is located in a rural area with compatible land uses. Likely sources of noise are the delivery of feedstock by truck, driving of

the mixing trucks, and use of loader and turner onsite. Noise will be limited by the use of equipment in good working order and by the vegetative buffer around the site.

**Odor Control:** California Olive Ranch has completed an Odor Impact Management Plan for the site. The only feedstock that will be used that has an obvious odor is the olive pomace. Because the pomace will be mixed as it is generated with the other feedstock materials in an approximately 50:50 mix, there should be no odor.

**Traffic Control and Impacts:** This project is designed to reduce the disposal requirements for olive pomace. Previously, 1,700 to 3,900 truck trips were required to dispose of the pomace at the Wilbur-Ellis facility. The number of trucks necessary to deliver feedstocks to mix with the pomace will be reduced from that number and is estimated at 1,220 per season, or approximately 12 per operating day. The trucks leaving the facility with completed product will be limited to the roads in and around the current COR orchard areas, except in off years when additional compost may be sold and during the summer lease period. The number of truck trips of finished product is estimated at 2,700 (assuming 30 yards/truckload).

The COR facility is anticipated to have three employees per shift, resulting in six roundtrip vehicle trips per day. The employee vehicles will park adjacent to the COR vehicle maintenance building.



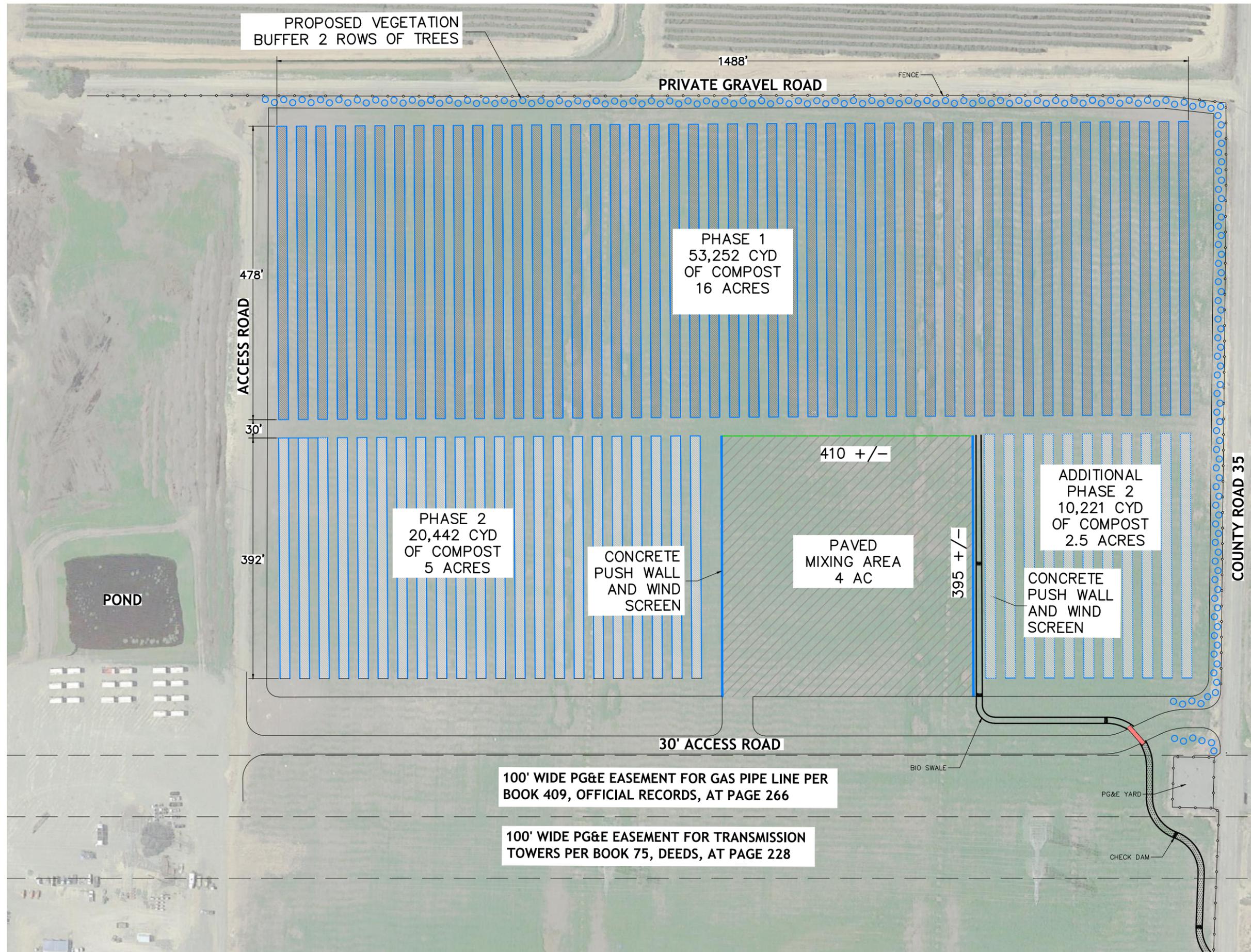
-  Proposed Compost Facility
-  California Olive Ranch Ownership



**FIGURE 1-1A**  
**SITE LOCATION**  
**CALIFORNIA OLIVE RANCH**  
**GLENN COUNTY, CALIFORNIA**







PROPOSED VEGETATION BUFFER 2 ROWS OF TREES

PRIVATE GRAVEL ROAD

PHASE 1  
53,252 CYD  
OF COMPOST  
16 ACRES

ACCESS ROAD  
478'

PHASE 2  
20,442 CYD  
OF COMPOST  
5 ACRES

CONCRETE  
PUSH WALL  
AND WIND  
SCREEN

PAVED  
MIXING AREA  
4 AC

ADDITIONAL  
PHASE 2  
10,221 CYD  
OF COMPOST  
2.5 ACRES

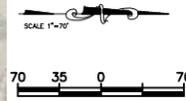
CONCRETE  
PUSH WALL  
AND WIND  
SCREEN

COUNTY ROAD 35

30' ACCESS ROAD

100' WIDE PG&E EASEMENT FOR GAS PIPE LINE PER  
BOOK 409, OFFICIAL RECORDS, AT PAGE 266

100' WIDE PG&E EASEMENT FOR TRANSMISSION  
TOWERS PER BOOK 75, DEEDS, AT PAGE 228



www.vestra.com  
 (530) 223-2585  
 FAX (530) 223-1145  
**VESTRA**  
 5300 AVIATION DRIVE - REDDING, CA 96002

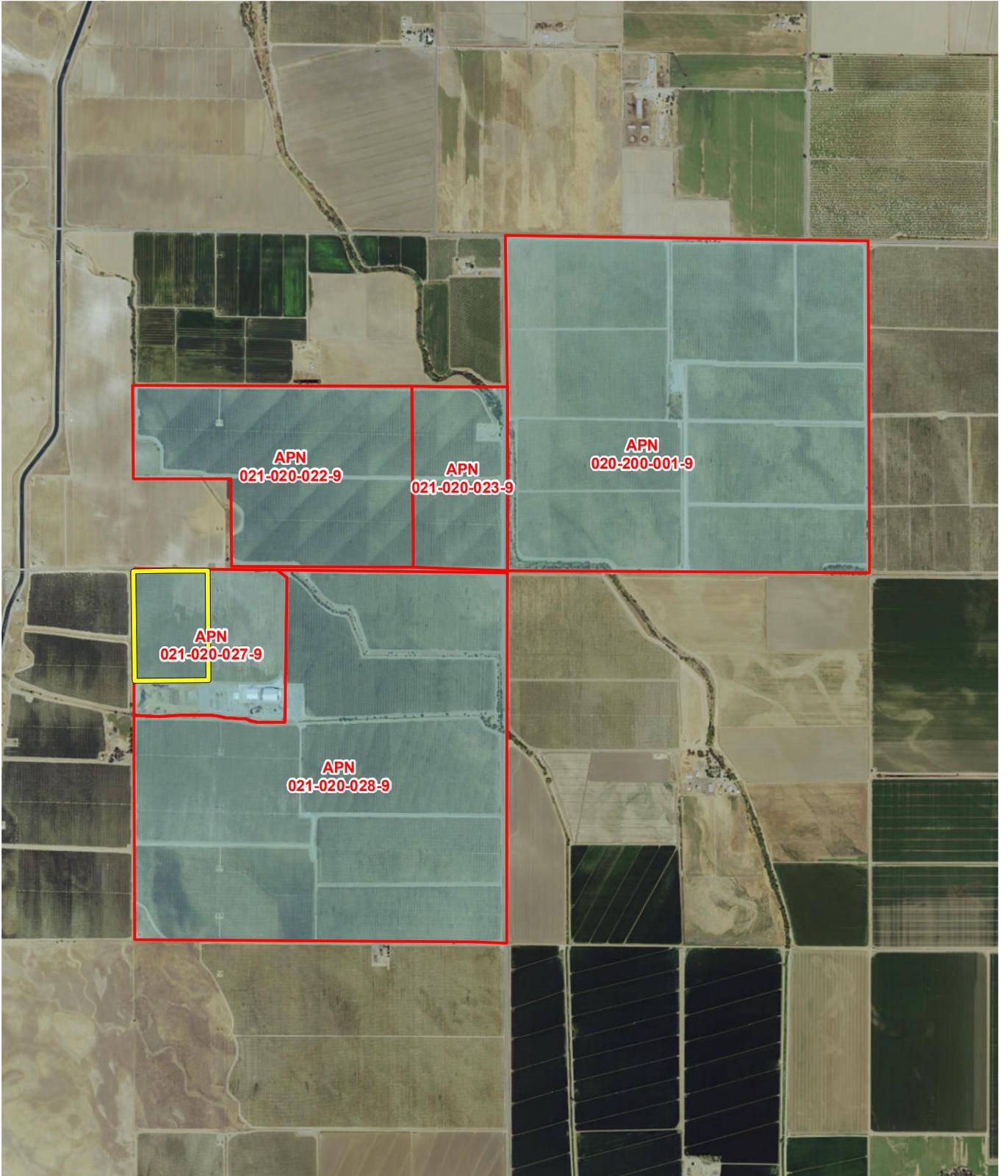
NO.	DATE	REVISION

DESIGN: DR: BLG  
 CHECK: CHK: SG  
 APPROVED: APVD: DR

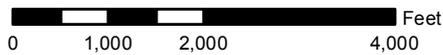
CALIFORNIA OLIVE RANCH  
 PROPOSED SITE PLAN  
 GLENN COUNTY, CALIFORNIA

SHEET 1-2  
 DATE 2/8/17  
 JOB NO. 71630

L:\Landprojects\Job #1\*.dwg

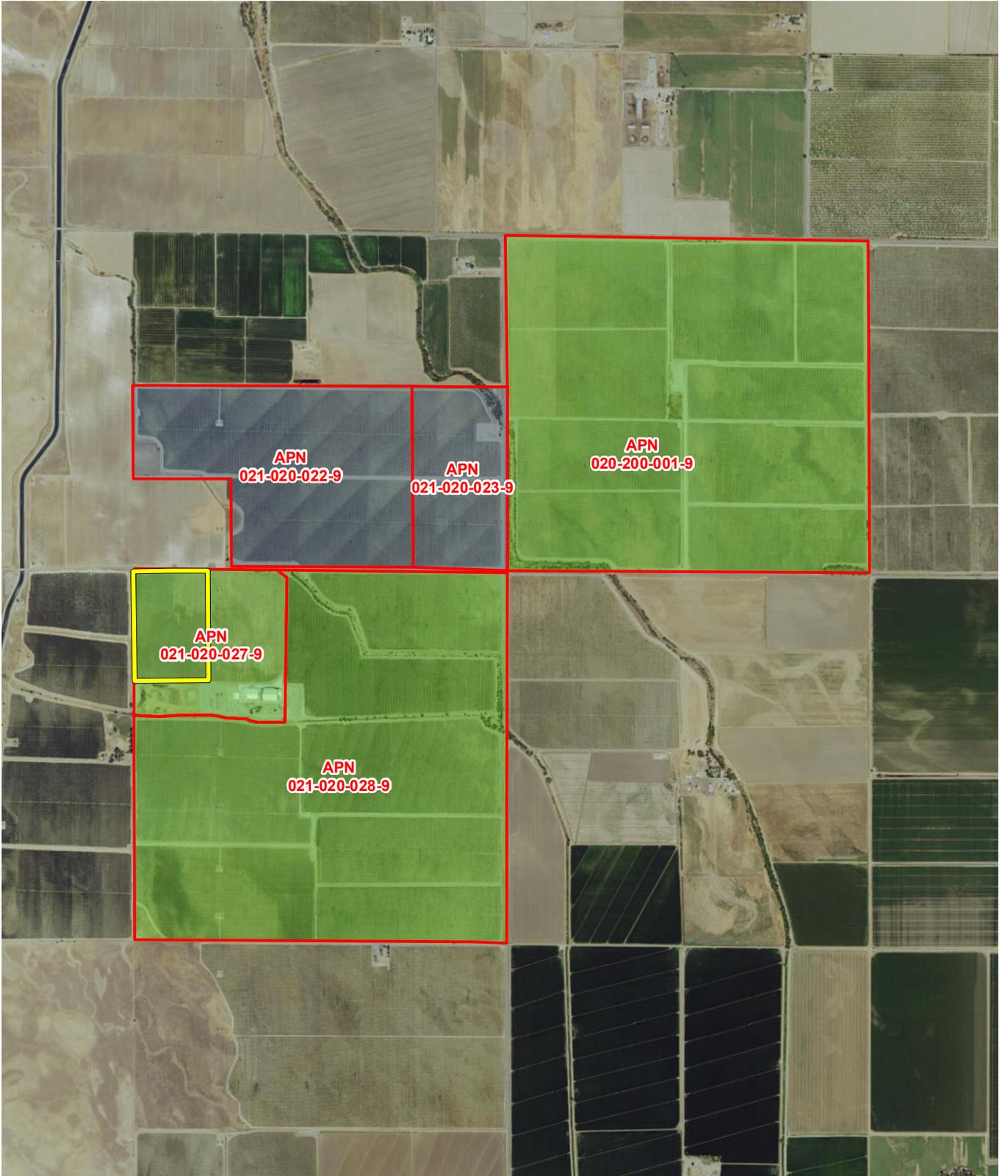


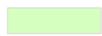
- Proposed Compost Trial Facility
- Intensive Agriculture



SOURCE: GLENN COUNTY 2016

FIGURE 1-3  
 GENERAL PLAN DESIGNATION  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



-  Proposed Compost Trial Facility
-  AE-40 (Exclusive Agricultural Zone - Minimum Parcel Size 36 Acres)
-  AP-80 (Agricultural Preserve Zone - Minimum Parcel Size 72 Acres)



SOURCE: GLENN COUNTY 2016

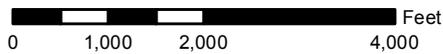
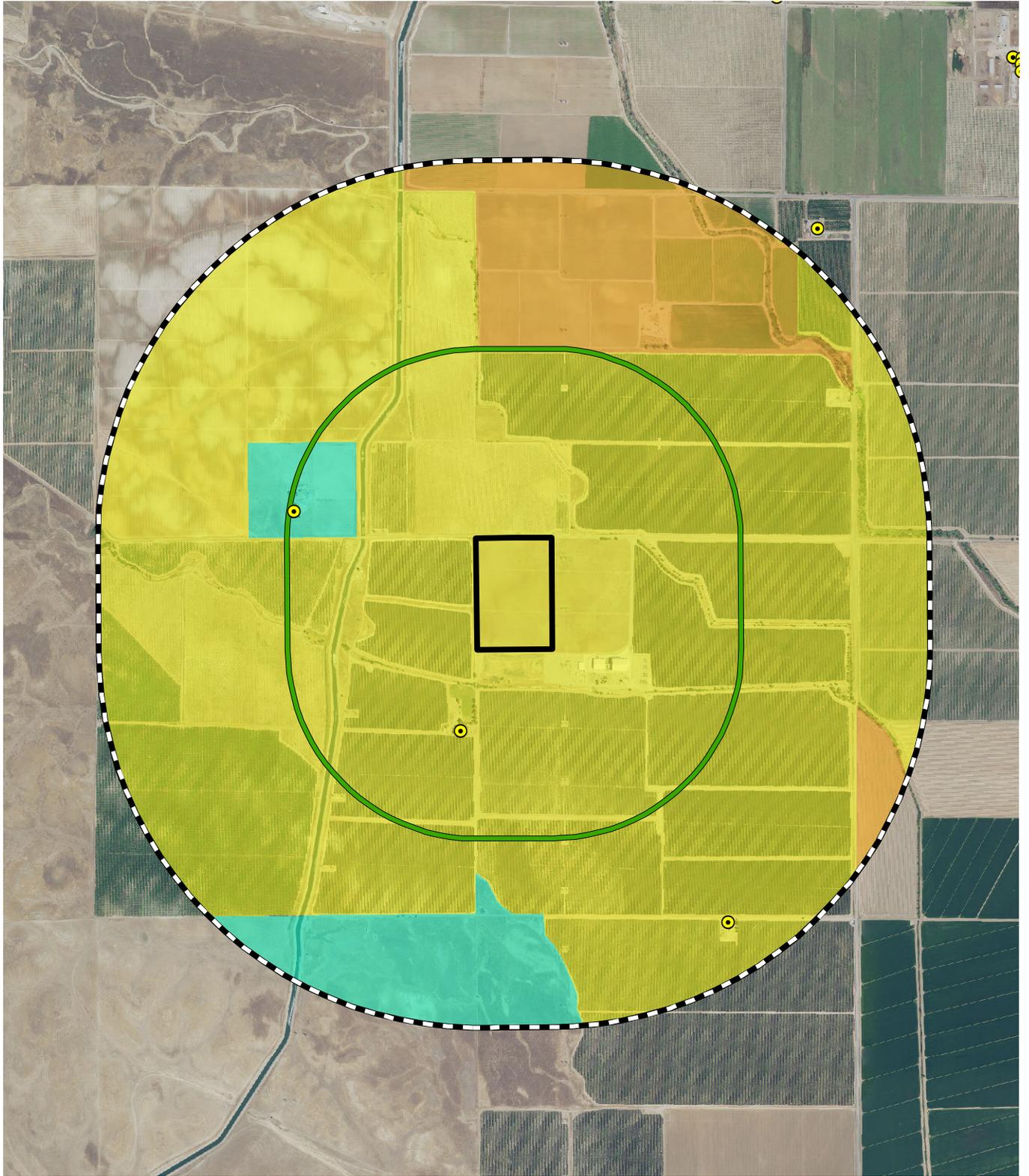
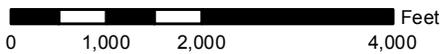


FIGURE 1-4  
**ZONING DESIGNATION**  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



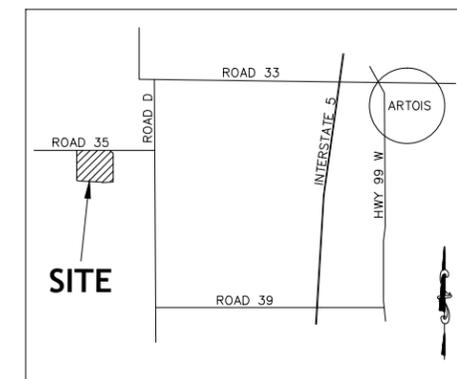
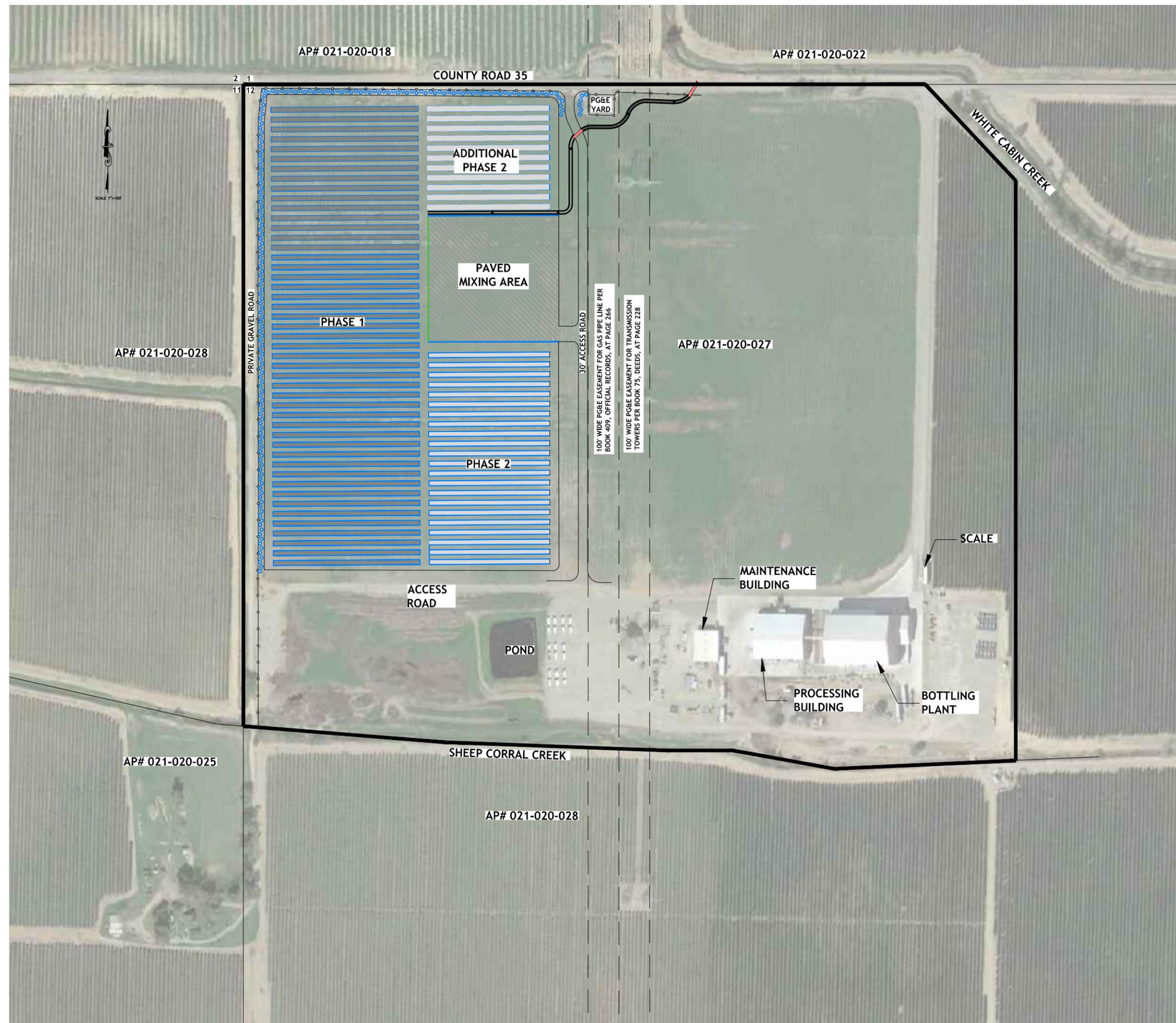
-  Nearby Residence
-  Proposed Compost Facility
-  0.5-Mile Buffer Around Proposed Compost Trial Facility
-  1-Mile Buffer Around Proposed Compost Trial Facility
-  Grazing
-  Rice
-  Trees



SOURCE: USDA NAIP 2014 AERIAL PHOTOGRAPH

  
**FIGURE 1-5**  
**RESIDENCES WITHIN ONE MILE**  
**AND SURROUNDING LAND USE**  
**CALIFORNIA OLIVE RANCH**  
**GLENN COUNTY, CALIFORNIA**

**Site Maps/Plot Plan (5 copies)**



**OWNER/APPLICANT:**

CALIFORNIA OLIVE RANCH  
 JIM LIPMAN  
 1667 EAST LASSEN AVE. SUITE A-1  
 CHICO, CALIFORNIA 95973  
 530.846.8000

**PREPARER:**

VESTRA  
 WENDY JOHNSTON  
 5300 AVIATION DR.  
 REDDING, CALIFORNIA 96002  
 530.223.2585

**AP NO:**

PROJECT LOCATION  
 021-020-027 122.06 ACRES

**ADJACENT PROPERTY:**

AP# 021-020-018  
 KENNEDY DANIEL & LISA  
 WILLOWS, CA 95988

AP# 021-020-024  
 BERENS JOHN L & BARBARA A  
 WILLOWS, CA 95988

AP# 021-020-025  
 BERENS JOHN L & BARBARA A  
 WILLOWS, CA 95988

AP# 021-020-028  
 CALLIOPSIS LLC  
 WILLOWS, CA 95988

AP# 021-020-022  
 CALLIOPSIS LLC  
 WILLOWS, CA 95988

VERIFY SCALES  
 BAR IS ONE INCH ON  
 ORIGINAL DRAWING  
 IF NOT ONE INCH ON  
 THIS SHEET, ADJUST  
 SCALES ACCORDINGLY

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 (530) 223-2585  
 FAX (530) 223-1145



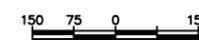
BY 5300 AVIATION DRIVE - REDDING, CA 96002

NO.	DATE	REVISION

DESIGN	DR	BULG	CHK	SG	APVD-DR

CALIFORNIA OLIVE RANCH  
 PLOT PLAN  
 GLENN COUNTY, CALIFORNIA

SHEET	1
DATE	2/8/17
JOB NO.	71630



**Preliminary Title Report**

# PRELIMINARY REPORT

**To:**  
VESTRA RESOURCES, INC.  
5300 AVIATION DR  
REDDING, CA 96002  
ATTN: WENDY JOHNSTON

**Title Officer:**  
TITLE OFFICER: DEBBIE FALTESEK  
TIMIOS TITLE  
250 W. SYCAMORE ST.  
WILLOWS, CA 95988  
PHONE: (530) 934-3338  
ORDER NO.: 71-00132858

REF NO: 132859

**Property Address:**  
5945 COUNTY ROAD 35  
WILLOWS, CA, 95988

**Title No:**  
132858

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy Forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Exhibit A attached. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

**It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.**

**This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a binder or commitment should be requested.**

The form of Policy of title insurance contemplated by the report is:

**ALTA STANDARD OWNER'S POLICY**  
Issued by: FIRST AMERICAN TITLE INSURANCE COMPANY

Dated as of: JANUARY 17, 2017 at 8:00 a.m.

The Estate or Interest in the land hereinafter described or referred to covered by this report is:

A FEE AS TO PARCEL ONE; AN EASEMENT AS TO PARCELS TWO AND THREE

Title to said estate of interest at the date hereof is vested in:

CALIFORNIA OLIVE RANCH, INC., A CALIFORNIA CORPORATION

At the date hereof exceptions to coverage in addition to the printed exceptions and exclusions contained in said policy form would be as follows:

1. PROPERTY TAXES, INCLUDING ANY ASSESSMENTS COLLECTED WITH TAXES, TO BE LEVIED FOR THE FISCAL YEAR 2017-2018, A LIEN NOT YET DUE OR PAYABLE.
2. PROPERTY TAXES, INCLUDING ANY ASSESSMENTS COLLECTED WITH TAXES, TO BE LEVIED FOR THE FISCAL YEAR 2016-2017 THAT ARE A LIEN NOT YET DUE.

1 <sup>ST</sup> INSTALLMENT:	\$174,719.24	MARKED PAID
2 <sup>ND</sup> INSTALLMENT:	\$174,719.24	DUE 02/01/2017
PENALTY:	\$17,481.92	IF NOT PAID BY 04/10/2017
TAX RATE AREA:	084049	
ASSESSMENT NO.:	021-020-027-000	

3. THE LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS OF PROPERTY TAXES, IF ANY, MADE PURSUANT TO THE PROVISIONS OF PART 0.5, CHAPTER 3.5 OR PART 2, CHAPTER 3, ARTICLES 3 AND 4 RESPECTIVELY (COMMENCING WITH SECTION 75) OF THE REVENUE AND TAXATION CODE OF THE STATE OF CALIFORNIA AS A RESULT OF THE TRANSFER OF TITLE TO THE VESTEE NAMED IN SCHEDULE A; OR AS A RESULT OF CHANGES IN OWNERSHIP OR NEW CONSTRUCTION OCCURRING PRIOR TO THE DATE OF THE POLICY.
4. THE LAND HEREIN DESCRIBED LIES WITHIN THE BOUNDARIES OF RECLAMATION DISTRICT NO. 2047 AND IS SUBJECT TO ALL TAXES, ASSESSMENTS AND OBLIGATIONS THEREOF. ANY AND ALL ASSESSMENTS ARE COLLECTED WITH COUNTY TAXES.
5. THE LAND HEREIN DESCRIBED LIES WITHIN THE BOUNDARIES OF THE ORLAND-ARTOIS WATER DISTRICT AND IS SUBJECT TO ALL TAXES, ASSESSMENTS AND OBLIGATIONS THEREOF.

PRESENTLY THE DISTRICT HAS AN INDEBTEDNESS IN FAVOR OF THE UNITED STATES GOVERNMENT (CONTRACT NO. 14-06-200-8382A) OF \$816.92 PER ACRE AS OF DECEMBER 1, 1988 WHICH WILL BE PAID AT THE RATE OF \$20.43 PER ACRE FOR 40 YEARS PAYABLE IN 80 SUCCESSIVE EQUAL SEMI-ANNUAL INSTALLMENTS BEGINNING FEBRUARY 1, 1993.

CERTIFICATE OF COMPLETION, AN ANNEXATION RECORDED OCTOBER 23, 1973 IN BOOK 565 OF OFFICIAL RECORDS, AT PAGE 244.

CERTIFICATE OF COMPLETION, AN ANNEXATION RECORDED JULY 26, 1976 IN BOOK 602 OF OFFICIAL RECORDS, AT PAGE 274.

CERTIFICATE OF COMPLETION, A DETACHMENT RECORDED JULY 26, 1976 IN BOOK 602 OF OFFICIAL RECORDS, AT PAGE 282.

6. RIGHTS OF THE PUBLIC IN AND TO THAT PORTION OF THE LAND LYING WITHIN COUNTY ROAD 30, COUNTY ROAD 33, COUNTY ROAD 35 AND COUNTY ROAD D.
7. RIGHT OF WAY DEED, ADOLPH FRED LOHSE ET AL TO MT. SHASTA POWER CORPORATION, A CORPORATION, DATED NOVEMBER 10, 1920, RECORDED NOVEMBER 15, 1920, BOOK 75 OF DEEDS, PAGE 228.
8. RIGHT OF WAY FOR PIPE LINES FOR CONVEYING GAS EXECUTED BY WALTER H. LOHSE AND BARBARA LOHSE, HUSBAND AND WIFE AND BOB LOHSE, A SINGLE MAN TO PACIFIC GAS AND ELECTRIC COMPANY, A CORPORATION, DATED NOVEMBER 4, 1960 AND RECORDED DECEMBER 29, 1960 IN BOOK 409 OF OFFICIAL RECORDS, AT PAGE 266.
9. EASEMENT FOR ROAD PURPOSES 30 FEET IN WIDTH, AS SET FORTH IN THE DEED FROM WALTER H. LOHSE AND BARBARA LOHSE, HIS WIFE TO BOB LOHSE AND NORMA LOHSE, HIS WIFE, DATED SEPTEMBER 12, 1967 AND RECORDED SEPTEMBER 19, 1967 IN BOOK 502 OF OFFICIAL RECORDS, AT PAGE 634.

10. LAND USE CONTRACT DATED FEBRUARY 22, 1972 BY AND BETWEEN WALTER H. LOHSE AND BARBARA LOHSE, AND COUNTY OF GLENN, A POLITICAL SUBDIVISION OF THE STATE OF CALIFORNIA, RECORDED FEBRUARY 25, 1972 IN BOOK 544 OF OFFICIAL RECORDS, AT PAGE 406.
11. EASEMENT 40 FEET IN WIDTH FOR ROAD PURPOSES AS CONVEYED TO THE COUNTY OF GLENN BY INSTRUMENT RECORDED MAY 17, 1972 IN BOOK 547 OF OFFICIAL RECORDS, AT PAGE 388.
12. RESERVATION OF AN UNDIVIDED ONE-HALF INTEREST OF ALL OIL, GAS, MINERALS AND OTHER HYDROCARBON SUBSTANCES, TOGETHER WITH THE RIGHT TO REMOVE THE SAME AS RESERVED IN DEED FROM WALTER H. LOHSE AND BARBARA LOHSE HIS WIFE, TO W.R. PRITCHARD, A MARRIED MAN DEALING WITH HIS SOLE AND SEPARATE PROPERTY, DATED OCTOBER 30, 1980, RECORDED NOVEMBER 18, 1980, BOOK 676, OFFICIAL RECORDS, PAGE 125.
13. CONTRACT AND GRANT OF EASEMENT FOR WATER PIPELINES AND APPURTENANCES THERETO AS GRANTED TO THE UNITED STATES OF AMERICA, RECORDED JUNE 17, 1981 IN BOOK 688 OF OFFICIAL RECORDS, AT PAGE 559 AND TERMS AND CONDITIONS CONTAINED THEREIN.
14. CONTRACT AND GRANT OF EASEMENT FOR WATER PIPELINES AND APPURTENANCES THERETO GRANTED TO THE UNITED STATES OF AMERICA, RECORDED DECEMBER 7, 1981 IN BOOK 696 OF OFFICIAL RECORDS, AT PAGE 27 AND TERMS AND CONDITIONS CONTAINED THEREIN.
15. RESERVATION OF ALL OIL, GAS, MINERALS AND OTHER HYDROCARBON SUBSTANCES, TOGETHER WITH THE RIGHT TO REMOVE THE SAME THE SAME AS RESERVED BY ERNEST S. BOUDRO AND BARBARA J. BOUDRO, HUSBAND AND WIFE, IN DEED RECORDED OCTOBER 21, 1982 IN BOOK 713 OF OFFICIAL RECORDS, AT PAGE 126.
16. LAND USE CONTRACT BY AND BETWEEN COUNTY OF GLENN, A POLITICAL SUBDIVISION OF THE STATE OF CALIFORNIA AND LAVERNE BOUDRO AND SUSAN BOUDRO, HUSBAND AND WIFE, AS JOINT TENANTS, AN UNDIVIDED ONE-SIXTH INTEREST AND ERNEST S. BOUDRO AND BARBARA J. BOUDRO, HUSBAND AND WIFE, AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED FIVE-SIXTHS INTEREST, DATED FEBRUARY 15, 1983, RECORDED FEBRUARY 24, 1983, IN BOOK 720 OF OFFICIAL RECORDS AT PAGE 107.
17. EASEMENT FOR POLES, WIRES, CABLES AND APPURTENANCES THERETO GRANTED TO PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION, RECORDED SEPTEMBER 13, 1984, BOOK 755, OFFICIAL RECORDS, PAGE 80, AND TERMS AND CONDITIONS CONTAINED THEREIN.
18. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED OCTOBER 6, 1993 AS INSTRUMENT NO. 93-5332 OF OFFICIAL RECORDS.  
GRANTED TO: PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION
19. ENCROACHMENT OF FENCE LINE AS DISCLOSED BY RECORD OF SURVEY RECORDED JUNE 30, 2006 IN BOOK 13 OF MAPS AND SURVEYS, AT PAGE 75.
20. WILLIAMSON ACT CONTRACT, BY AND BETWEEN COUNTY OF GLENN, A POLITICAL SUBDIVISION OF THE STATE OF CALIFORNIA AND CALIFORNIA OLIVE RANCH, INC., A CALIFORNIA CORPORATION, DATED MAY 18, 2010, RECORDED JUNE 7, 2010, GLENN COUNTY RECORDER'S INSTRUMENT NO. 2010-2367.
21. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE ORIGINAL AMOUNT SHOWN BELOW.

AMOUNT:	\$32,000,000.00
DATED:	NOVEMBER 1, 2010
TRUSTOR:	CALIFORNIA OLIVE RANCH, INC., A CALIFORNIA CORPORATION
TRUSTEE:	RABOBANK, N.A.
BENEFICIARY:	RABOBANK, N.A.
RECORDED:	NOVEMBER 4, 2010 AS GLENN COUNTY RECORDER'S INSTRUMENT NO. 2010-4780

A DOCUMENT RECORDED SEPTEMBER 29, 2011 AS INSTRUMENT NO. 2011-4037 OF OFFICIAL RECORDS PROVIDES THAT THE DEED OF TRUST OR THE OBLIGATION SECURED THEREBY HAS BEEN MODIFIED.

A DOCUMENT RECORDED JUNE 30, 2014 AS INSTRUMENT NO. 2014-2343 OF OFFICIAL RECORDS PROVIDES THAT THE DEED OF TRUST OR THE OBLIGATION SECURED THEREBY HAS BEEN MODIFIED.

A DOCUMENT RECORDED NOVEMBER 12, 2014 AS INSTRUMENT NO. 2014-4246 OF OFFICIAL RECORDS PROVIDES THAT THE DEED OF TRUST OR THE OBLIGATION SECURED THEREBY HAS BEEN MODIFIED.

A DOCUMENT RECORDED AUGUST 8, 2015 AS INSTRUMENT NO. 2015-3484 OF OFFICIAL RECORDS PROVIDES THAT THE DEED OF TRUST OR THE OBLIGATION SECURED THEREBY HAS BEEN MODIFIED.

22. A FINANCING STATEMENT RECORDED JANUARY 26, 2011 AS INSTRUMENT NO. 2011-0391 OF OFFICIAL RECORDS.

DEBTOR: CALIFORNIA OLIVE RANCH, INC.  
SECURED PARTY: GENERAL ELECTRIC CAPITAL CORPORATION

A CONTINUATION STATEMENT WAS RECORDED OCTOBER 13, 2015 AS INSTRUMENT NO. 2015-4548 OF OFFICIAL RECORDS.

AN AMENDMENT TO THE FINANCING STATEMENT WAS RECORDED OCTOBER 27, 2015 AS INSTRUMENT NO. 2015-4774 OF OFFICIAL RECORDS.

23. A FINANCING STATEMENT RECORDED MAY 31, 2011 AS INSTRUMENT NO. 2011-2350 OF OFFICIAL RECORDS.

DEBTOR: CALIFORNIA OLIVE RANCH, INC.  
SECURED PARTY: PIERALISI NORTH AMERICA, INC.

AN AMENDMENT TO THE FINANCING STATEMENT WAS RECORDED JUNE 30, 2011 AS INSTRUMENT NO. 2011-2793 OF OFFICIAL RECORDS.

24. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "WELL SHARING EASEMENT AGREEMENT", BY AND BETWEEN CALLIOPSIS, LLC, A DELAWARE LIMITED LIABILITY COMPANY (GRANTOR) AND CALIFORNIA OLIVE RANCH, INC. (GRANTEE), RECORDED NOVEMBER 12, 2014 AS GLENN COUNTY RECORDER'S INSTRUMENT NO. 2014-4239 OF OFFICIAL RECORDS AND RE-RECORDED DECEMBER 21, 2015 AS GLENN COUNTY RECORDER'S INSTRUMENT NO. 2015-5638 OF OFFICIAL RECORDS.

25. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "WATER DISCHARGE EASEMENT AGREEMENT", BY AND BETWEEN CALLIOPSIS, LLC (GRANTOR) AND CALIFORNIA OLIVE RANCH, INC. (GRANTEE), RECORDED NOVEMBER 12, 2014 AS GLENN COUNTY RECORDER'S INSTRUMENT NO. 2014-4241 OF OFFICIAL RECORDS AND RE-RECORDED DECEMBER 21, 2015 AS GLENN COUNTY RECORDER'S INSTRUMENT NO. 2015-5639 OF OFFICIAL RECORDS.

26. RIGHTS AND CLAIMS OF PARTIES IN POSSESSION.

27. PRIOR TO THE ISSUANCE OF ANY POLICY OF TITLE INSURANCE, THE COMPANY WILL REQUIRE:

WITH RESPECT TO CALIFORNIA OLIVE RANCH INC., A CALIFORNIA CORPORATION:

A. A CERTIFICATE OF GOOD STANDING OF RECENT DATE ISSUED BY THE SECRETARY OF STATE OF THE CORPORATION'S STATE OF DOMICILE.

B. A CERTIFIED COPY OF A RESOLUTION OF THE BOARD OF DIRECTORS AUTHORIZING THE CONTEMPLATED TRANSACTION AND DESIGNATING WHICH CORPORATE OFFICERS SHALL HAVE THE POWER TO EXECUTE ON BEHALF OF THE CORPORATION.

C. OTHER REQUIREMENTS WHICH THE COMPANY MAY IMPOSE FOLLOWING ITS REVIEW OF THE MATERIAL REQUIRED HEREIN AND OTHER INFORMATION WHICH THE COMPANY MAY REQUIRE.

## NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

### NOTES:

- A. THE POLICY TO BE ISSUED MAY CONTAIN AN ARBITRATION CLAUSE. WHEN THE AMOUNT OF INSURANCE IS LESS THAN THE CERTAIN DOLLAR AMOUNT SET FORTH IN ANY APPLICABLE ARBITRATION CLAUSE, ALL ARBITRABLE MATTERS SHALL BE ARBITRATED AT THE OPTION OF EITHER THE COMPANY OR THE INSURED AS THE EXCLUSIVE REMEDY OF THE PARTIES. IF YOU DESIRE TO REVIEW THE TERMS OF THE POLICY, INCLUDING ANY ARBITRATION CLAUSE THAT MAY BE INCLUDED, CONTACT THE OFFICE THAT ISSUED THIS COMMITMENT OR REPORT TO OBTAIN A SAMPLE OF THE POLICY JACKET FOR THE POLICY THAT IS TO BE ISSUED IN CONNECTION WITH YOUR TRANSACTION.

B. CANCELLATION FEES

NOTE: PURSUANT TO RULE NO. 2 OF BULLETIN NO. NS-35 OF CALIFORNIA STATE INSURANCE COMMISSIONER THIS REPORT IS ISSUED SUBJECT TO A MINIMUM FEE OF \$400.00.

## LEGAL DESCRIPTION

All that certain real property situated in the unincorporated area of the County of GLENN, State of California, more particularly described as follows:

### PARCEL ONE:

A parcel of property situated in Section 12, Township 20 North, Range 4 West, Mount Diablo Base and Meridian, in the unincorporated territory of Glenn County, California, more particularly described as follows:

Beginning at the section corner common to Sections 1, 2, 11 and 12, Township 20 North, Range 4 West, Mount Diablo Base and Meridian, said corner being marked by a 2 ½ inch brass cap stamped L.S. 2846 as shown at Book 7 of Maps and Surveys, page 23, of the Official Records of Glenn County, California:

Thence, on and along the West line of said Section 12, South 00° 16' 58" East, a distance of 2073.36 feet to the centerline of Sheep Corral Creek;

Thence, leaving the West line of said Section 12, on and along the centerline of said Sheep Corral Creek, South 83° 00' 57" East, a distance of 5.37 feet;

Thence, South 80° 39' 14" East, a distance of 80.09 feet;

Thence, South 83° 06' 12" East, a distance of 85.57 feet;

Thence, North 86° 44' 26" East, a distance of 213.66 feet;

Thence, South 87° 38' 48" East, a distance of 476.58 feet;

Thence, North 86° 49' 59" East, a distance of 205.95 feet;

Thence, South 85° 42' 13" East, a distance of 117.78 feet;

Thence, South 76° 59' 15" East, a distance of 130.89 feet;

Thence, North 88° 47' 49" East, a distance of 148.18 feet;

Thence, South 83° 12' 54" East, a distance of 109.09 feet;

Thence, South 70° 00' 27" East, a distance of 149.68 feet;

Thence, North 88° 29' 59" East, a distance of 147.07 feet;

Thence, South 84° 13' 53" East, a distance of 84.31 feet;

Thence, North 89° 09' 48" East, a distance of 150.99 feet;

Thence, North 84° 26' 22" East, a distance of 170.01 feet;

Thence, North 88° 07' 16" East, a distance of 229.97 feet;

Thence, leaving the centerline of said Sheep Corral Creek, North 01° 19' 18" East, a distance of 17.47 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342 located on the Northerly bank of said Sheep Corral Creek;

Thence, North 01° 19' 18" East, a distance of 62.50 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342;

Thence, North 01° 19' 18" East, a distance of 1689.69 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342;

Thence, North 01° 19' 18" East, a distance of 109.00 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342 located on the Southerly bank of White Cabin Creek;

Thence, North 01° 19' 18" East, a distance of 40.54 feet, to the centerline of White Cabin Creek;

Thence, on and along the centerline of White Cabin Creek, North 39° 52' 39" West, a distance of 104.86 feet;

Thence, North 48° 15' 01" West, a distance of 96.16 feet;

Thence, North 32° 58' 57" West, a distance of 53.87 feet;

Thence, North 27° 19' 42" West, a distance of 47.86 feet, to the North line of said Section 12;

Thence, leaving the centerline of said White Cabin Creek, on and along the North line of said Section 12, North 89° 30' 41" West, a distance of 2351.81 feet, more or less, to the Point of Beginning.

Notice of Voluntary Merger recorded June 7, 2010 as Glenn County Recorder's Instrument No. 2010-2365.

EXCEPTING THEREFROM an undivided one-half interest of all oil, gas, minerals and other hydrocarbon substances, together with the right to remove the same as reserved in Deed from Walter H. Lohse and Barbara Lohse his wife, to W.R. Pritchard, a married man dealing with his sole and separate property, dated October 30, 1980, recorded November 18, 1980, Book 676, Official Records, page 125.

ALSO EXCEPTING THEREFROM all oil, gas, minerals and other hydrocarbon substances, together with the right to remove the same the same as reserved by Ernest S. Boudro and Barbara J. Boudro, husband and wife, in deed recorded October 21, 1982 in Book 713 of Official Records, at page 126.

APN: 021-020-027-9

PARCEL TWO:

A non-exclusive temporary easement to take and use water from a well, together with the right to construct, reconstruct, replace, repair, maintain and use an existing pipeline connecting the well to an olive processing plant together with access as needed over existing roadways as contained in and upon the terms and conditions contained in that certain "Temporary Well Sharing Agreement", recorded November 12, 2014, Glenn County Recorder's Instrument No. 2014-4239, Glenn County Official Records, said well and portion of said pipeline being located upon the following described land:

A parcel of land situated in Section 12, Township 20 North, Range 4 West,

Mount Diablo Base and Meridian, in the unincorporated territory of Glenn County, California, more particularly described as follows:

Commencing at the section corner common to Sections 1, 2, 11 and 12, Township 20 North, Range 4 West, Mount Diablo Base and Meridian, said corner being marked by a 2 ½ inch brass cap stamped L. S. 2846 as shown at Book 7 of Maps and Surveys, Page 23, of the Official Records of Glenn County, California:

Thence, on and along the West line of said Section 12, South 00° 16' 58" East, a distance of 2073.36 feet to the centerline of Sheep Corral Creek, and the True Point of Beginning of this description;

Thence, leaving the West line of said Section 12, on and along the centerline of said Sheep Corral Creek, South 83° 00' 57" East, a distance of 5.37 feet;

Thence, South 80° 39' 14" East, a distance of 80.09 feet;

Thence, South 83° 06' 12" East, a distance of 85.57 feet;

Thence, North 86° 44' 26" East, a distance of 213.66 feet;

Thence, South 87° 38' 48" East, a distance of 476.58 feet;

Thence, North 86° 49' 59" East, a distance of 205.95 feet;

Thence, South 85° 42' 13" East, a distance of 117.78 feet;

Thence, South 76° 59' 15" East, a distance of 130.89 feet;

Thence, North 88° 47' 49" East, a distance of 148.18 feet;

Thence, South 83° 12' 54" East, a distance of 109.09 feet;

Thence, South 70° 00' 27" East, a distance of 149.68 feet;

Thence, North 88° 29' 59" East, a distance of 147.07 feet;

Thence, South 84° 13' 53" East, a distance of 84.31 feet;

Thence, North 89° 09' 48" East, a distance of 150.99 feet;

Thence, North 84° 26' 22" East, a distance of 170.01 feet;

Thence, North 88° 07' 16" East, a distance of 229.97 feet;

Thence leaving the centerline of said Sheep Corral Creek, North 01° 19' 18" East, a distance of 17.47 feet to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342 located on the Northerly bank of said Sheep Corral Creek;

Thence, North 01° 19' 18" East, a distance of 62.50 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342;

Thence, North 01° 19' 18" East, a distance of 1689.69 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342;

Thence, North 01° 19' 18" East, a distance of 109.00 feet, to a 5/8 inch rebar with a 1 ½ inch aluminum cap stamped L.S. 4342 located on the Southerly

bank of White Cabin Creek;

Thence, North 01° 19' 18" East, a distance of 40.54 feet, to the centerline of White Cabin Creek;

Thence, on and along the centerline of White Cabin Creek, North 39° 52' 39" West, a distance of 104.86 feet;

Thence, North 48° 15' 01" West, a distance of 96.16 feet;

Thence, North 32° 58' 57" West, a distance of 53.87 feet;

Thence, North 27° 19' 42" West, a distance of 47.86 feet to the North line of said Section 12;

Thence, leaving the centerline of said White Cabin Creek, on and along the North line of said Section 12, South 89° 30' 41" East, a distance of 2954.28 feet, to the Northeast corner OF Section 12, said corner being marked by a copper weld stamped with section corner markings as shown at Book 9 of Maps and Surveys, Page 63, of the Official Records of Glenn County, California;

Thence, on and along the East line of said Section 12, South 00° 13' 04" East, a distance of 5296.42 feet, to the Southeast corner of said Section 12, said corner being marked by a 5/8 inch iron pipe as shown at Book 9 of Maps and Surveys, Page 63, of the Official Records of Glenn County, California;

Thence, on and along the South line of said Section 12, North 89° 42' 17" West, a distance of 5299.86 feet; to the Southwest corner of said Section 12, said corner being marked by a 1 ½ inch iron pipe as shown at Book 7 of Maps and Surveys, Page 23, of the Official Records of Glenn County, California;

Thence, on and along the West line of said Section 12, North 00° 16' 58" West, a distance of 3241.03 feet, more or less, to the True Point of Beginning.

Notice of Voluntary Merger recorded June 7, 2010 as Glenn County Recorder's Instrument No. 2010-2366.

PARCEL THREE:

A non-exclusive easement to discharge "treated water" as the same is defined in the below mentioned Agreement, together with the right to construct, replace, repair, maintain and use an existing pipe and irrigation equipment transmitting such treated water together with access as needed as contained in and upon the terms and conditions contained in that certain "Water Discharge Easement Agreement", recorded November 12, 2014 as Glenn County Recorder's Instrument No. 2014-4241, Official Records, said treatment water being transmitted through pipes and irrigation equipment being located upon the following described lands:

A parcel of land situated in Section 12, Township 20 North, Range 4 West, Mount Diablo Base and Meridian, in the unincorporated territory of Glenn County, California, more particularly described as follows:

Commencing at the section corner common to Sections 1, 2, 11 and 12, Township 20 North, Range 4 West, Mount Diablo Base and Meridian, said corner being

marked by a 2 ½ inch brass cap stamped L. S. 2846 as shown at Book 7 of Maps and Surveys, Page 23, of the Official Records of Glenn County, California:

Thence, on and along the West line of said Section 12, South 00° 16' 58" East, a distance of 2073.36 feet to the centerline of Sheep Corral Creek, and the True Point of Beginning of this description;

Thence, leaving the West line of said Section 12, on and along the centerline of said Sheep Corral Creek, South 83° 00' 57" East, a distance of 5.37 feet;

Thence, South 80° 39' 14" East, a distance of 80.09 feet;

Thence, South 83° 06' 12" East, a distance of 85.57 feet;

Thence, North 86° 44' 26" East, a distance of 213.66 feet;

Thence, South 87° 38' 48" East, a distance of 476.58 feet;

Thence, North 86° 49' 59" East, a distance of 205.95 feet;

Thence, South 85° 42' 13" East, a distance of 117.78 feet;

Thence, South 76° 59' 15" East, a distance of 130.89 feet;

Thence, North 88° 47' 49" East, a distance of 148.18 feet;

Thence, South 83° 12' 54" East, a distance of 109.09 feet;

Thence, South 70° 00' 27" East, a distance of 149.68 feet;

Thence, North 88° 29' 59" East, a distance of 147.07 feet;

Thence, South 84° 13' 53" East, a distance of 84.31 feet;

Thence, North 89° 09' 48" East, a distance of 150.99 feet;

Thence, North 84° 26' 22" East, a distance of 170.01 feet;

Thence, North 88° 07' 16" East, a distance of 229.97 feet;

Thence leaving the centerline of said Sheep Corral Creek, North 01° 19' 18" East, a distance of 17.47 feet to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342 located on the Northerly bank of said Sheep Corral Creek;

Thence, North 01° 19' 18" East, a distance of 62.50 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342;

Thence, North 01° 19' 18" East, a distance of 1689.69 feet, to a 5/8 inch rebar with 1 ½ inch aluminum cap stamped L.S. 4342;

Thence, North 01° 19' 18" East, a distance of 109.00 feet, to a 5/8 inch rebar with a 1 ½ inch aluminum cap stamped L.S. 4342 located on the Southerly bank of White Cabin Creek;

Thence, North 01° 19' 18" East, a distance of 40.54 feet, to the centerline of White Cabin Creek;

Thence, on and along the centerline of White Cabin Creek, North 39° 52' 39" West, a distance of 104.86 feet;

Thence, North 48° 15' 01" West, a distance of 96.16 feet;

Thence, North 32° 58' 57" West, a distance of 53.87 feet;

Thence, North 27° 19' 42" West, a distance of 47.86 feet to the North line of said Section 12;

Thence, leaving the centerline of said White Cabin Creek, on and along the North line of said Section 12, South 89° 30' 41" East, a distance of 2954.28 feet, to the Northeast corner OF Section 12, said corner being marked by a copper weld stamped with section corner markings as shown at Book 9 of Maps and Surveys, Page 63, of the Official Records of Glenn County, California;

Thence, on and along the East line of said Section 12, South 00° 13' 04" East, a distance of 5296.42 feet, to the Southeast corner of said Section 12, said corner being marked by a 5/8 inch iron pipe as shown at Book 9 of Maps and Surveys, Page 63, of the Official Records of Glenn County, California;

Thence, on and along the South line of said Section 12, North 89° 42' 17" West, a distance of 5299.86 feet; to the Southwest corner of said Section 12, said corner being marked by a 1 ½ inch iron pipe as shown at Book 7 of Maps and Surveys, Page 23, of the Official Records of Glenn County, California;

Thence, on and along the West line of said Section 12, North 00° 16' 58" West, a distance of 3241.03 feet, more or less, to the True Point of Beginning.

Notice of Voluntary Merger recorded June 7, 2010 as Glenn County Recorder's Instrument No. 2010-2366.

APN: 021-020-007-000

**EXHIBIT A**  
**LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)**  
**CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (02-03-10)**  
**EXCLUSIONS**

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
  - (a) building;
  - (b) zoning;
  - (c) land use;
  - (d) improvements on the Land;
  - (e) land division; and
  - (f) environmental protection.
 This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
  - (a) that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
  - (b) that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
  - (c) that result in no loss to You; or
  - (d) that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
  - (a) to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
  - (b) in streets, alleys, or waterways that touch the Land.
 This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.

**LIMITATIONS ON COVERED RISKS**

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows: For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

<u>Your Deductible Amount</u>	<u>Our Maximum Dollar Limit of Liability</u>
Covered Risk 16: 1% of Policy Amount or \$2,500.00 (whichever is less)	\$10,000.00
Covered Risk 18: 1% of Policy Amount or \$5,000.00 (whichever is less)	\$25,000.00
Covered Risk 19: 1% of Policy Amount or \$5,000.00 (whichever is less)	\$25,000.00
Covered Risk 21: 1% of Policy Amount or \$2,500.00 (whichever is less)	\$5,000.00

**ALTA RESIDENTIAL TITLE INSURANCE POLICY (6-1-87)**  
**EXCLUSIONS**

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
  - (a) and use
  - (b) improvements on the land
  - (c) and division
  - (d) environmental protection
 This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at Policy Date. This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.
2. The right to take the land by condemning it, unless:
  - (a) a notice of exercising the right appears in the public records on the Policy Date
  - (b) the taking happened prior to the Policy Date and is binding on you if you bought the land without knowing of the taking
3. Title Risks:
  - (a) that are created, allowed, or agreed to by you
  - (b) that are known to you, but not to us, on the Policy Date -- unless they appeared in the public records
  - (c) that result in no loss to you
  - (d) that first affect your title after the Policy Date -- this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks
4. Failure to pay value for your title.
5. Lack of a right:
  - (a) to any land outside the area specifically described and referred to in Item 3 of Schedule A OR
  - (b) in streets, alleys, or waterways that touch your land
 This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

**2006 ALTA LOAN POLICY (06-17-06)  
EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
  - (i) the occupancy, use, or enjoyment of the Land;
  - (ii) the character, dimensions, or location of any improvement erected on the Land;
  - (iii) the subdivision of land; or
  - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.  
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
  - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
  - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
  - (c) resulting in no loss or damage to the Insured Claimant;
  - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
  - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
  - (a) a fraudulent conveyance or fraudulent transfer, or
  - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

**EXCEPTIONS FROM COVERAGE**

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

**2006 ALTA OWNER'S POLICY (06-17-06)  
EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
  - (i) the occupancy, use, or enjoyment of the Land;
  - (ii) the character, dimensions, or location of any improvement erected on the Land;
  - (iii) the subdivision of land; or
  - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.  
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters

- (a) created, suffered, assumed, or agreed to by the Insured Claimant;
  - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
  - (c) resulting in no loss or damage to the Insured Claimant;
  - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 or 10); or
  - (e) in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
- (a) a fraudulent conveyance or fraudulent transfer, or
  - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

#### EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

#### ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (07-26-10) EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
  - (i) the occupancy, use, or enjoyment of the Land;
  - (ii) the character, dimensions, or location of any improvement erected on the Land;
  - (iii) the subdivision of land; or
  - (iv) environmental protection;
 or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
  - (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
  - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
  - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
  - (c) resulting in no loss or damage to the Insured Claimant;
  - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
  - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.

9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
  - (a) a fraudulent conveyance or fraudulent transfer, or
  - (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.

**CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY – 1990  
SCHEDULE B**

**EXCEPTIONS FROM COVERAGE**

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notice of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interest, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

**EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1.
  - (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
  - (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
  - (a) whether or not recorded in public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
  - (b) not known to the Company, not recorded in public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
  - (c) resulting in no loss or damage to the insured claimant;
  - (d) attaching or created subsequent to Date of Policy; or
  - (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable "doing business" laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim which arises out of the transaction vesting in the insured the estate or interest insured by their policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state of insolvency or similar creditors' rights laws.

## PRIVACY INFORMATION

### **We Are Committed to Safeguarding Customer Information**

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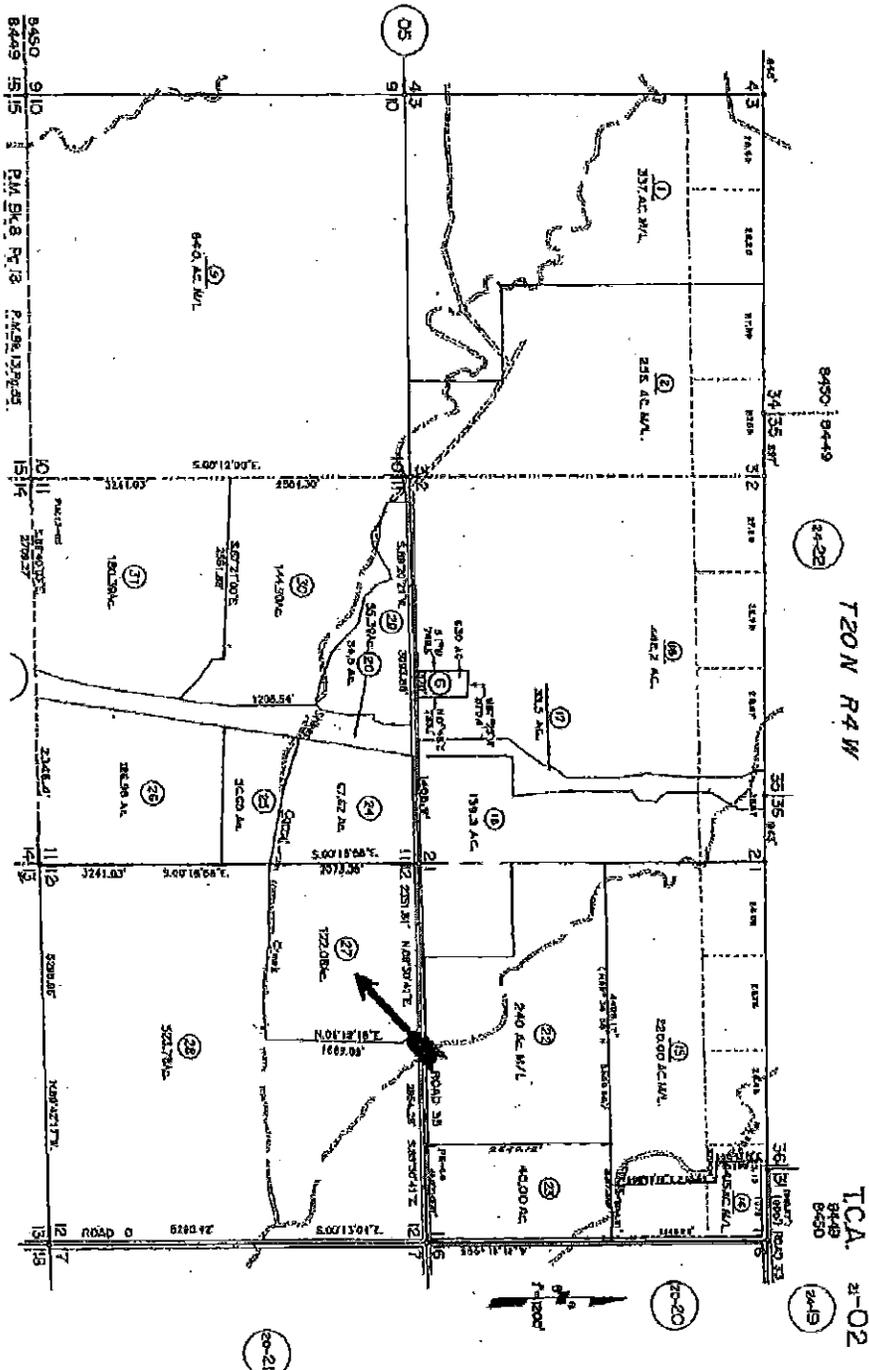
**Accuracy** We will take reasonable steps to help assure the accuracy of the data we collect, use and disseminate. Where possible, we will take reasonable steps to correct inaccurate information. When, as with the public record, we cannot correct inaccurate information, we will take all reasonable steps to assist consumers in identifying the source of the erroneous data so that the consumer can secure the required corrections.

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MAP



**Resolution**

**Forthcoming  
(under separate cover)**

**TECHNICAL REPORT/  
REPORT OF COMPOST FACILITY INFORMATION -  
Revision 3**

**CALIFORNIA OLIVE RANCH COMPOST FACILITY**

*Prepared for*

**California Olive Ranch**

*Prepared by*



**VESTRA Resources Inc.  
5300 Aviation Drive  
Redding, California 96002**

**FEBRUARY 2017  
REVISED APRIL 26, 2017**

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**71630**

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## **1.0 GENERAL INFORMATION AND BACKGROUND**

### **1.1 Introduction**

California Olive Ranch (COR) farms approximately 5,500 acres of olives and processes the olives, from their farm and other growers, into extra virgin olive oil at their processing and bottling facility in Artois, California. The pressing of extra virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive; however, the cost associated with the disposal of this byproduct has been increasing. In response, COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller etc. Each year, the olive pomace is generated during the pressing window.

### **1.2 COR Compost Trial**

Olive pomace has been successfully composted in the Mediterranean region of Europe; however, the documentation shows mixed materials were typically limited to poultry, sheep, and goat manures and the duration of composting time varied substantially, as did the final product. In order to provide a consistent, reliable product available for use in regenerative agricultural techniques, additional testing and experimentation with methods and mixes were needed. COR initiated a composting trial in November 2016 in cooperation with Compost Solutions, Inc. The objectives of the trial included:

- Identify what local materials are available for use in compost
- Complete detailed sampling of the COR olive pomace and compost mixes
- Identify protocols and methods that are the “best fit” for pomace composting
- Identify the volumes of material necessary
- Identify the time required for composting the material to a desired product
- Test the resultant product for use as soil amendment

The trial evaluated four mixes and two time intervals. Depending on the time, temperature, and precipitation during the harvest window, some of the pomace from the production window will be mixed and windrowed to immediately begin the composting process. The remaining material will be mixed, stockpiled, and covered for the winter season to be windrowed later in spring as weather permits. For this reason, the trial consisted of two parts:

- Pomace immediately mixed and windrowed for winter composting
- Pomace that was mixed and covered and will be windrowed in spring

The four mixes included the following inputs in differing amounts:

- Olive pomace
- Almond trash (floor sweepings, etc., from almond harvest)
- Manure (dairy)
- MOO (materials other than olives generated during processing)
- Wood fines/chips

Compost Solutions, Inc., completed the mixing of each batch for COR. Approximately one-half of the mixed material was transported to property under the control of COR and covered for the winter season. The material will be windrowed for composting in spring. The remaining mixed material was windrowed at the Compost Solutions facility on County Road 27. The mixes were generally 50 percent pomace by volume with the residual consisting of differing combinations of materials.

### **1.3 General Information**

#### **1.3.1 Property Owner**

California Olive Ranch, Inc.  
Contact: James Lipman, Vice President  
1367 East Lassen Avenue, Suite A-1  
Chico, California 95973  
[jlipman@cal-olive.com](mailto:jlipman@cal-olive.com)

#### **1.3.2 Facility Operator and Responsible Person**

California Olive Ranch, Inc.  
Contact: James Lipman, Vice President  
1367 East Lassen Avenue, Suite A-1  
Chico, California 95973  
[jlipman@cal-olive.com](mailto:jlipman@cal-olive.com)

#### **1.3.3 Legal Notices**

California Olive Ranch, Inc.  
Contact: James Lipman, Vice President  
1367 East Lassen Avenue, Suite A-1  
Chico, California 95973  
[jlipman@cal-olive.com](mailto:jlipman@cal-olive.com)

#### **1.3.4 Legal Business Name**

California Olive Ranch Compost, Inc.  
Contact: James Lipman, Vice President  
1367 East Lassen Avenue, Suite A-1  
Chico, California 95973  
[jlipman@cal-olive.com](mailto:jlipman@cal-olive.com)

### 1.3.5 Location

The facility will be located at 5945 County Road 35 in Artois, California, adjacent to the COR olive processing facility, in an unincorporated area of Glenn County (see Figure 1-1A). The facility will occupy the western portion of Glenn County Assessor's Parcel Number (APN) 021-020-027-9 (see Figure 1-1B). The facility will encompass approximately 30 acres of the current 90-acre parcel. The 30 acres will consist of approximately 24 acres of compost windrows and a 4-acre mixing area and the remainder of the parcel will be used for setbacks and roadway. The facility will be generally square in shape. See the Site Plan attached as Figure 1-2.

### 1.3.6 Designations

The Butte County General Plan designation is *Intensive Agriculture* (see Figure 1-3). The zoning designation is AP-80 *Agricultural Preserve Zone*, 72-acre parcel size minimum (see Figure 1-4). Adjacent properties are zoned as follows:

- North:** AE-40 *Exclusive Agricultural Zone*, Minimum parcel size 36 acres
- East:** FS-80 *Farmland Security Zone*, Minimum parcel size 72 acres
- West:** AE-40 *Exclusive Agricultural Zone*, Minimum parcel size 36 acres
- South:** AE-40 *Exclusive Agricultural Zone*, Minimum parcel size 36 acres

## 1.4 Composting Summary

Composting is a process where microorganisms break down organic matter and produce carbon dioxide, water, heat, and humus (the organic end product). Under optimal conditions, composting proceeds through three phases:

- 1) moderate-temperature phase, which lasts for a couple of days;
- 2) high-temperature phase, which can last from a few days to several months; and, finally,
- 3) a several-month cooling and maturation phase.

Different communities of microorganisms predominate during the various composting phases. Initial decomposition is carried out by moderate-temperature microorganisms, which rapidly break down the soluble, readily degradable compounds. The heat produced by the microorganisms causes the compost temperature to rapidly rise. As the temperature rises above about 40 degrees Celsius (°C), the moderate-temperature microorganisms become less competitive and are replaced by others that are high temperature, or heat loving. At temperatures of 55°C and higher, many microorganisms that are human or plant pathogens are destroyed. Because temperatures over about 65°C kill many forms of microbes and limit the rate of decomposition, compost managers use aeration and mixing to keep the temperature below this point.

During the high-temperature phase, high temperatures accelerate the breakdown of proteins, fats, and complex carbohydrates like cellulose and hemicellulose, the major structural molecules in plants. As the supply of these high-energy compounds becomes exhausted, the compost temperature gradually decreases and moderate-temperature microorganisms once again take over for the final phase of "curing" or maturation of the remaining organic matter. The result of this decomposition process is "compost," a crumbly, earth-smelling, soil-like material.

The objectives of composting are to reduce pathogens to below detectable levels, degrade volatile (odor-producing) solids, and to produce a reusable product. Pathogens reduction is a function of time and temperature. The end product is usually a humus-like material that can be applied as a soil conditioner and fertilizer to gardens, crops, orchards, and rangelands. Compost provides organic matter and nutrients (such as nitrogen and potassium) to the soil and improves soil texture.

## **1.5 Project Summary**

California Olive Ranch is proposing to compost up to 70,000 tons per year of olive pomace. The pomace has high moisture content (approximately 65 percent) and will be mixed with other agricultural products to facilitate composting. No commercial fertilizer additives are proposed. The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace (vegetative food material)
- Almond trash (floor sweepings, etc., from almond harvest)
- Manure (dairy)
- MOO (materials other than olives generated during processing)
- Orchard trimmings and stems/greenwaste
- Other agricultural waste materials

The compost facility will include compacted compost areas, paved mixing area, bioswale, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back from property lines and County Road 35 and surrounded by a vegetative buffer of two rows of olives. Mix materials will be received via a separate entrance off County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a bioswale prior to discharge. The water will discharge to an agricultural drainage ditch and hence to White Cabin Creek.

## **1.6 Surrounding Land Use**

Surrounding land use within one mile of the proposed facility is agricultural as shown on Figure 1-5). All property adjacent to the proposed facility is used for agricultural crops; adjacent land use is for olives or nut trees.

Three residences are located within one mile of the facility as shown on Figure 1-5. The nearest residence is greater than 1,000 feet from the site.

## **1.7 Project Objectives**

The objective of the project is to convert olive pomace and other agricultural waste materials to a usable soil amendment product to be applied using regenerative agricultural techniques on COR olive orchards, thereby reducing the need for commercial fertilizers.

Other benefits from the proposed project include reduced traffic volumes on County Roads 27 and 35.

## 1.8 Agency Approval Required

Approval and permits from the following agencies will be required for operation:

- **Conditional Use Permit:** Issued by Glenn County Planning Department with CEQA concurrence.
- **Solid Waste Facility Permit (SWFP) and associated Report of Composting Facility Information:** Issued by Glenn County Environmental Health Department with concurrence from CalRecycle and the California Regional Water Quality Control Board (RWQCB).
- **Compliance with Order WQ-2015-0121-DWQ General Waste Discharge Requirements for Composting Operations and associated Technical Report Requirements:** Issued by RWQCB.

This document has been prepared to meet the requirements for submittal to all agencies.

## 2.0 SITE CONDITION INFORMATION

### 2.1 Climate

The climate in the vicinity of the site is characterized as Mediterranean with hot, dry summers and cool, wet winters.

#### 2.1.1 Precipitation

The estimated precipitation data used for the Artois area was estimated from Willows 6W Weather Station No. 049699 with years of record from 1906 to 2016. Precipitation at the Willows weather station averages 17.95 inches per year, 80 percent of which falls between November and March. The weather station is located approximately 7.5 miles southwest of the proposed compost trial facility. Precipitation data for the Willows weather station is included in Table 2-1.

<b>Month</b>	<b>Willows</b>	<b>Percent of Year</b>
January	3.68	20.5%
February	3.14	17.5%
March	2.33	13.0%
April	1.12	6.2%
May	0.66	3.7%
June	0.33	1.8%
July	0.04	0.2%
August	0.09	0.5%
September	0.31	1.7%
October	1.01	5.6%
November	2.13	11.9%
December	3.13	17.4%
<b>Average</b>	<b>17.95</b>	---

#### 2.1.2 Evaporation

Evapotranspiration (ET<sub>o</sub>) was estimated using data from the Gerber CIMIS (California Irrigation Management Information System) Station. The Gerber station is located approximately 30 miles north of the proposed compost trial facility. The data are included in Table 2-2. Average monthly ET<sub>o</sub> data are shown on Figure 2-1.

#### 2.1.3 Temperature

Based on data for the Willows 6W Weather Station No. 049699, average daily minimum temperatures in the project area range from 35.9 degrees Fahrenheit (°F) in January to 60.8°F in July. Average daily maximum temperatures range from 54.6°F in January to 65.2°F in July. Average monthly minimum and maximum temperatures for the Willows station are shown on Figure 2-2.

<b>Month</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Average</b>
October	3.59	3.11	3.21	3.43	4.26	3.52
November	2.16	1.96	1.79	1.53	2.66	2.02
December	1	0.7	2.2	1.05	2.14	1.42
January	0.8	1.34	1.75	1.57	2.6	1.61
February	1.39	2.31	2.73	2.69	1.79	2.18
March	3.58	2.65	2.85	3.81	3.39	3.26
April	4.12	4.98	4.18	6.29	5.14	4.94
May	6.06	6.29	7.31	7.64	8.07	7.07
June	7.83	7.19	8.38	8.52	9.05	8.19
July	8.43	8.21	8.08	9.12	8.35	8.44
August	7.39	7.37	7.35	7.39	2.9	6.48
September	5.41	5.76	5.34	5.66	--	5.54
<b>Average</b>						<b>54.68</b>

## 2.1.4 Wind Rose

Wind data are available from the Colusa CIMIS station located about 30 miles southeast of the proposed compost trial facility. Winds in the Colusa area are generally from the south during the summer and fall (May through October), averaging 3 to 6 miles per hour (mph). Average wind directions shift to the north-northwest during November and December and average 6 to 9 mph. A wind rose for data collected between 1993 and 1997 at the Colusa CIMIS station is included as Figure 2-3A. Nearby residences in relation to predominant wind direction are shown on Figure 2-3B.

## 2.2 Geology

### 2.2.1 General Geology

The project lies within the Great Valley geologic province, an area that includes the Sacramento Valley bordered by the Coast Range, Klamath, Cascade, and Sierra Nevada mountains and its fringe of foothills underlain by the valley's older sedimentary bedrock. The bedrock formed when a Cretaceous sea filled the Sacramento Valley. Broad warping of the Cretaceous marine sedimentary bedrock layers uplifted and tilted them, giving rise to the foothills along the western edge of the Watershed and lowering the rocks along the valley centerline where the aggrading floodplains of the ancestral Sacramento River created the valley flat. Erosional dissection of the uplifted foothills by Tertiary and Quaternary streams poured sediment into the sinking valley, forming a sequence of older, semi-consolidated alluvial deposits that flank the foothills. These alluvial deposits in turn have been uplifted and dissected by still younger streams. Holocene streams continue to dissect the Cretaceous bedrock foothills and the older alluvial deposits, transporting sediments onto the valley floor. Holocene streams form contemporary alluvial fans that grade into the wide band of valley flat and lands of the Colusa Basin. The Basin is a complex of loamy floodplain deposits, slough channels, and frequently flooded basins formed by modern fluvial processes on the aggrading Sacramento River floodplain (H.T. Harvey & Associates, 2008).

The Basin is now dominated by broad, gradually sloping alluvial fans grading into the fine-grained deposits of the Sacramento River and forming the valley flat. Streams draining from the foothills over the alluvial fan surfaces are variably meandering, sand-and-gravel bedded streams with naturally erodible banks except where channels are cut in semi-consolidated older alluvial deposits occurring primarily nearer the foothill front. The foothill streams are naturally flood prone, especially along their downstream reaches where the channel slope decreases, the banks and natural levees are increasingly fine-grained, and there may be local stormwater ponding and flood backwater effects from the poorly drained valley flat and Colusa Basin. The foothill streams have been variably channelized and leveed to conform with transportation infrastructure and general agricultural development, especially the downstream reaches which are more shallowly incised and prone to erosion and flooding. Closer to the foothills, there are still numerous unmodified, isolated stream sections with relatively intact riparian vegetation (H.T. Harvey & Associates, 2008). A generalized geologic cross-section is included as Figure 2-4.

**Coast Range Foothills:** The western drainage divide is mostly formed by higher, more erosion-resistant ridges of the Great Valley Sequence exposed in the Coast Range foothills. This uplifted, warped, and tilted sequence of Cretaceous marine sedimentary bedrock includes layers of sandstone, sandy shale, and conglomerate rocks. Where they form the western drainage divide, the Coast Range foothills are distinctive in their parallel ridge-and-valley topography and the resulting rectilinearly trellised drainage networks. This is the result of the more resistant sandstones and conglomerates forming ridges while the intervening, less resistant shales have been worn down more completely by erosion, forming long, narrow valleys.

**Tertiary Tehama Formation:** Resting on the Cretaceous bedrock of the Great Valley Sequence, with marked unconformity, is the Tehama Formation of Tertiary age. The Tehama Formation (Tte) is composed of compacted pale-green, gray, and tan sandstone and siltstone with lenses of cross-bedded pebble and conglomerate (Helley and Harwood, 1985). According to Helley and Harwood (1985), the Tehama Formation is composed of alluvium derived from dissection of the marine sedimentary bedrocks of the Great Valley Sequence in the Coast Range foothills and deposited by more or less the same streams that dissect the Tehama Formation today.

The amount of the Tehama Formation that is exposed along the mountain front varies markedly. The variation in the extent of the exposure between the Cretaceous bedrock foothills to the west and the younger alluvium to the east likely has a strong influence on the character of the streams that dissect it, including the amounts, lithology, and size distribution of sediment they historically and presently pour onto the alluvial fans. Northwest of Willows in the vicinity of the site, the Tehama Formation retains the form of a broad alluvial fan underlying most of the upper watershed areas of Walker Creek, Wilson Creek, White Cabin Creek, and Sheep Corral Creek. The Tehama Formation comprises nearly the entire pink-colored area mapped at the 1:250,000 scale by Jennings and Strand (1960) as upper Pliocene non-marine rocks (Puc) (see Figure 2-5).

The Putah Tuff and Nomlaki Tuff beds lie near the base of the Tehama Formation, respectively in or near the southern and northern portion of the watershed, putting the maximum age of the Tehama Formation near that of the tuff beds – about 3.3 to 3.4 million years. The maximum thickness of the Tehama Formation is about 2,000 feet near the Sacramento River. Its thickness generally decreases where it has been uplifted higher and been more deeply dissected along the foothill front. Because the underlying Cretaceous marine sedimentary rocks of the Great Valley

Sequence are not groundwater-bearing, the base of the Tehama Formation is also the base of fresh groundwater in the entire Sacramento Valley (H.T. Harvey & Associates, 2008).

### **2.2.2 Site-Specific Geology**

The Tehama Formation outcrops 3 miles west of the proposed facility. At the location of the proposed compost facility, the subsurface lithology consists of intercalated beds of the upper member of the Quaternary Modesto Formation which has locally incised into the pediment surface formed on the underlying Tehama Formation. This is overlain by 50 to 60 feet of unconsolidated alluvium derived from planing and lateral migration of Holocene to recent streams. The alluvium is composed of mixed clastic sedimentary material and metavolcanic material eroded from the prominent outcrops of the Tehama Formation to the west. Surficial sediments are dominated by clay and silt, believed to represent interchannel floodplain facies deposited during increases in base level from flooding along the Sacramento River. While erosional remnants of the late Tertiary Red Bluff Formation occur in the vicinity, this formation has not been mapped onsite.

### **2.3 Soils**

The soils at the proposed compost facility are made up entirely of the Altemont-Shedd Association with 3 to 15 percent slopes. These soils are characterized as moderate to low fertility even with irrigation. They are predominately clay with weathered bedrock between 40 and 60 inches. Although dominated by clay, the soils are considered to be well drained with moderate water storage capacity. Soils information on the site is included as Appendix A.

### **2.4 Hydrogeology**

#### **2.4.1 General**

Groundwater occurs in the alluvial deposits underlying the alluvial fans, low plains, and basin flats of the Sacramento Valley. The site is located in the Colusa Subbasin of the larger Sacramento Valley Groundwater Basin. The Colusa subbasin is comprised of deposits of late tertiary to Quaternary age, including the Holocene alluvium and Pleistocene terrace deposits of the Tehama Formation.

The Tehama Formation consists of sediments originating from the coastal mountains and is the primary source of groundwater of the subbasin. Department of Water Resources (DWR) has noted that there do not appear to be any increasing or decreasing trends in water levels within the subbasin. This may be due in part to the existence of numerous irrigation districts and use of canal water for irrigation in many portion of the subbasin.

#### **2.4.2 Groundwater Flow Direction and Depth**

There are 14 DWR-monitored groundwater wells within five miles of the site. Information on the wells is included in Table 2-3. Well locations are shown on Figure 2-6. Well information is included in Appendix B.

**Table 2-3  
DWR WELL INFORMATION**

Site Code ID	Distance from Site	Use	Status	Total Depth (feet)	Depth to Water (feet)	Years of Record
396468N1222278W001	3.5 miles	Irrigation	Inactive	900	40-72	58
396060N1222621W001	Onsite	Industrial	Active	172	10-80	54
396049N1222495W001	1 mile	Observation	Active	1,030	84-184	10
396049N1222495W002	1 mile	Observation	Active	664	130-190	10
396049N1222495W003	1 mile	Observation	Active	515	49-199	10
396049N1222495W004	1 mile	Observation	Active	160	24-94	10
396034N1222377W001	1.5 miles	--	Inactive	150	13-93	68
396391N1222438W001	2.25 miles	Residential	Active	Unknown	36-111	54
396312N1222419W001	2 miles	Stock	Inactive	142	24-94	21
396332N1222356W001	2.5 miles	Residential	Active	161	29-129	38
396309N1222335W001	2.25 miles	Unknown	Inactive	33	14-64	28
396277N1222344W001	2 miles	Irrigation	Active	430	17-92	65
396258N1222343W001	2 miles	Unknown	Inactive	21	2-11	6
396252N1222351W001	2.25 miles	Unknown	Inactive	410	20-120	55
396252N1222351W002	2.25 miles	Unknown	Inactive	565	1-25	55
396252N1222351W003	2.25 miles	Unknown	Inactive	240	20-110	55
396252N1222351W004	2.25 miles	Unknown	Inactive	120	20-95	55

Based on water well driller reports for the onsite industrial well and two nearby well clusters (shaded in Table 2-3), the first significant water-bearing zone occurs at a depth of approximately 50 to 80 feet bgs. Based on the relation between lithology and horizontal hydraulic conductivity (Freeze and Cherry, 1979, Page 29), the hydraulic conductivity of this water-bearing unit may vary between 30 feet/day and 3,000 feet/day (0.01 to 1 cm/sec).

The depth to groundwater in the onsite industrial well varies between approximately 10 feet and 80 feet bgs. The minimum depth to water of 9.9 feet bgs occurred in 1998. Information on local, site-specific groundwater flow direction is not available. Based on a review of DWR data from 2006, groundwater flow generally follows topography toward the Sacramento River. Localized variations occur in response to local pumping and the locations of Sheep Corral Creek and Walker Creek near the site.

Groundwater quality has been obtained from four wells near the site under GAMA. The well with the most analyses is located approximately 1,250 feet northwest of the proposed site. The well has been sampled since 1957. Nitrate averages 21 mg/L. pH ranges between 8.4 and 8.9 pH units. Well information and units are included in Appendix B.

## 2.5 Vertical Hydraulic Conductivity

On December 29, 2016, four test pits were excavated by hand to a depth of greater than 12 inches (see Figure 2-11). The samples were submitted to Materials Testing, Inc., in Redding, California, and analyzed for ASTM D1557 and ASTM 5084. The objective of these tests were to determine optimum moisture content for compaction and the hydraulic conductivity of samples remolded to 90 percent and 95 percent of maximum density at optimum moisture. Optimum moisture varied between 15.4 percent and 18.2 percent and the hydraulic conductivity of the samples varied between 2.35E-07 and 5.31E-07 cm/sec.

On January 26, 2017, four additional test pits were excavated along the perimeter of the proposed composting operation area to a depth of approximately 7 feet. Test pits were logged for lithology according to *ASTM Method D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*. Test pit locations are shown on Figure 2-11. Soil samples were collected from surface and subsurface soils and submitted to Materials Testing, Inc., for analysis using ASTM 5084. The objective of these tests were to characterize the lithology to approximately 7 feet bgs and to submit one undisturbed soil sample from each test pit for vertical hydraulic conductivity testing. The undisturbed sample from each test pit was collected from the soil unit deemed to be the least permeable based on grain size and lithology. General lithology is summarized in Table 2-4 and the vertical hydraulic conductivity test results are summarized in Table 2-5. Test pit logs are included in Appendix C.

Location ID	Max Depth (ft bgs) <sup>1</sup>	Sampled Interval (ft bgs)	Typical Soil Type (USCS)	Notes
TP-1	7.0	3-3.5	0-2: Clayey Sand 2-5.5: Gravelly-Sandy Clay 5.5-7: Gravelly Sand	Profile consists of fill material
TP-2	7.0	3.5-4	0-2.2: Sandy Clay 2.2-7: Silty Clay	Native Material
TP-3	7.0	3.5-4	0-2.4: Sandy Clay 2.4-7: Silty Clay	Native Material
TP-4	6.5	3-3.5	0-2: Clayey Sand 2-5: Sandy Clay 5-6.5: Gravelly Sand	Disturbed Fill Material

**Notes:**  
<sup>1</sup> Feet below ground surface

Test Pit	Depth (feet)	Lithology	Hydraulic Conductivity (cm/sec)
TP-1	3-3.5	Gravelly Sandy Clay	1.59E-07
TP-2	3.5-4	Silty Clay	1.74E-07
TP-3	3.5-4	Silty Clay	1.70E-07
TP-4	3-3.5	Sandy Clay	4.8E-07

Two distinct lithologies were exposed in the test pits; one was a coarse-grained lithology consisting of a clayey sand approximately 2 feet thick overlying a gravelly sand with variable amounts of matrix clay. This material was exposed in the two southern test pits, TP-1 and TP-4. This is believed to be disturbed fill material placed during past grading and filling activities. Discussions with personnel onsite suggest that this is indeed fill material and does not represent native soils.

The second observed lithology consisted of a 2.5-foot-thick sandy clay overlying a silty clay. Both clay units were dense and highly plastic. Moderate amounts of organic material were present in the upper 3 feet of these pits and associated with gleyed mottles. This fine-grained

material is believed to be native soil and is consistent with the soils mapped by the USDA Soil Survey. These clay soils were encountered in the two northern test pits, TP-2 and TP-3.

Based on the undisturbed hydraulic conductivity test results and the relationship between lithology and hydraulic conductivity in Freeze and Cherry (1979), the effective vertical hydraulic conductivity through each layered profile to a depth of either 6.5 or 7 feet was calculated (see Appendix C). The average effective vertical hydraulic conductivity through the profile is  $4.6 \times 10^{-7}$  cm/sec, with values ranging between  $1 \times 10^{-6}$  and  $2.5 \times 10^{-7}$  cm/sec.

## 2.6 Nearest Water Supply Wells

Water supply wells located within one mile of the site are shown on Figure 2-7. These wells include the COR processing facility well. This well is identified as DWR Well Site ID 39606N1222621W001 and is included in the DWR monitoring network. The other nearby wells includes a residential well to the west owned by Jacob and Tara Berens (1,500 feet) and a residential well to the south owned by John and Barbara Berens (3,000 feet). All water supply wells within one mile of the site are included in Table 2-6. Well ownership was determined from parcel ownership information.

Well ID	Ownership
1	Jacob and Tara Berens, P.O. Box 347, Artois, CA 95913
2	John and Barbara Berens, P.O. Box 46, Artois, CA 95913
3	California Olive Ranch, 1367 E. Lassen Avenue, Suite A-1, Chico, CA 95973
4	Lillian Schmidt Trust, 1364 Eastshore Drive, Alameda, CA 94501
5	Robert and Bonnie Arendt, P.O. Box 10, Artois, CA 95973

## 2.7 Floodplain

The proposed composting facility lies between White Cabin Creek and Sheep Corral Creek. The southwest corner of the property lies within FEMA Flood Zone A for Sheep Corral Creek, as shown on Figure 2-8. The floodplain elevation is 190.44 feet above mean sea level (NGVD 88). Following the leveling and compaction of the compost facility, the final surface elevation at the south boundary will be  $\pm 213$  feet, which will be outside of the Sheep Corral Creek floodplain.

## 2.8 Surface Water Hydrology

The proposed composting facility is located in the northwestern portion of the Colusa Basin in the Willow and Walker creek subwatersheds. The proposed location is on leveled agricultural land between White Cabin Creek and Sheep Corral Creek. Surface water hydrology in the vicinity of the site is shown on Figure 2-9. The majority of surface water bodies in the vicinity of the site have been channeled and redirected into agricultural drainage canals. Sheep Corral Creek is a tributary to White Cabin Creek, which is tributary to Walker Creek, and hence the Sacramento River.

No active gauges are available in the northern portion of the Colusa Basin. The U.S. Geological Survey (USGS) monitored a gauge on Walker Creek near Artois from 1966 to 1981 which is now discontinued. Walker Creek captures a large watershed, which resulted in sustained winter base flow for a larger portion of the November to April season than other streams in the area. USGS historical data show that average annual flow in Walker Creek was 5.6 cubic feet per second (cfs) during the 16-year monitoring period. Harvey & Associates (2008) noted that Walker Creek collected irrigation runoff and groundwater underflow without losing it to groundwater, suggesting that the groundwater table was not far below the stream channel bed in the area of the gauge (latitude 39.62543684, longitude -122.1969283 NAD 83).

The proposed composting facility is not anticipated to have a significant impact on flows to Sheep Corral Creek or White Cabin Creek.

## **2.9 Topography**

Site topography is shown on Figure 2-10. A site-specific survey was conducted in December 2016. The facility is generally flat and will be contoured to drain stormwater to the bioswale located onsite. Proposed topography is discussed later in this document. Elevation at the site ranges from 150 feet to 212 feet above mean sea level.

## 3.0 DESCRIPTION OF OPERATIONS

### 3.1 Hours of Operation and Staff

The facility will operate year round. During the olive harvest period, September through December, the facility will operate 24 hours a day, seven days a week, in conjunction with the 24-hour-per-day olive processing. Once the pomace and materials are mixed and windrowed, or piled and covered, the facility will return to a 40-hour week, Monday through Friday January through August. Normal operating hours will be no more than one hour before sunrise until one hour after sunset from January through August. The facility will not be open to the public. Two full-time employees will work a standard 40-hour work week. Two additional employees will be needed during the olive processing and mixing window.

Additional temporary lighting will be required during the harvest season. Generators provide all power available on site. Lighting will be provided by one or two generator-driven light stands. The lighting will be temporary during the harvest period from September to December. This will not be a significant change from current conditions, as the area is already subject to artificial lighting and 24-hour-a-day activities (trucks, etc.) during the olive harvest.

### 3.2 Method of Composting

Composting will be completed using passive windrowing and turning techniques.

### 3.3 Feedstocks, Bulking Agents, and Additives

The following composting feedstocks and bulking agents with estimated daily maximum tonnages may be received at the facility. Section 3.4.3 addresses the conversion factors used to compute the total cubic yards of each material. The final materials to be used in the compost mix will be a function of the price and availability of bulking agents and feedstock. The majority of materials will be received over the three-month olive harvest window, as the pomace will be mixed directly for composting as it is generated at the facility. COR will control the shipment and delivery of all incoming raw materials.

	<b>Max per Day<sup>1</sup></b> <b>(tons)</b>	<b>Total</b> <b>Tons<sup>2</sup></b>	<b>Total</b> <b>Cubic Yards<sup>3</sup></b>
Olive Pomace (vegetative food material)	700	70,000	78,000
Almond Waste	500	31,500	78,000
MOO/Orchard Prunings (leaves and stems)	20	2,100	15,500
Manure (Dairy)	60	5,600	7,700
Greenwaste	100	10,000	20,000
Other Agricultural Waste Materials	TBD	--	--
Totals:	1,380	--	198,000

<sup>1</sup> The facility max tons per day are based on loading during the peak 100-day harvest period

<sup>2</sup> Total tons of each feedstock, bulking agent, and additive on site at any given time

<sup>3</sup> Total cubic yards of each feedstock, bulking agent, and additive on site at any given time

Currently, COR intends to limit compost mix inputs to the olive pomace, “MOO” (materials other than olives sorted off the harvested olives), orchard prunings, dairy manure, almond trash, or other similar “agricultural materials.” Limited amounts of greenwaste may also be received.

COR is committed to the development of a state-of-the-art compost facility to improve the overall sustainability of their product and to reduce dependence on commercial fertilizers.

All deliveries of limited greenwaste material to the project will be made in covered or enclosed vehicles in order to avoid or mitigate the potential for impacts related to invasive species and damage to habitat. COR will not accept deliveries of greenwaste material in uncovered vehicles. A sign will be posted at the entrance to the composting facility notifying drivers of that policy.

Historically, up to 3,900 truckloads of pomace per season have been hauled to the Wilbur-Ellis facility at the airport. It is anticipated that bulking agents and mix materials will require approximately 1,220 truckloads over the composting period. Approximately 2,700 truckloads of completed compost are anticipated to be removed to local COR orchards based on 35 percent shrinkage at mixing and 30 percent shrinkage following composting. This is a maximum of 106 vehicle trips per day including employee vehicles.

Other materials may be added as they become available or are determined to be needed in the compost mix (such as cogeneration ash and vegetable- and fruit-processing waste).

The facility will not receive any of the following:

- Food materials (non-vegetative)
- Biosolids (Class A, B, and/or EQ)
- Animal carcasses
- Liquid wastes other than those of food origin
- Medical wastes as defined in the Health and Safety Code, Section 117690
- Radioactive wastes
- Septage
- Sludges including, but not limited to, sewage sludge, water treatment sludge, and industrial sludge
- Wastes classified as “designated” as defined in Water Code Section 13173
- Wastes classified as “hazardous” as defined in CCR, Title 22, Section 66261.3
- Wood containing lead-based paint or wood preservatives, or ash from such wood

Greenwaste material may occasionally contain unusable materials or materials impractical or impossible to fully compost. These will be removed by hand, contained and stored in on-site garbage receptacles, and properly disposed of.

### **3.4 Capacity**

#### **3.4.1 Storage Capacity**

The facility has been designed to be able to windrow up to 70,000 tons (78,000 cubic yards) of pomace and approximately 121,000 cubic yards of other materials, which will equal approximately 198,000 cubic yards of material or 110,000 cubic yards of compost mix onsite at any given time. The area not used for windrows will be used to stockpile covered, mixed material for windrowing in spring.

The pomace will be mixed as it is generated during the pressing process. Bulking agents and other mix materials will be delivered as needed during the mixing period September through December. The mixing area is designed to hold one to two days of mix materials.

### 3.4.2 Maximum Time for Storage

The maximum time for storage of mix materials onsite will be two to three weeks (in advance of olive harvest). Pomace will not be stored onsite as it will be mixed directly as it is produced. The maximum time for storage of late-season compost mix onsite prior to windrowing is four to five months (December to March or April). The maximum time for storage of completed compost mixture is two months. Early-harvest compost will be used on the COR orchards as soon as it is possible to work the ground in the spring, and in mid-summer for the spring-composted material.

### 3.4.3 Maximum and Minimum Storage Volumes

The maximum mixed material onsite at any time will be 110,000<sup>A</sup> cubic yards of compost mix, either completed or in process. This includes the mixing of 78,000<sup>B</sup> cubic yards of pomace and approximately 101,000<sup>C</sup> cubic yards of feedstock. Following mixing and composting, it is anticipated that 81,000<sup>D</sup> cubic yards of completed compost will be generated, 54,500<sup>E</sup> cubic yards in the spring and 28,500<sup>F</sup> cubic yards in the summer. The maximum amount of completed product stored at any given time is estimated to be 30,000 cubic yards.

$$^A 1,532 \text{ (windrow volume (cyds))} * 70 = 108,000 \text{ (reduction factor included)}$$

$$^B 1,110 \text{ (pomace (cyds))} * 70 = 78,000 \text{ (no reduction factor)}$$

$$^C (222 + 1,110 + 111) \text{ (other (cyds))} * 70 = 101,000 \text{ (no reduction factor)}$$

$$^D (101,000 + 78,000) * 6 = 108,000 \text{ (reduction on mixing)}$$

$$108,000 * 3/4 = 81,000 \text{ (reduction on composting)}$$

$$^E 81,000 * 0.65 = 54,000 \text{ (spring)}$$

$$^F 81,000 * 0.35 = 28,000 \text{ (summer)}$$

$$\text{Operator: } 8,000 * 3/4 = 6,000$$

The previous calculations are presented to allow the regulatory community to evaluate the numbers. Greenwaste was not included in this calculation.

In addition, some feedstock materials may be composted during the summer period. COR will generate more compost than they will use, which will be available for sale or use elsewhere.

### 3.4.4 Peak Loads

The facility has been designed to manage the peak loading associated with the generation of the olive pomace during harvest, up to 70,000 tons (78,000 cubic yards) of pomace from September to December. No other peak loading times are anticipated (see Page 14).

## 3.5 Equipment

### 3.5.1 Peak Loads

Equipment to be used onsite includes:

- 2 - Truck-mounted feed mixers, 10 cubic yards each (Kirby or equivalent)
- 1 - Rubber-tired wheel loader with 5-cubic-yard bucket (966 or equivalent)
- 1 - 18-foot-wide self-propelled windrow turner, 1,000 tons per hour capacity (likely a Midwest Bio-System 190)
- 1 - Water truck for dust suppression and water addition to windrows if needed

The onsite equipment will be diesel-powered. Equipment maintenance and fueling will be conducted at the existing COR maintenance shop located on the adjoining processing facility south of the compost area. The maintenance shop includes an aboveground diesel tank. All oil and grease are stored indoors at the maintenance facility. This facility has a Hazardous Materials Business Plan on file with Glenn County. Material storage and spill response is covered under that plan. The maintenance shop is also equipped with an employee lounge and restroom that will service employees working at the compost facility. Compost employees will park at the maintenance facility. For ease of operation, a portable toilet may be placed in the mixing area.

During the harvest period, an additional mix truck and/or loader may be needed to accommodate repairs and breakdowns. The equipment is available locally for rent.

### **3.5.2 Emergency Provisions for Power Failure**

The facility is not subject to power failure. All equipment on site will be diesel-powered, including lighting. Light stands will be powered by individual generators with multiple light stands on site. Facility operations will not be impacted in the event of local power failure since no power lines are connected to the site.

## **3.6 Description of Operations**

The pomace will be mixed directly out of the olive processing facility in the mix trucks. From the processing facility, the trucks will be driven to the mixing area where the mixing/bulking agents will be added. From here, the trucks will proceed to a windrow location where the material will be placed. It is anticipated that material will be mixed and windrowed until November 1<sup>st</sup>, after which point the materials will be mixed, stockpiled, and covered until March or April. Approximately two-thirds of the total pomace produced will be mixed and windrowed before November 1<sup>st</sup>. The remaining one-third will be mixed, stockpiled, and covered for the winter season. Example cover layout is shown on Figure 3-1. Once temperatures begin to warm in the spring, the mixed material will be placed in windrows and turned until complete.

When COR is not using portions of the composting pads in late spring and summer, these areas may be used by another party to produce a higher-quality compost product.

It is anticipated that the early windrowed material will be turned as needed and composting be completed by April or May. This first batch of completed compost will be applied to the COR orchards beginning in April or May. The stockpiled material that was covered in December will be uncovered and windrowed in March or April, depending on the weather, and will compost until July or August and be applied to orchards under the control of COR. The target application rate is 5 tons per acre to the orchard cropland. This will be applied between the tree rows and seeded to a cover crop.

The composting will be completed using similar techniques to other composting operations in the county. The exception herewith is that the pomace and other bulking materials will be mixed in large mixing trucks that will mix and transport the material to the windrow location. Once a windrow is complete, it will be turned as needed using a standard turning machine.

The windrows will be on 32-foot centers and measure 16 feet wide and approximately 6 feet high. When composting is completed, three to four windrows will be combined into a large row to facilitate removal to orchards.

California Olive Ranch intends to use the compost on the 5,500 acres of orchards that they control adjacent to the processing facility and future orchards; if additional material is available, the additional 1,000 acres of contract growers will receive compost as well.

### **3.6.1 Material Handling**

Because the composting will be conducted during a relatively short window, a few days of mixable materials will be stockpiled in the weeks prior to harvest. Mix materials will be delivered via truck off of County Road 35 and stockpiled in or near the “mix area.” A separate entrance/exit will be developed for compost feedstocks. The driveway will be designed per Glenn County standards and paved to accommodate large equipment and trailers. If necessary, the mix materials will be covered prior to use. Mix materials planned for use are not anticipated to be pretreated prior to mixing.

California Olive Ranch anticipates using orchard trimmings generated from the annual pruning of olive orchards as part of the compost mix. These trimmings will be generated from the olive orchards adjacent to the processing facility. These materials will be stockpiled at the compost facility as they are generated June through August. The other materials planned for use will be delivered as needed during compost mixing with the exception of the few days of stockpile material addressed above.

Mix materials will be delivered by end-dump trucks. The estimated number of trucks to deliver mix materials will vary with the weight and volume of material received, but is estimated to be 12 truckloads per day during composting, or a total of 1,220 truck trips over the estimated 100-day harvest window (September, October, November, and part of December). The maximum number of vehicle trips per day is 106, including six employee vehicle trips. In 2016, 1,700 truckloads of pomace were transferred to the Orland Airport. This amount is less than in previous years where the total number of truckloads of pomace exceeded 3,900. The pomace will no longer be transported offsite.

The material mixing area, where the dry material will be added to the pomace-filled mix truck, will be paved and have concrete push bins and walls to contain mix products. Wind screens will contain fine materials from blowing offsite.

### **3.6.2 Area Preparation**

The windrowing areas will be compacted to greater than  $1 \times 10^{-5}$  cm/sec and will have a minimum slope of 0.5 percent. Prior to harvest, the compost windrow area will be scraped and regraded to ensure proper drainage.

Soil samples were collected in December 2016. The samples were submitted to Material Testing, Inc., in Redding, California, for analyses for the following:

- ASTM D1557 (maximum density/optimum moisture);
- Remold two samples for permeability testing: one to 90 percent relative compaction and the other to 95 percent relative compaction;
- Permeability (ASTM 5084 or ASTM 2434) on each sample.

Results of the testing are included in Appendix C. The test results indicate that the onsite soils will meet greater than 2.35E-07 cm/sec hydraulic conductivity at 90 percent relative compaction.

### **3.6.3 Compost Mixing**

Compost will be mixed in truck-mounted feed-mix bins. Pomace will be fed into each mix truck from the existing hopper at the processing facility. The mix trucks will be driven to the mixing area where additional material will be added with a loader. The trucks will mix the material as they are driven and place the material along windrows. Once placed, the windrows will be turned with the compost turner. Moisture levels in the compost are monitored and managed to maintain approximately 50 to 60 percent moisture. Because the pomace itself has a moisture content of between 65 and 70 percent, most of the mix materials will be dry-source.

Water will be added as necessary to the windrows to maintain optimum moisture. The source of the water will be the existing well at the olive processing facility or pumpage from the bioswale or future wastewater ponds. The well is identified as DWR Well 39606N1222621W001. The water will be applied to the windrows by water truck with a specially designed boom.

Windrows will be turned initially every other day and slowed to once a week as the 90-day compost window comes to a close. Temperatures are monitored twice weekly in the initial phases of composting and weekly thereafter except during the pathogen reduction phase of production. During the pathogen reduction phase of production, temperature will be taken daily with one measurement taken for each 150 feet of windrow length, or fraction thereof. Temperatures will be taken at 12-24 inches below the surface of windrowed piles.

Because of the differences in bulk density and moisture content, the compost mix placed in the windrows will be approximately 60 percent of the volume of the separate mix materials. As the compost feedstock decomposes, the volume will decrease by an additional 25 percent. As this occurs, windrows may be combined together using the loader in order to maintain proper temperatures and moisture levels. This is because the larger piles have less surface area per unit of volume than smaller rows and the rows with lower surface to volume ratios are easier to manage with respect to moisture and temperature.

The composting process generally takes 90 to 120 days, dependent on weather. After the compost period has ended and the compost had reached the required 131°F for 15 consecutive days, the windrows are combined into large rows to await transport to the olive orchards. The material will be sampled for nutrient and metal content. Determining the required nutrient rates for application to olive orchards will be completed by a professional Certified Crop Advisor. Field application will follow protocols issued by the RWQCB and will not be located within 100 feet of water supply wells or in floodplain areas.

Application to the olive orchards will be completed using spreaders. The final composted product will be loaded either directly into spreaders or into end-dump trucks for transport to specific agricultural blocks as needed for field application. The compost will then be seeded with a cover crop.

### **3.7 Annual Survey/Grading and Inspection**

The site will be graded annually prior to the olive harvest and then surveyed. The grading and survey will ensure that the site drains stormwater properly. The results of the survey and documentation of preparation will be provided to the RWQCB and Local Enforcement Agency (LEA).

### **3.8 Site Restoration Post-Closure**

Site restoration would be performed in accordance with 14 CCR Section 17870. Written notice will be provided to the LEA of intent to perform site restoration at least 30 days prior to site closure and commencement of site restoration. Site restoration will be completed that is necessary to protect public health, safety, and the environment. Upon site closure, all feedstock and finished compost will be removed from the site. Any refuse will be transported to the landfill. Equipment will be cleaned and properly stored or removed from the facility.

The swales and drainage may remain as part of olive operations or be releveled. The site will be deep-ripped to remove the compacted barrier and releveled for use as agriculture crops.

## **4.0 FACILITY DRAWINGS AND IMPROVEMENTS**

### **4.1 Compost Area Design**

A site map of the facility is shown on Figure 4-1. Drainage and stormwater flow, including Best Management Practices (BMPs), are included on Figure 4-2. Because the facility will not use commercial fertilizers or additives, coverage under the General Industrial Stormwater Permit is not believed to be required. Run-on and runoff from the site are controlled by the completed site topography. All stormwater is designed to flow toward the east and center of the property and hence to the bioswale.

Current topography is shown on Figure 4-3. Completed site topography is shown on Figure 4-4. Cross-sections of the site are shown on Figure 4-5.

All drainage structures were designed to meet the 25-year, 24-hour storm event of 3.94 inches and an intensity of 0.154 inches per hour, based on data from the Orland Station. Calculation data are included in Appendix D.

The site will be compacted to meet the  $1 \times 10^{-5}$  cm/sec requirements for Tier II of the General Order for Composting Operations. Compaction testing showed the site soils can meet greater than  $1 \times 10^{-7}$  cm/sec hydraulic conductivity at 95 percent compaction. The site will slope at 0.5 percent to ensure that water is conveyed to drainage structures and that water flows off of the site away from the compost windrows. Windrows will be positioned parallel to the direction of water flow.

### **4.2 Water and Wastewater Management Plan**

#### **4.2.1 Precipitation Controls**

No covers or structures are planned for the facility. The mixing area and feedstock storage area will be paved and contain windscreens for blowing material. If necessary, feedstock storage piles prior to harvest will be covered. Late-harvest compost mix will be covered prior to windrowing.

#### **4.2.2 Containment Structures**

The mixing area will include concrete pushwalls to control blowing and movement of mix materials. Pomace will be loaded directly into mix trucks. Stormwater will be directed to a bioswale and hence to discharge. No detention pond is currently planned.

#### **4.2.3 Best Management Practices**

Best Management Practices (BMPs) to be used onsite include:

- Dust Blowing Material
  - Concrete pushwalls
  - Screens
  - Cover piles
  - Separate entrance off County Road 35

- Paved encroachment
- Water gravel roads
- Runoff Stormwater
  - Paved mix area
  - Modified topography to control run-on
  - $1 \times 10^{-5}$  compaction
  - Drainage structures with rock check dams
  - Tiered bioswale
  - Wattles and straw bales as needed
  - Annual regrade and surveying
- Erosion
  - Gravel access road
  - Rock slope of bioswale
  - Rock check dams in drainage structures

#### **4.2.4 Contingency Plans**

The goal of mixing pomace to compost is to reduce overall initial moisture. Currently, “almond trash” is the best ingredient to absorb moisture. It also is anticipated that almond trash quantities will continue to increase, as additional orchards come on line.

The contingency is to have backup sources of materials that can be purchased and shipped quickly, such as rice hulls.

California Olive Ranch plans to operate two mix trucks. One additional truck may be rented to cover downtime on primary equipment. Loaders and water trucks are available for rental as needed.

#### **4.2.5 Control of Run-On and Runoff from Working Surfaces**

The site topography has been modified to prohibit run-on. Runoff is controlled by topography and placement of windrows. Runoff flows toward the center of the site and hence to the bioswale (see Figure 4-2).

#### **4.2.6 Water and Wastewater in the Compost Process**

No process wastewater is anticipated to be generated at the site. Stormwater will be directed into drainage structures and conveyed via topography and drainage structures to a bioswale prior to discharge.

## **5.0 COMPOSTING FACILITY CONTROLS**

### **5.1 Leachate Control**

The site will be situated on a compacted soil pad with greater than  $1 \times 10^{-5}$  cm/sec permeability. The pad is on a 0.5 percent slope. The facility is sloped to drain into a bioswale. The surface water drainage system includes swales with check dams. The proper management of compost via turning and moisture management will limit the generation of leachate. Residual feedstock (of which none is planned) and mixed materials will be covered for storage during the period after November 1. Windrows completed prior to November 1 and composting through March will be monitored for leachate production. The heating of the windrow during the compost process should reduce the moisture in the windrow, including local precipitation additions. Leachate generation is not anticipated to be a problem at the site. Any leachate generated will be conveyed to the bioswale and stored through the winter season prior to being applied as compost water.

### **5.2 Groundwater Monitoring**

Groundwater monitoring is not anticipated to be required under this permit.

### **5.3 Drainage/Stormwater Control**

The site has been designed to drain into a bioswale. All stormwater generated is directed to this swale. The facility is not subject to the *General Permit for Stormwater Discharges Associated with Industrial Facilities* Order No. 2014-0057-DWQ, as no fertilizer additives are planned to be added. The swale has been designed to meet the 25-year, 24-hour storm per the General Compost Order requirements.

A small portion of the facility was located within the floodplain of Sheep Corral Creek. This area of the site will be regraded and fill added so that the elevation is no longer in the floodplain boundary. Due to topography and site design, no run-on to the facility will occur. Runoff is directed to drainage control structures that contain rock berms and vegetation to assist in filtering water before it enters the bioswale.

### **5.4 Nuisance Control**

The facility is located in a rural area surrounded by agricultural and pasture land uses. These uses are compatible with the compost operation. Adjoining properties are used for production of olives, walnuts, almonds, and pasture. The closest residence is located 1,000 feet from the site to the west. An additional residence is located 1,500 feet to the south of the site. The facility will have a 100-foot setback from the residence to the west and County Road 35 and will have vegetative borders on all sides of the operation.

### **5.5 Dust Control**

The mixing of compost to approximately 50 percent moisture limits the generation of dust from compost turning operations. To assist in control of dust from feedstocks during the mixing process, the mixing area includes windscreens and concrete pushwalls. A water truck will be

used to suppress dust on the unpaved roadway between the olive pomace source and the compost mixing area. The feedstock receiving areas are paved to reduce dust and mud.

In summary, control of dust will be accomplished by:

- Use of windscreens and pushwalls
- Avoiding mixing compost during high wind conditions (e.g., winds greater than 20 mph)
- Watering unpaved portions of the access road a minimum of two times per day
- Washdown of loading and mixing area if dust is an issue
- Covering of loads
- Retention of truck freeboard of 6 inches

Water at the site will be obtained from the onsite well or wastewater ponds.

## 5.6 Vector Control

The feedstocks to be used at the facility will not attract birds or rodents. Because the mixing is completed over a rather short harvest window, feedstock does not sit for long periods that will attract rodents or birds. The actual composting process is initiated shortly after feedstock arrival. Pomace is not stored in the mixing area or unmixed on the site where it would attract vectors. In the event rodents or birds are found to be an issue, flagging, tape, and sound guns can be used to reduce populations. Poison bait will be used as necessary, if needed.

Fly populations are controlled by the proper management and handling of feedstock materials and the frequent turning of the compost rows. The frequent turnings increase the windrow temperatures and do not allow flies to complete their lifecycle. To minimize the opportunity for breeding of flies, material is covered and moist areas minimized. Feedstocks are not stored over the season. Composting conducted during the summer will be completed similarly to their ongoing operation where feedstock is received and composting begun in a few days. Completed compost stored prior to application on COR orchards should not attract vectors. Storage periods will be short and the material will be applied as soil amendment shortly after composting is complete beginning in April. Following each compost cycle, the pad area will be backbladed to remove areas for water to pond and any residual compost. The site will be maintained always in a clean and orderly manner to limit possible vector issues.

Fly bait can be used during the warm summer months when they are more likely to be an issue. If populations are observed, chemical sprays will be used. Specific vector control actions include:

- No standing water on the site related to the composting facility
- Weeds and grasses will be cut to limit rodent habitat
- Manure and other fly-attracting materials will be tarped
- Manure will be brought onsite and mixed into the windrows just prior to commencement of the composting system
- The compost turning system will heat windrows to 140-plus degrees, which will kill fly larvae
- Direct mixing of pomace
- Short storage time for feedstocks

## **5.7 Litter Control**

Litter will be generated in the COR composting operations. The composting operation may include limited amounts of greenwaste. Greenwaste is the only feedstock used onsite that may contain a litter component. This component will be removed via hand.

## **5.8 Noise Control**

Due to the short harvest window at COR, the facility will operate 24 hours a day during the harvest period. The facility is located in a rural area with compatible land uses. Likely sources of noise are the delivery of feedstock by truck, driving of the mixing trucks and use of loader and turner onsite. Noise will be limited by the use of equipment in good working order and by the vegetative buffer around the site.

## **5.9 Odor Control**

California Olive Ranch has completed an Odor Impact Management Plan for the site, which is included in Appendix E. The only feedstock that will be used that has an obvious odor is the olive pomace. Because the pomace will be mixed as it is generated with the other feedstock materials in an approximately 50:50 mix, there should be limited odor.

## **5.10 Traffic Control and Impacts**

This project is designed to reduce the disposal requirements for olive pomace. Previously, 1,700 to 3,900 truck trips were required to dispose of the pomace at the Wilbur-Ellis facility. The number of trucks necessary to deliver feedstocks to mix with the pomace will be reduced from that number and is estimated at 1,220 per season, or approximately 12 per operating day. The trucks leaving the facility with completed product will be limited to the roads in and around the current COR orchard areas in “off” years and to other orchards in the North Valley when extra compost is available. The number of truck trips of finished product is estimated at 2,700.

The COR facility is anticipated to have three employees per shift, resulting in six additional roundtrip vehicle trips per day. The employee vehicles will park adjacent to the COR vehicle maintenance building.

## **6.0 REPORTING REQUIREMENTS**

### **6.1 Final Construction Report**

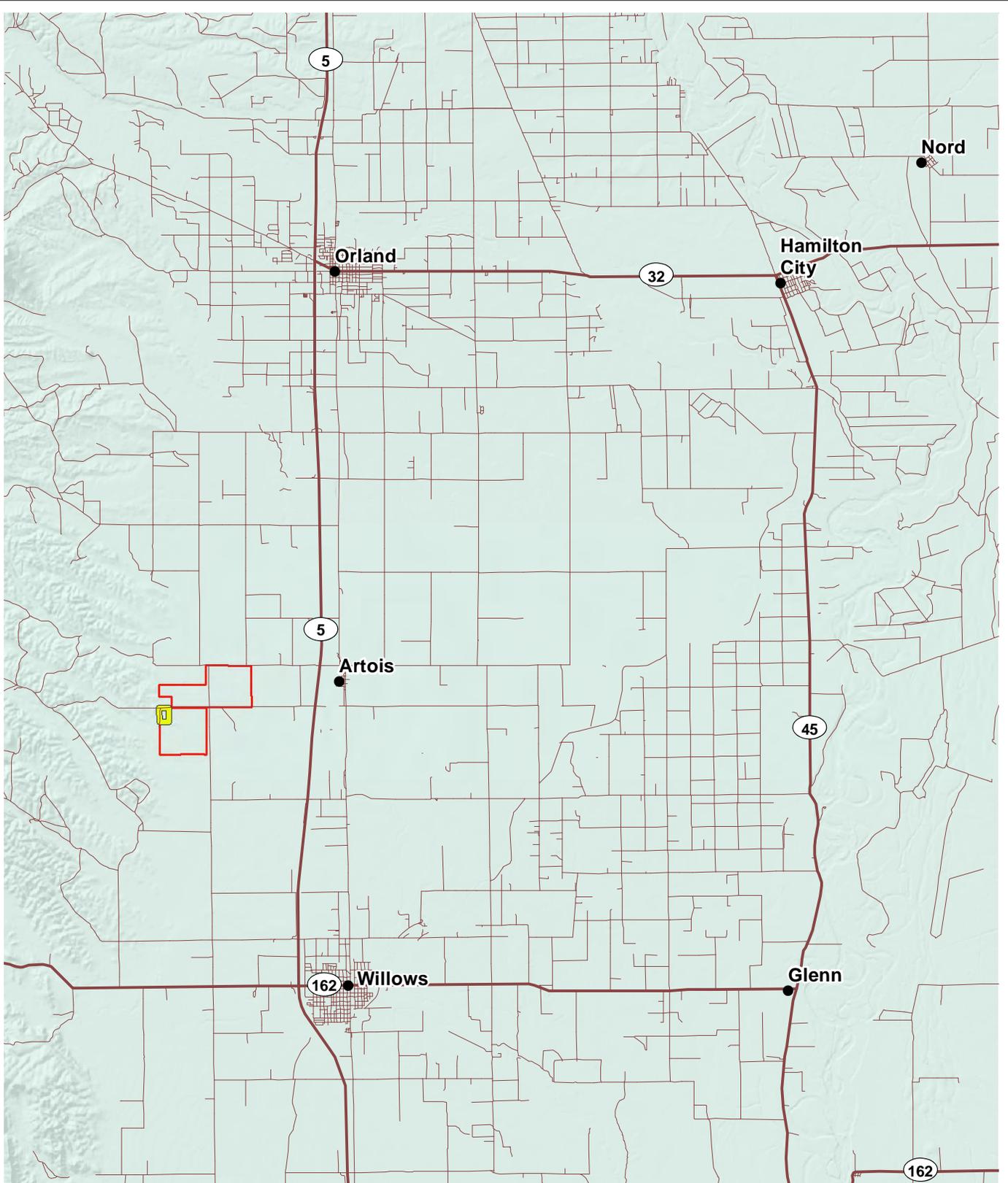
The final construction report will be submitted to the RWQCB and LEA within 60 days of completing all construction activities. The report will contain record drawings (as-built plans) and specifications to document that the containment structures and operating area were completed as proposed. This will include compaction testing results from the pad area and seam-sealing details from the pond installation.

### **6.2 Annual Monitoring and Maintenance Report**

The annual monitoring and maintenance report will be submitted to the RWQCB and LEA. The report must summarize all monitoring and maintenance activities performed and adverse conditions noted since the prior reporting period with respect to all berms, ditches, working surfaces, detention ponds, and monitoring systems. As part of the annual monitoring and maintenance report, the discharger must certify that the composting operation complies with the requirements of this General Order and applicable portions of the monitoring and reporting program.

This report is to be submitted by April 1<sup>st</sup> annually and must include the following certification:

“I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”



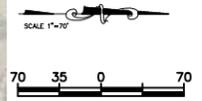
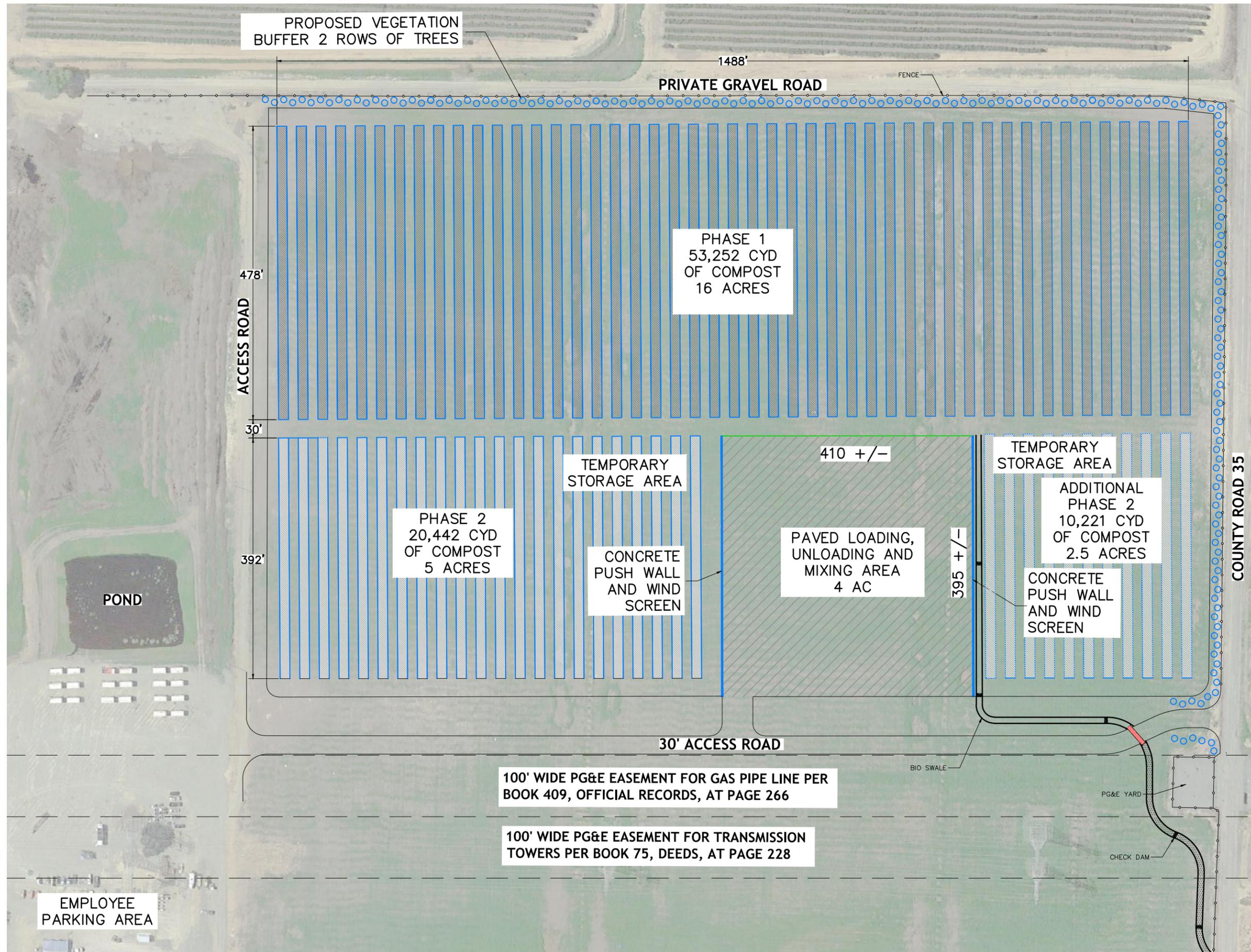
-  Proposed Compost Facility
-  California Olive Ranch Ownership



FIGURE 1-1A  
 SITE LOCATION  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA







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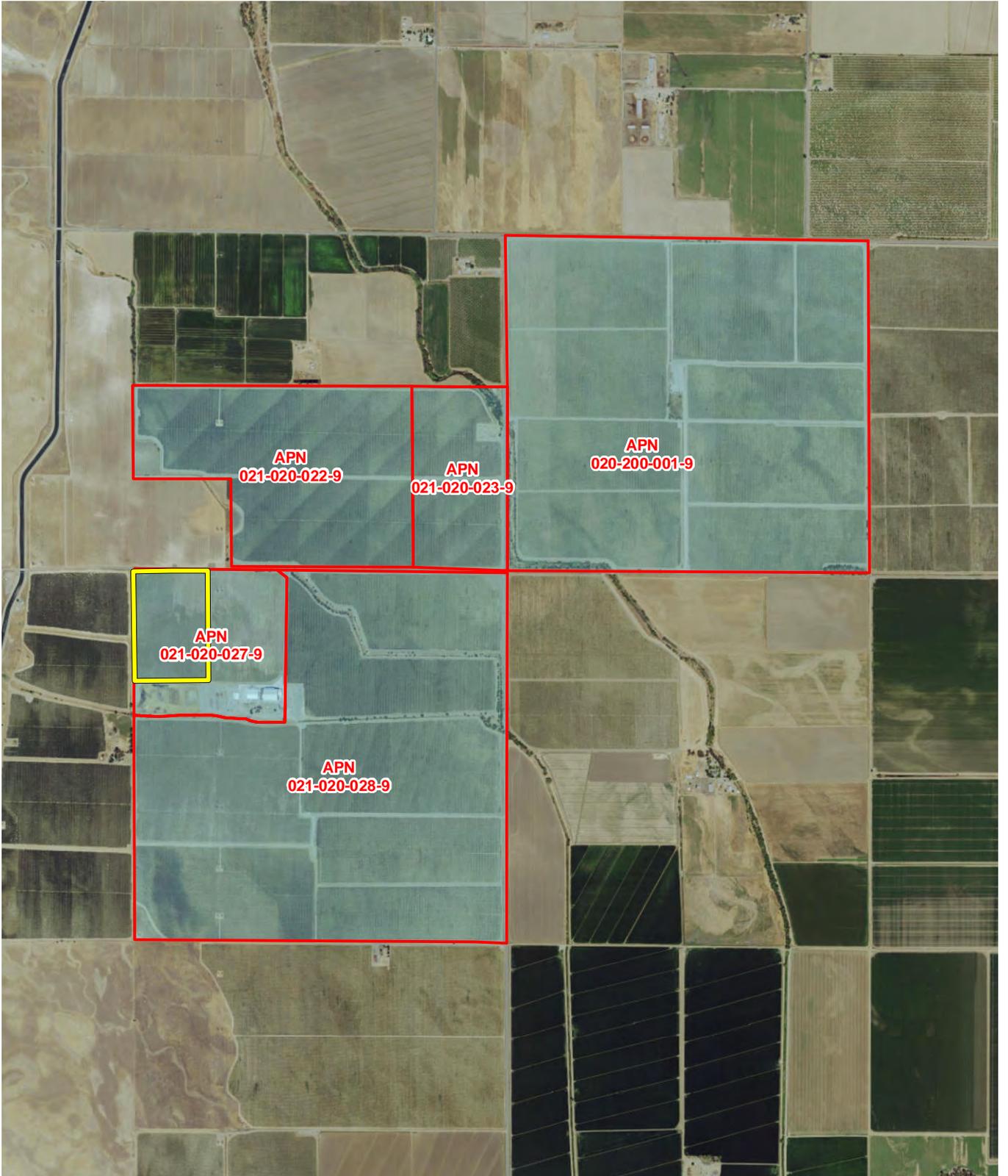
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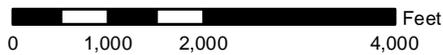
DESIGN: DR: BLG, CHK: SG, APVD: DR  
 CALIFORNIA OLIVE RANCH  
 PROPOSED SITE PLAN  
 GLENN COUNTY, CALIFORNIA

SHEET 1-2  
 DATE 2/8/17  
 JOB NO. 71630

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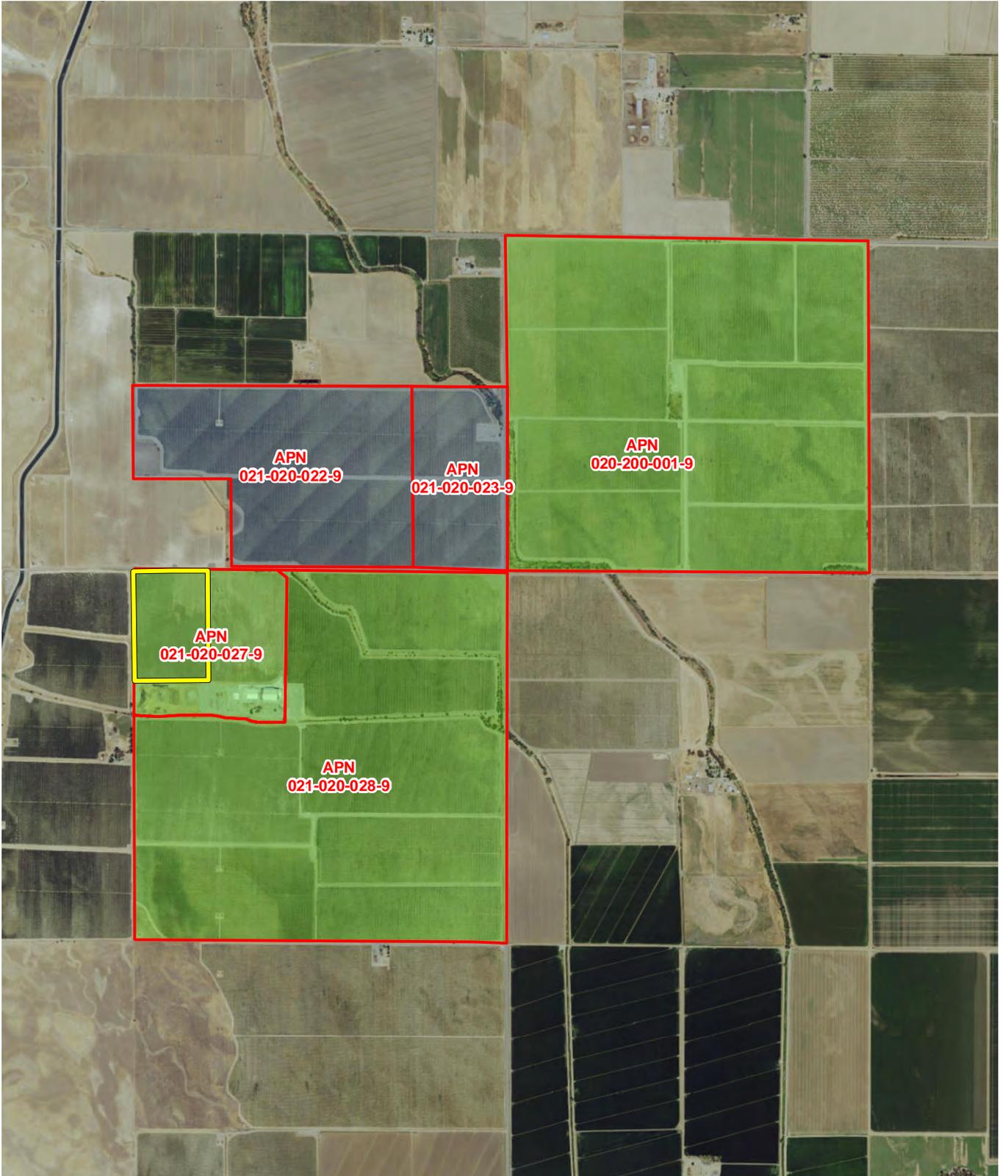


- Proposed Compost Trial Facility
- Intensive Agriculture



SOURCE: GLENN COUNTY 2016

FIGURE 1-3  
 GENERAL PLAN DESIGNATION  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



-  Proposed Compost Trial Facility
-  AE-40 (Exclusive Agricultural Zone - Minimum Parcel Size 36 Acres)
-  AP-80 (Agricultural Preserve Zone - Minimum Parcel Size 72 Acres)



SOURCE: GLENN COUNTY 2016

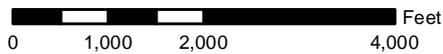
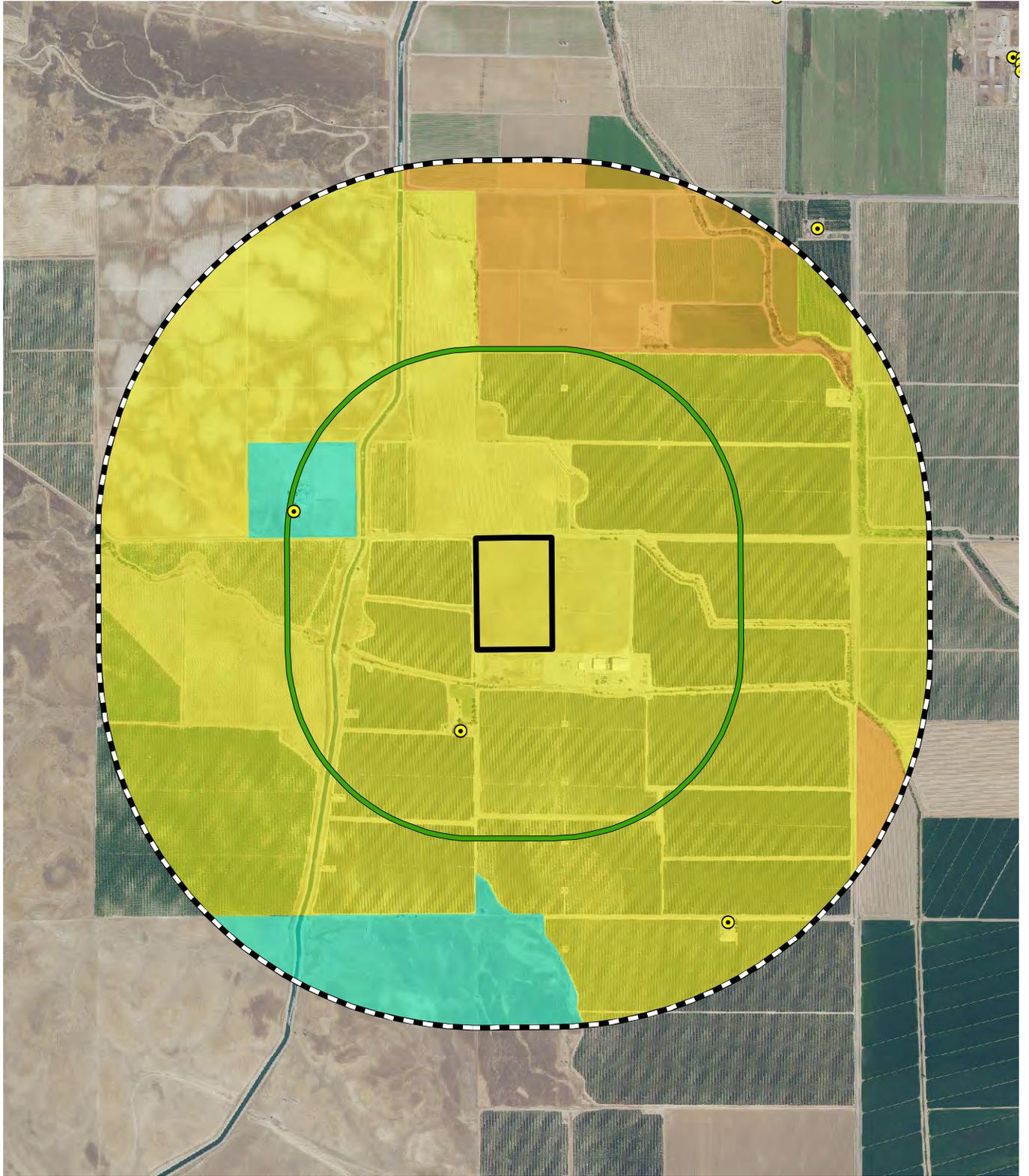


FIGURE 1-4  
ZONING DESIGNATION  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA



-  Nearby Residence
  -  Proposed Compost Facility
  -  0.5-Mile Buffer Around Proposed Compost Trial Facility
  -  1-Mile Buffer Around Proposed Compost Trial Facility
-  Grazing
  -  Rice
  -  Trees



SOURCE: USDA NAIP 2014 AERIAL PHOTOGRAPH

  
**FIGURE 1-5**  
**RESIDENCES WITHIN ONE MILE**  
**AND SURROUNDING LAND USE**  
**CALIFORNIA OLIVE RANCH**  
**GLENN COUNTY, CALIFORNIA**

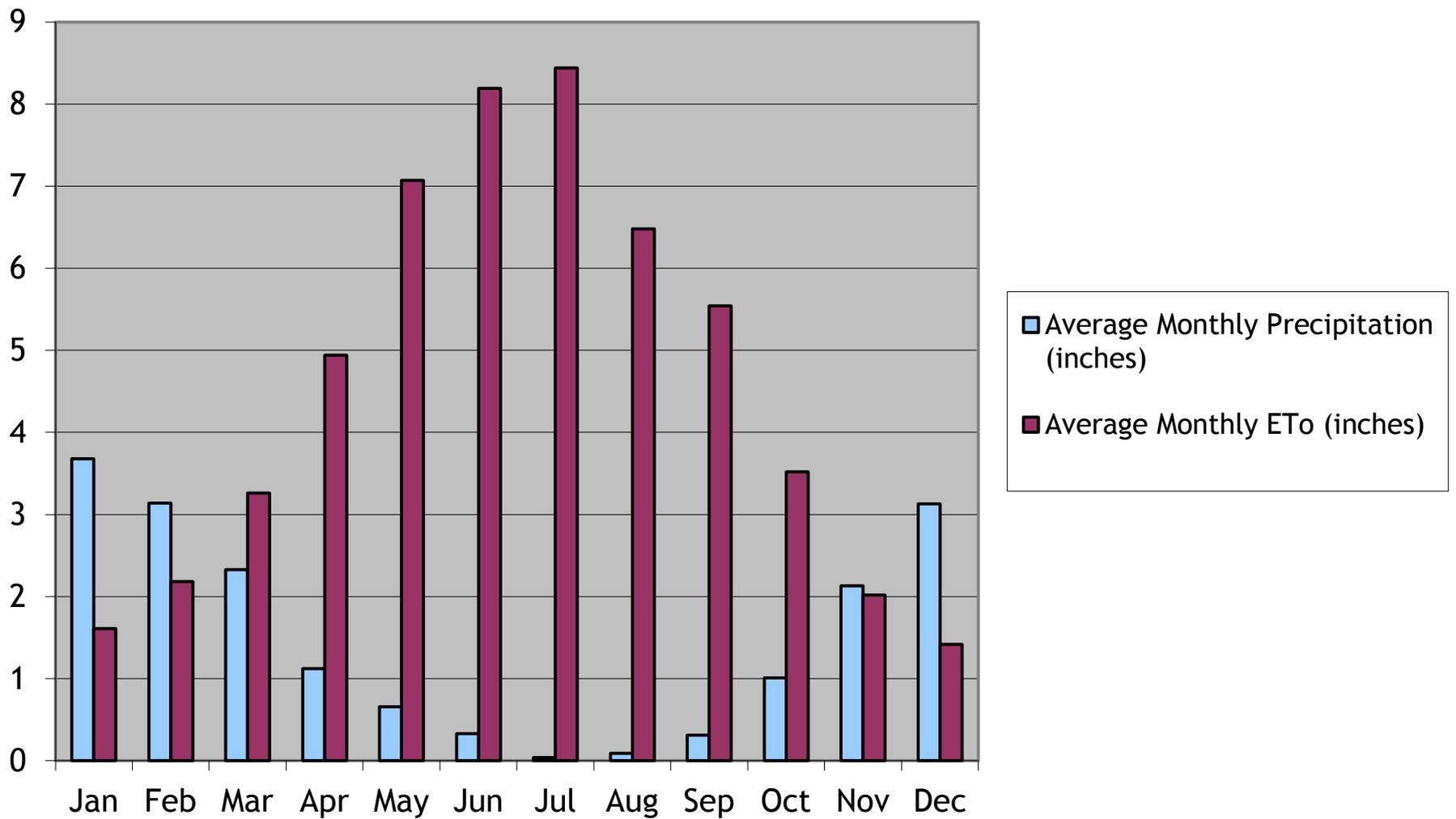


FIGURE 2-1  
 AVERAGE MONTHLY ETo  
 AND PRECIPITATION  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: PRECIPITATION - WILLOWS 6W WEATHER STATION 049699; ETo - GERMBER CIMIS STATION

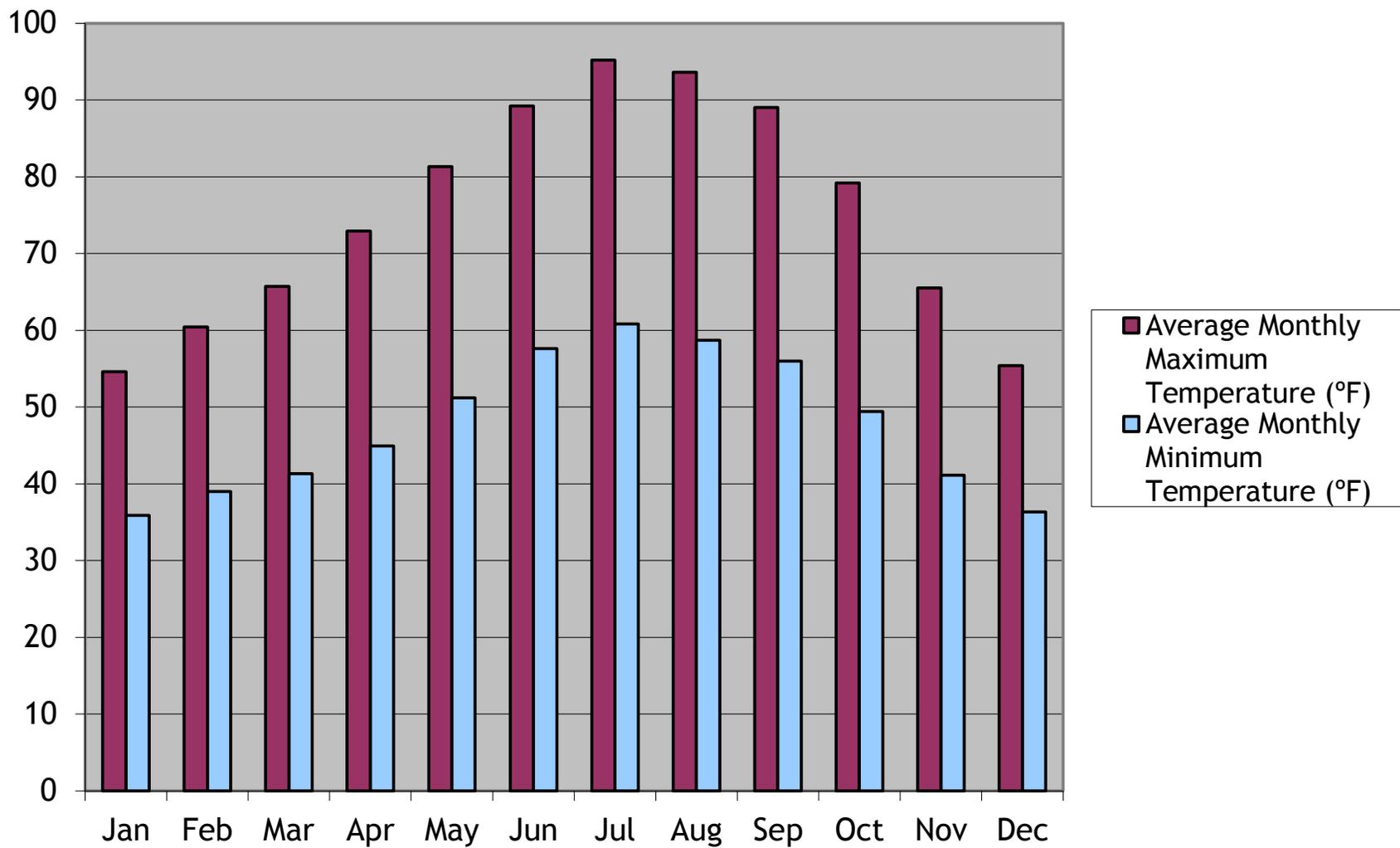


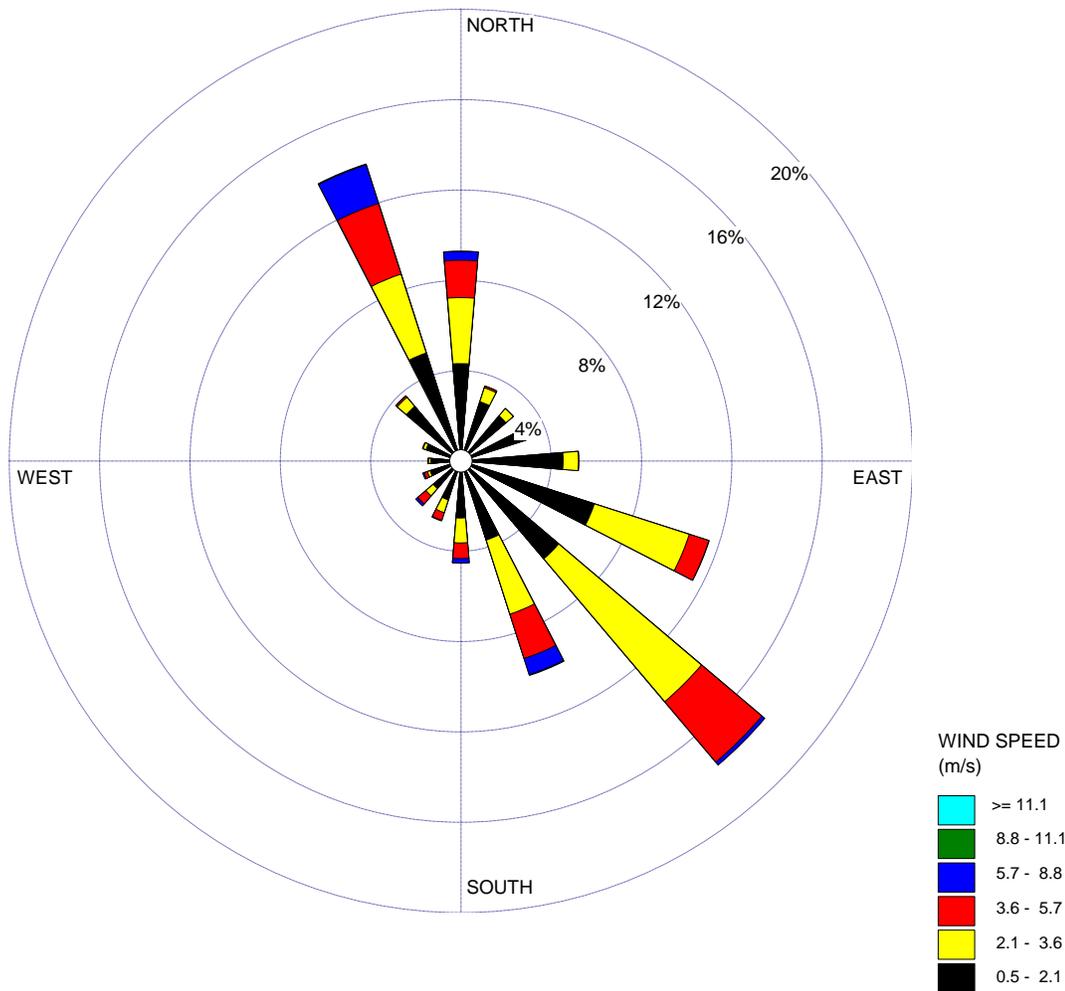
FIGURE 2-2  
 AVERAGE MONTHLY MINIMUM AND  
 MAXIMUM TEMPERATURES  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: WILLOWS 6W WEATHER STATION 049699

WIND ROSE PLOT:  
**Station #99032**

DISPLAY:  
**Wind Speed  
 Direction (blowing from)**

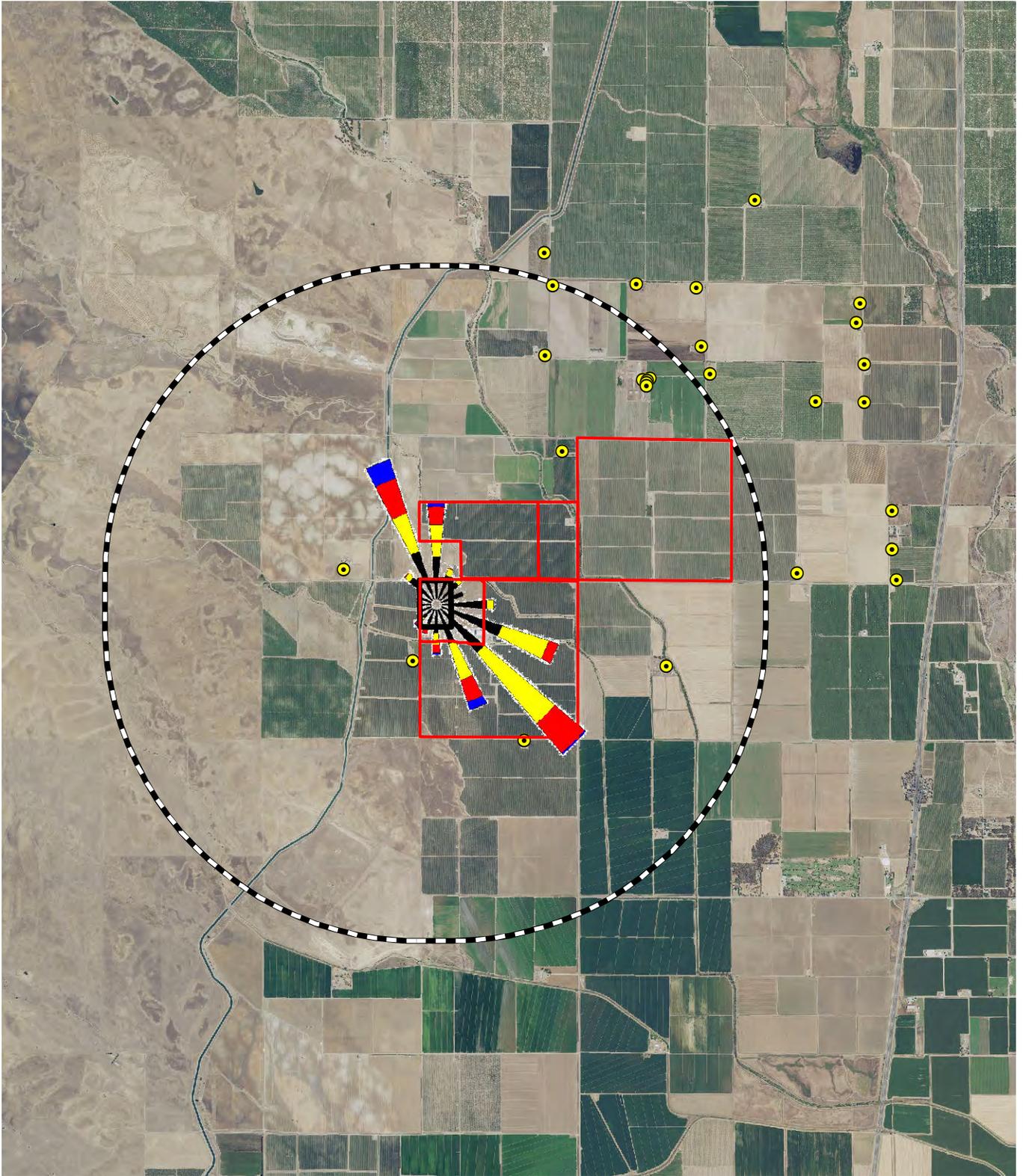


COMMENTS:	DATA PERIOD: <b>1993 1994 1996 1997 Jan 1 - Dec 31 00:00 - 23:00</b>	COMPANY NAME:	
	CALM WINDS: <b>3.93%</b>	MODELER:	PROJECT NO.: <b>993, 1994, 1996, 1997</b>
	AVG. WIND SPEED: <b>2.37 m/s</b>	TOTAL COUNT: <b>35064 hrs.</b>	

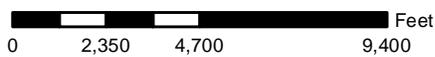
WRPLOT View - Lakes Environmental Software

**FIGURE 2-3A  
 WIND ROSE  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA**

**SOURCE: STATION 99032, COLUSA CIMIS STATION**



-  Nearby Residence
-  2-Mile Buffer Around Proposed Compost Facility
-  Proposed Compost Facility
-  California Olive Ranch Ownership



SOURCE: GLENN COUNTY 2016; FEMA 2014

FIGURE 2-3B  
NEARBY RESIDENCES  
AND WIND ROSE  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA

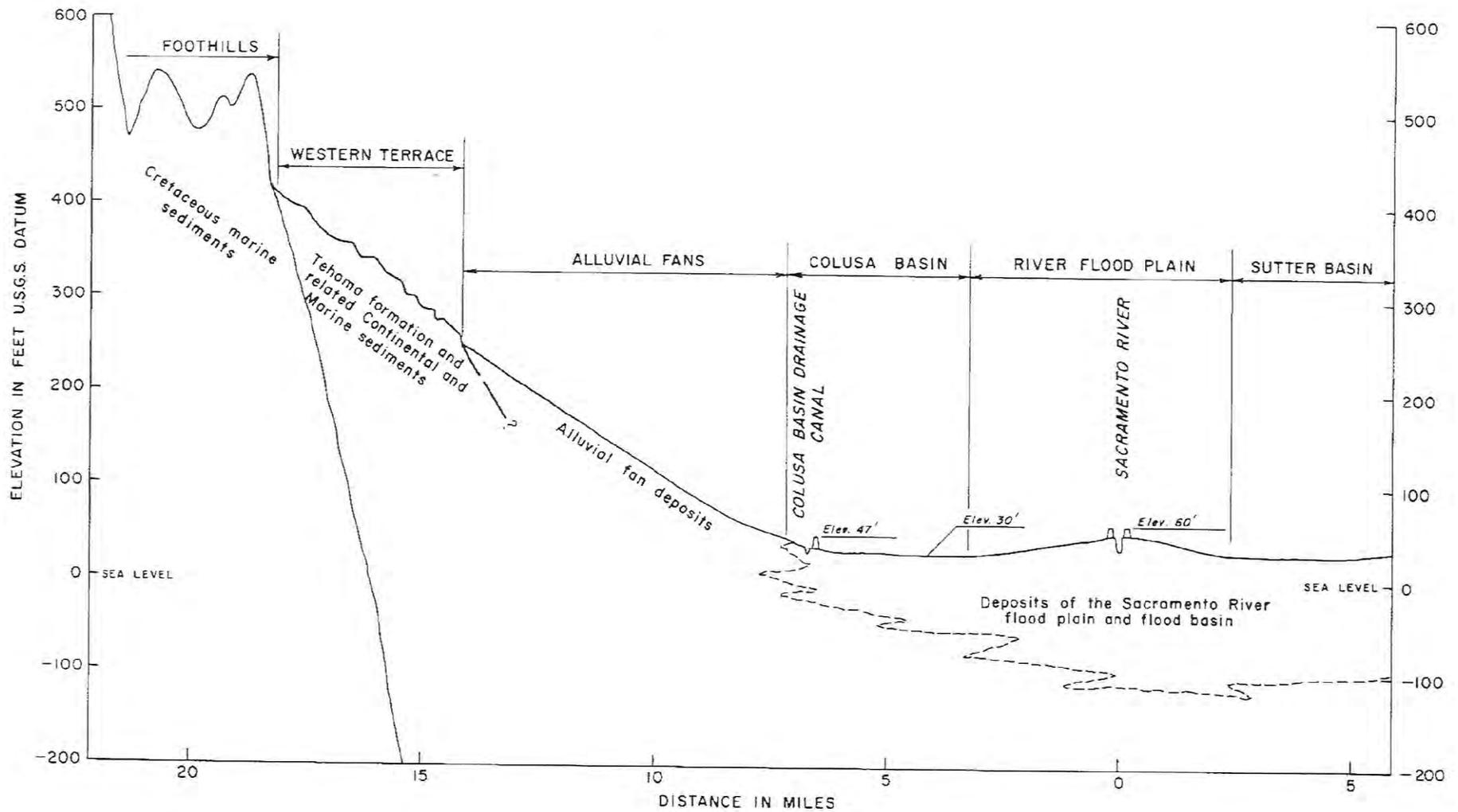
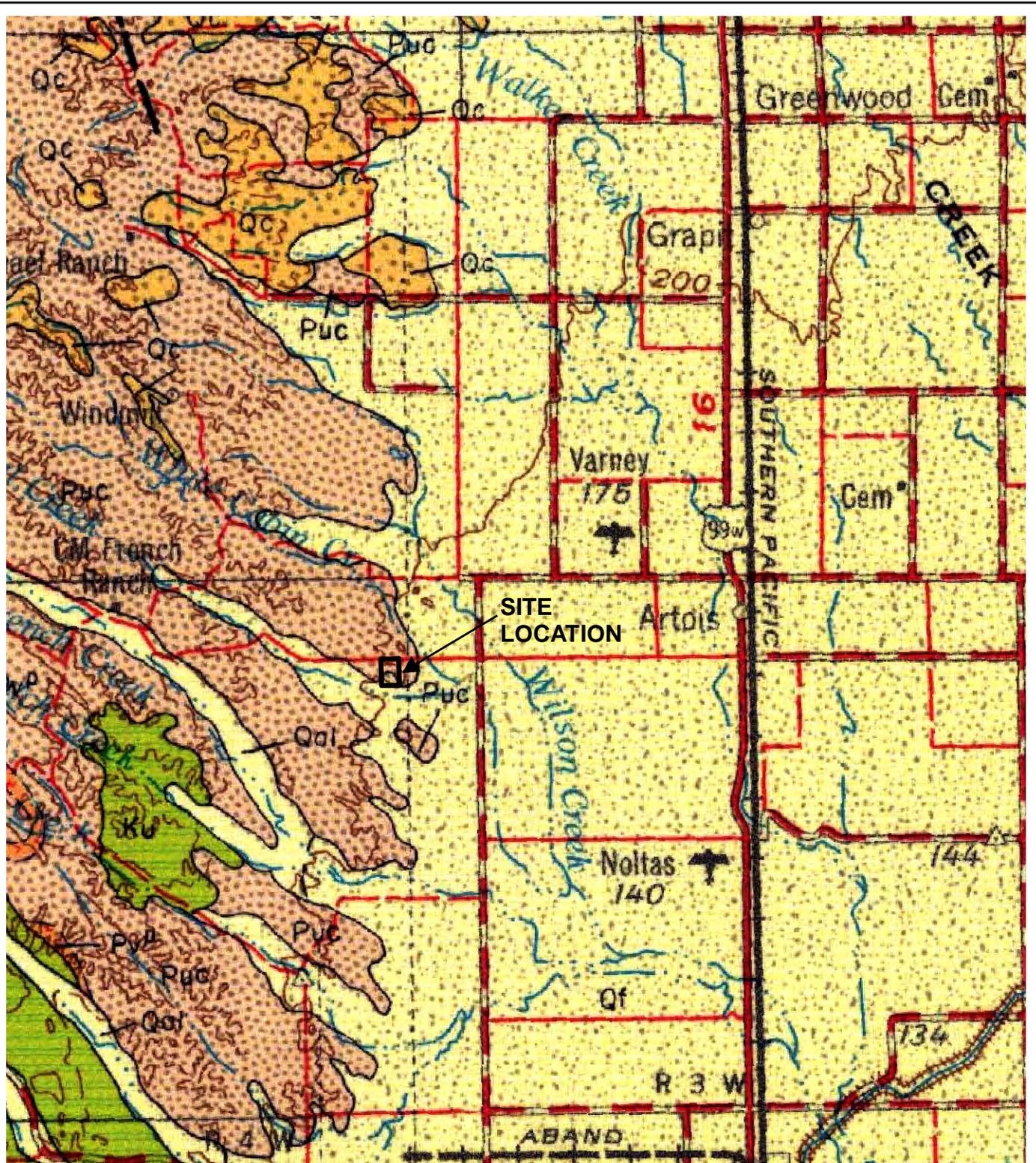


FIGURE 2-4  
 GENERAL GEOLOGIC SECTION  
 THROUGH THE COLUSA BASIN  
 WATERSHED NEAR GRIMES  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



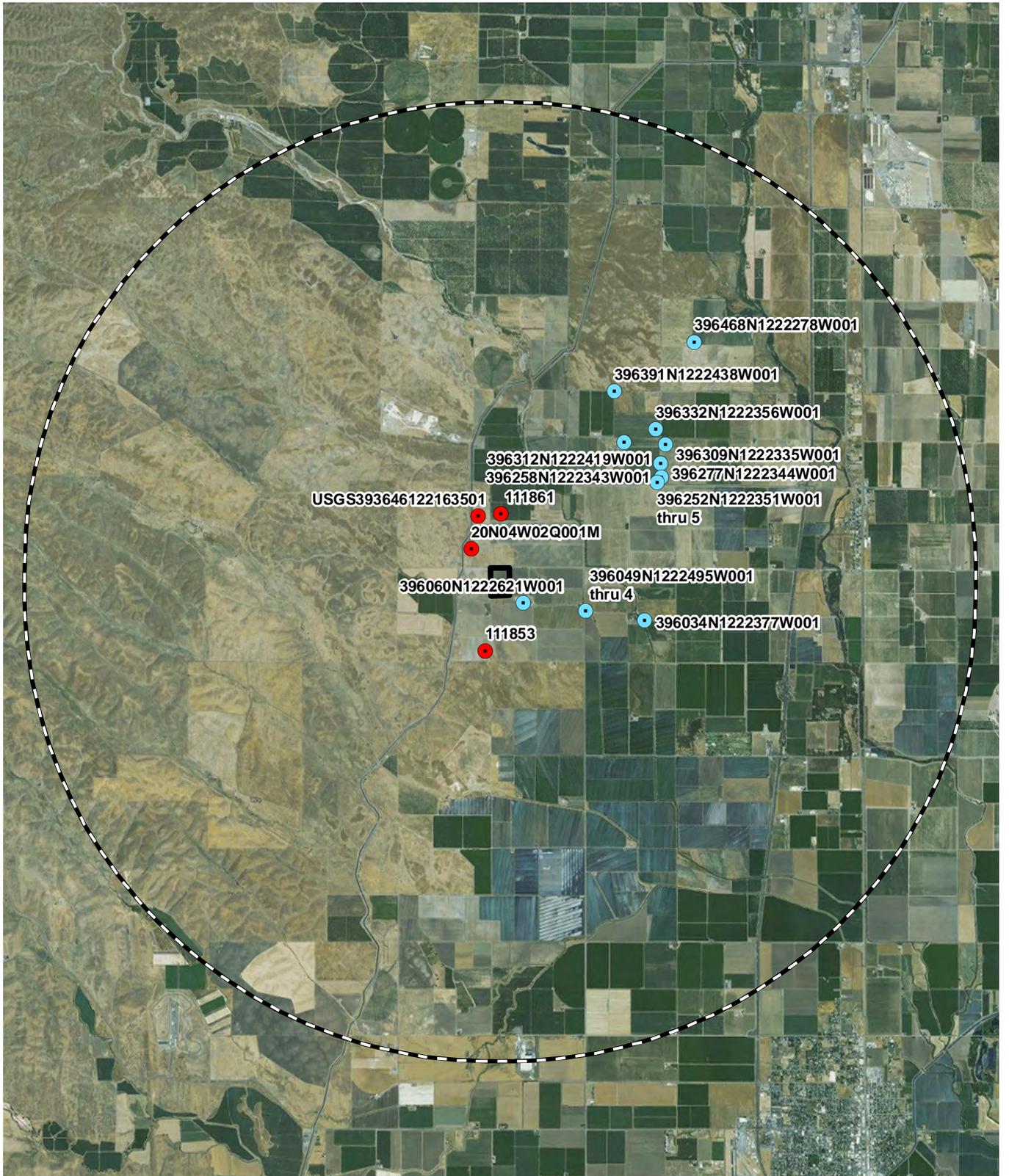
 Proposed Compost Facility

- Ku - Upper Cretaceous Marine
- Puc - Upper Pliocene Nonmarine (Tehama Formation)
- Pvp - Pliocene Volcanic Pyroclastic Rocks
- Qal - Alluvium
- Qc - Pleistocene Nonmarine



SOURCE: JENNINGS AND STRAND 1960

FIGURE 2-5  
GEOLOGY  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA



- Groundwater Elevation Level Well Location
- Water Quality Data Well Location
- ▭ 5-Mile Buffer Around Proposed Compost Facility
- ▭ Proposed Compost Facility

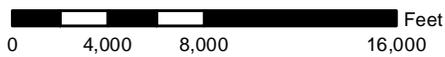
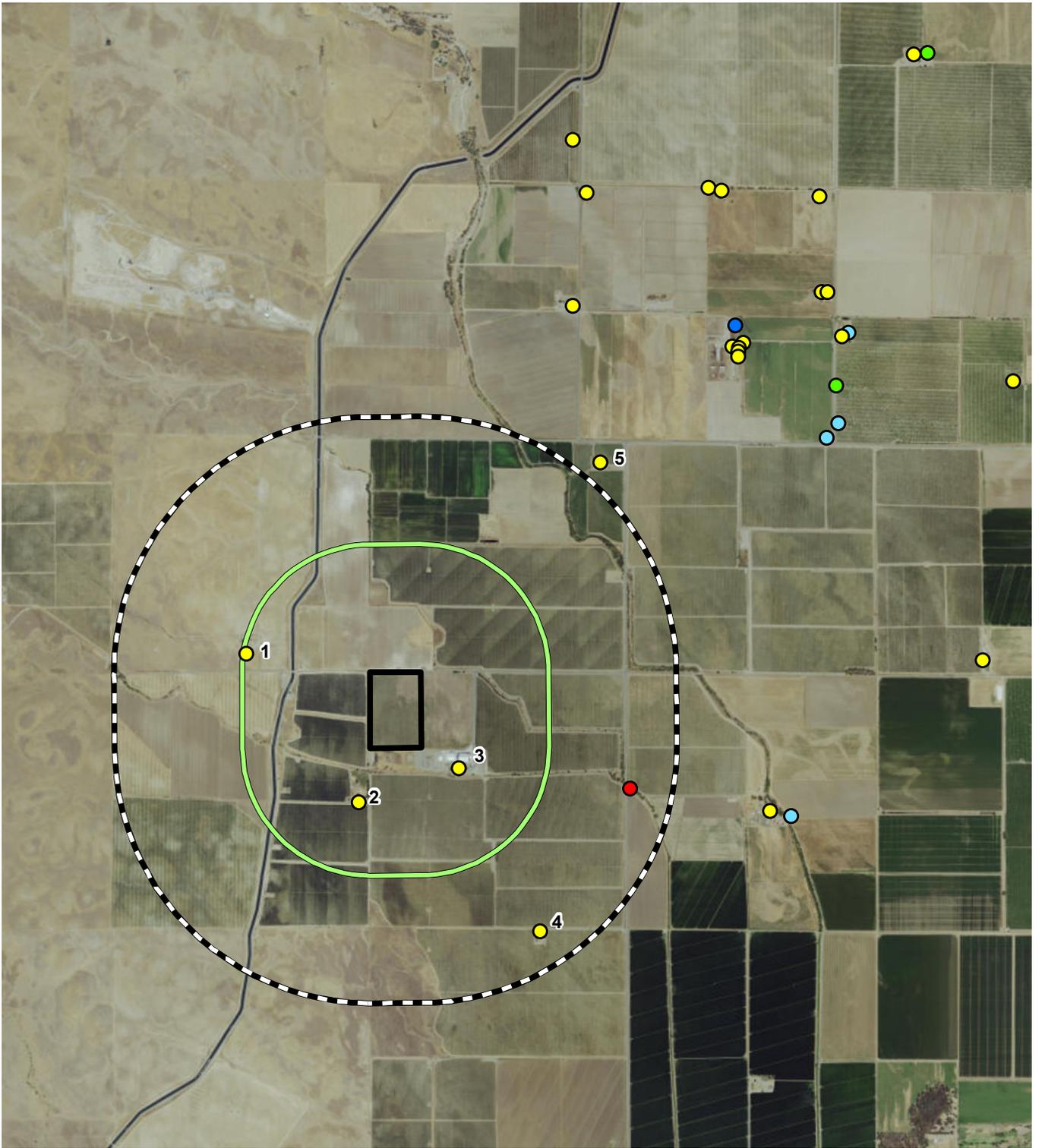


FIGURE 2-6  
 DWR WATER DATA LIBRARY  
 GROUNDWATER LEVEL WELLS  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

SOURCE: USDA NAIP 2014 AERIAL PHOTOGRAPH

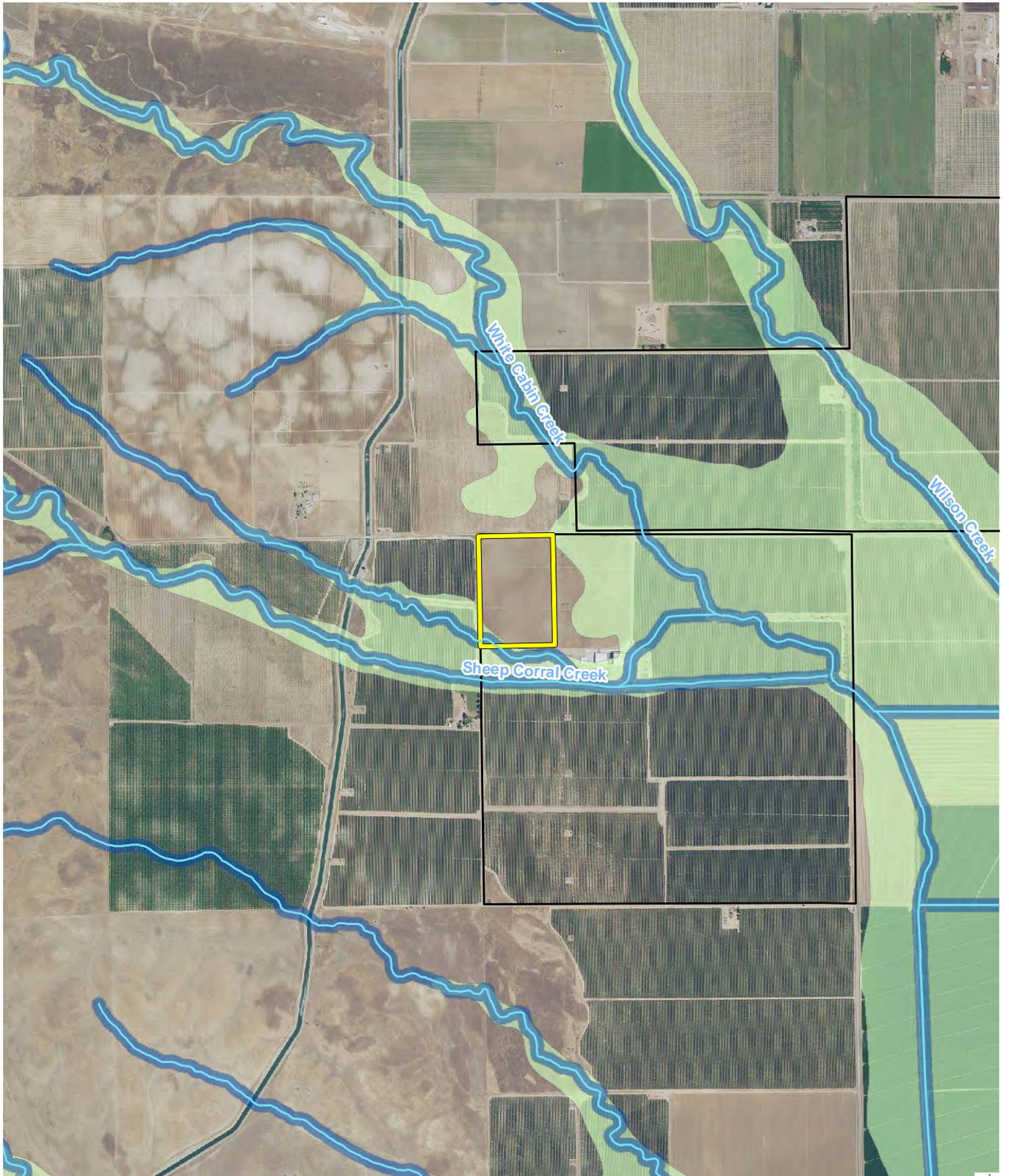


- Irrigation Well
- Observation Well
- Residential Well
- Stockwatering Well
- Unknown Well Type
- Proposed Compost Facility
- 0.5-Mile Buffer Around Proposed Compost Facility
- 1-Mile Buffer Around Proposed Compost Facility

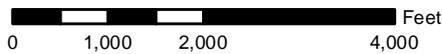


SOURCE: USDA NAIP 2014 AERIAL PHOTOGRAPH

**FIGURE 2-7**  
**WATER SUPPLY WELL LOCATIONS**  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

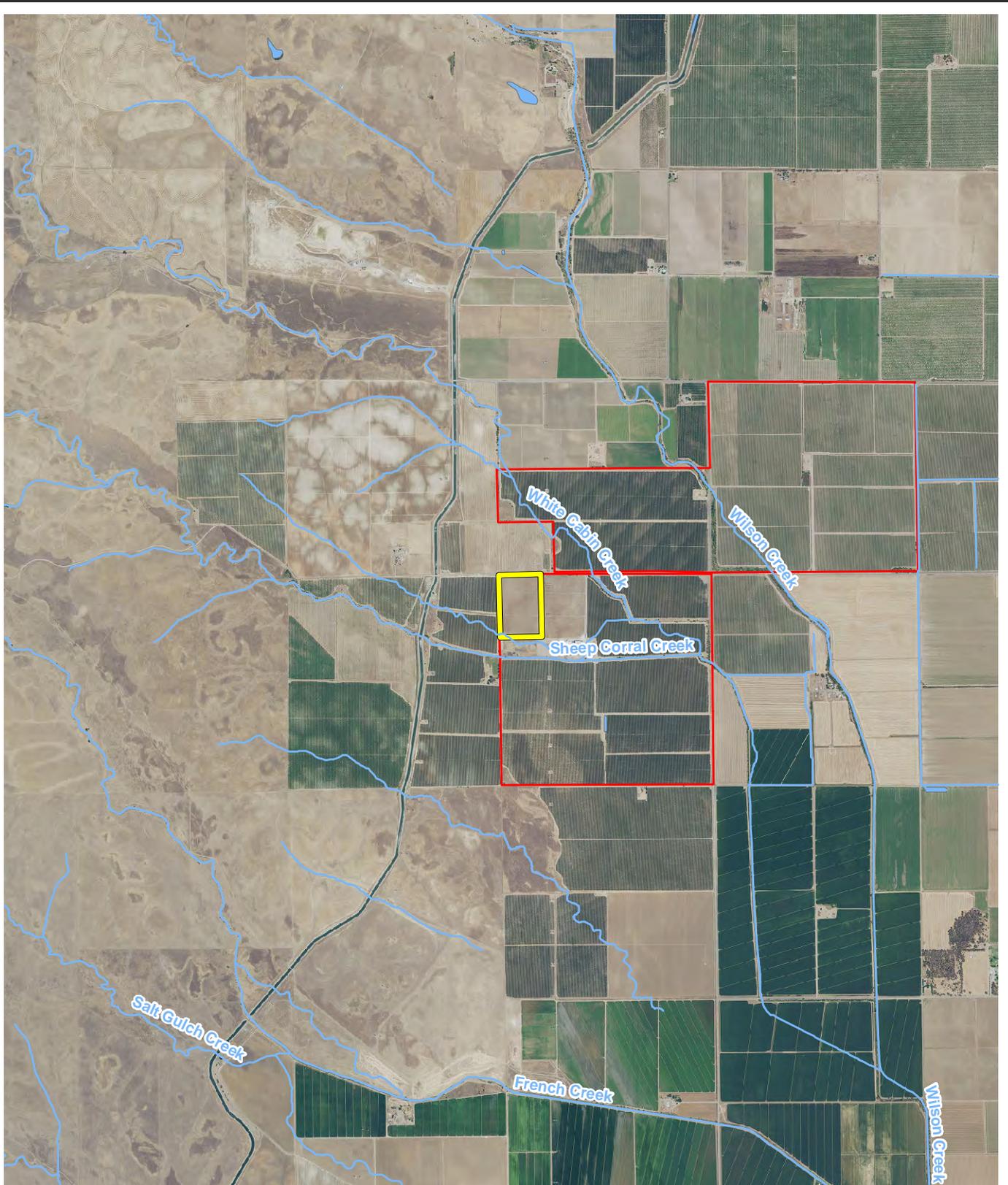


- Watercourse
- 100-Foot Buffer from Watercourse
- Proposed Compost Facility
- FEMA Flood Zone A - Area Subject to Inundation
- California Olive Ranch Ownership

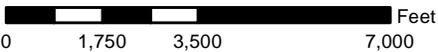


SOURCE: GLENN COUNTY 2016; FEMA 2014; DWR 2016

FIGURE 2-8  
 FLOODPLAIN  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA

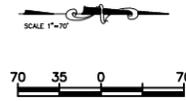
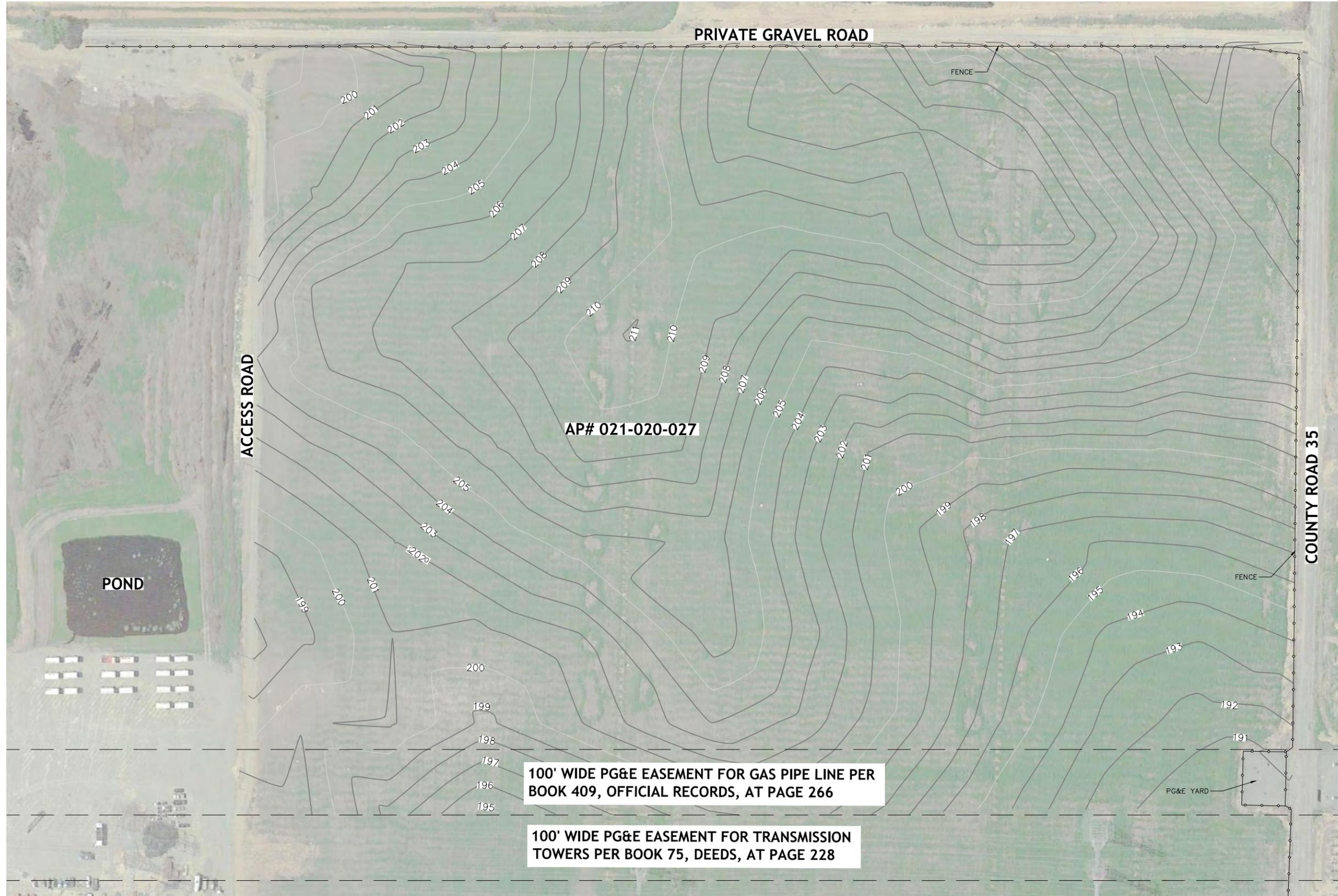


- Proposed Compost Facility
- California Olive Ranch Ownership



SOURCE: DWR 2016; USDA NAIP 2016 AERIAL PHOTOGRAPH

FIGURE 2-9  
 SURFACE HYDROLOGY  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



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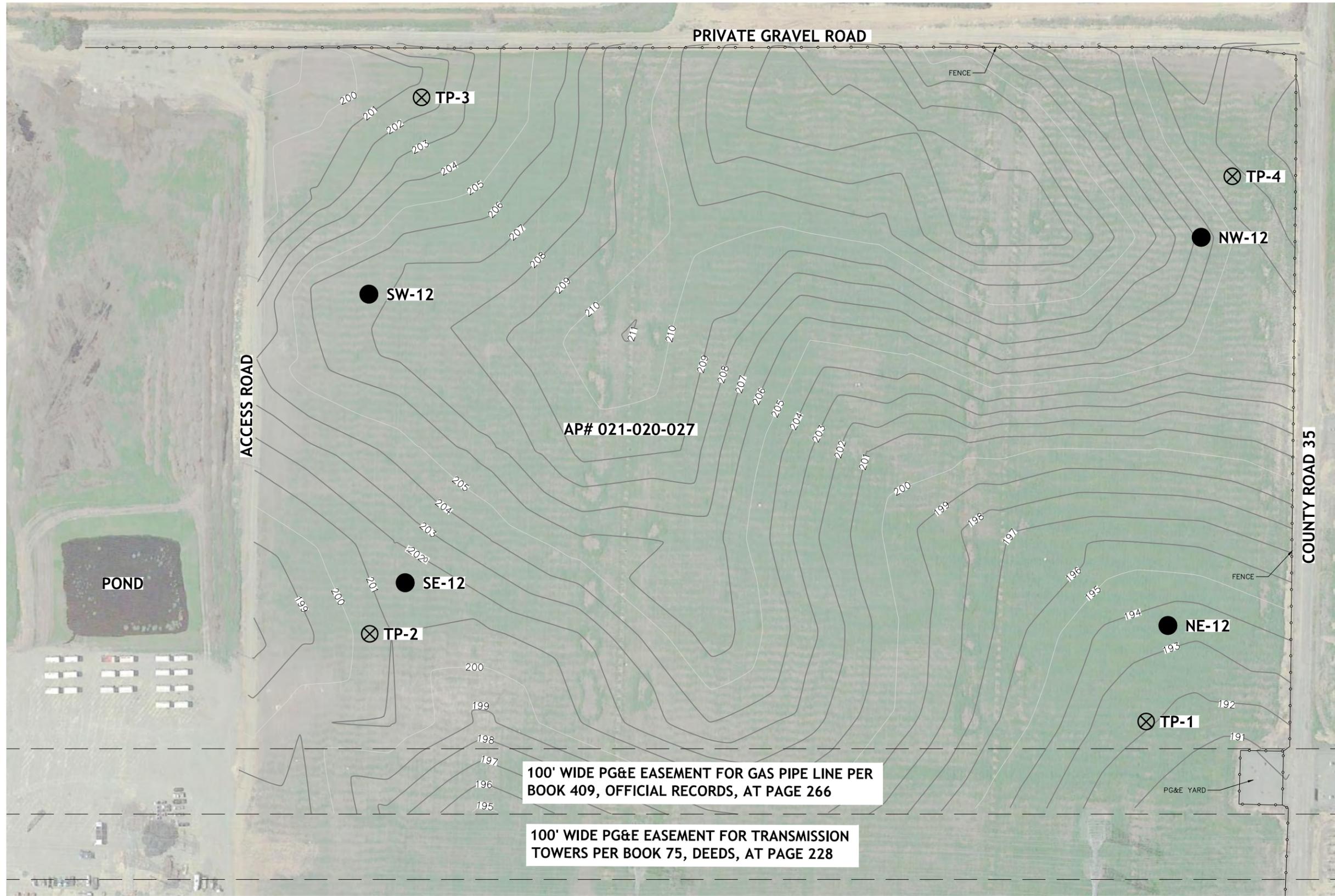
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 CHK: SG \_\_\_\_\_  
 APVD: DR \_\_\_\_\_

CALIFORNIA OLIVE RANCH  
 EXISTING TOPOGRAPHY  
 GLENN COUNTY, CALIFORNIA

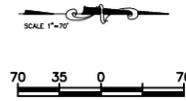
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100' WIDE PG&E EASEMENT FOR GAS PIPE LINE PER BOOK 409, OFFICIAL RECORDS, AT PAGE 266

100' WIDE PG&E EASEMENT FOR TRANSMISSION TOWERS PER BOOK 75, DEEDS, AT PAGE 228



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CALIFORNIA OLIVE RANCH  
 TEST PIT AND GEOTECHNICAL SAMPLE LOCATIONS  
 GLENN COUNTY, CALIFORNIA

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 DATE 2/8/17  
 JOB NO. 71630

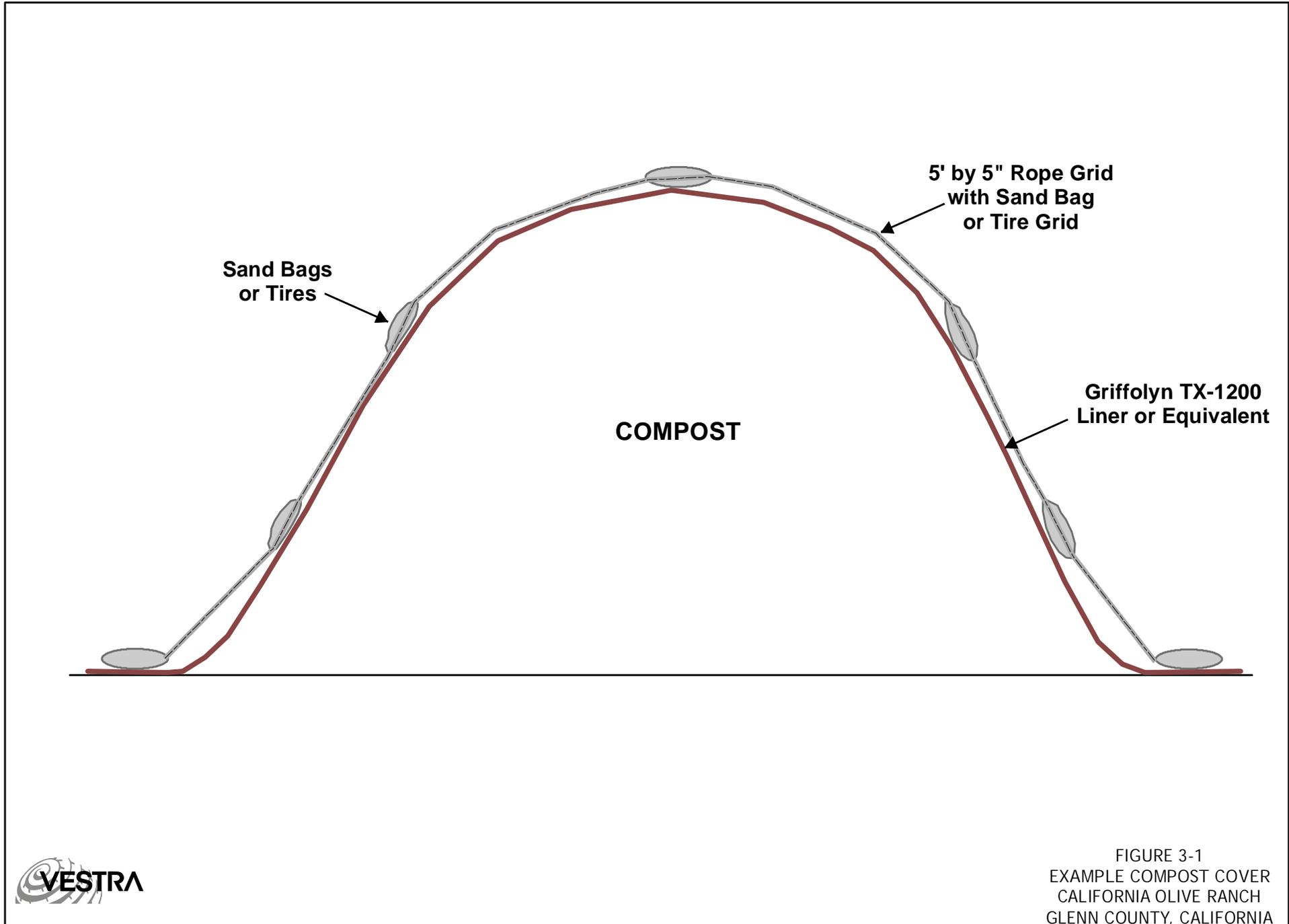
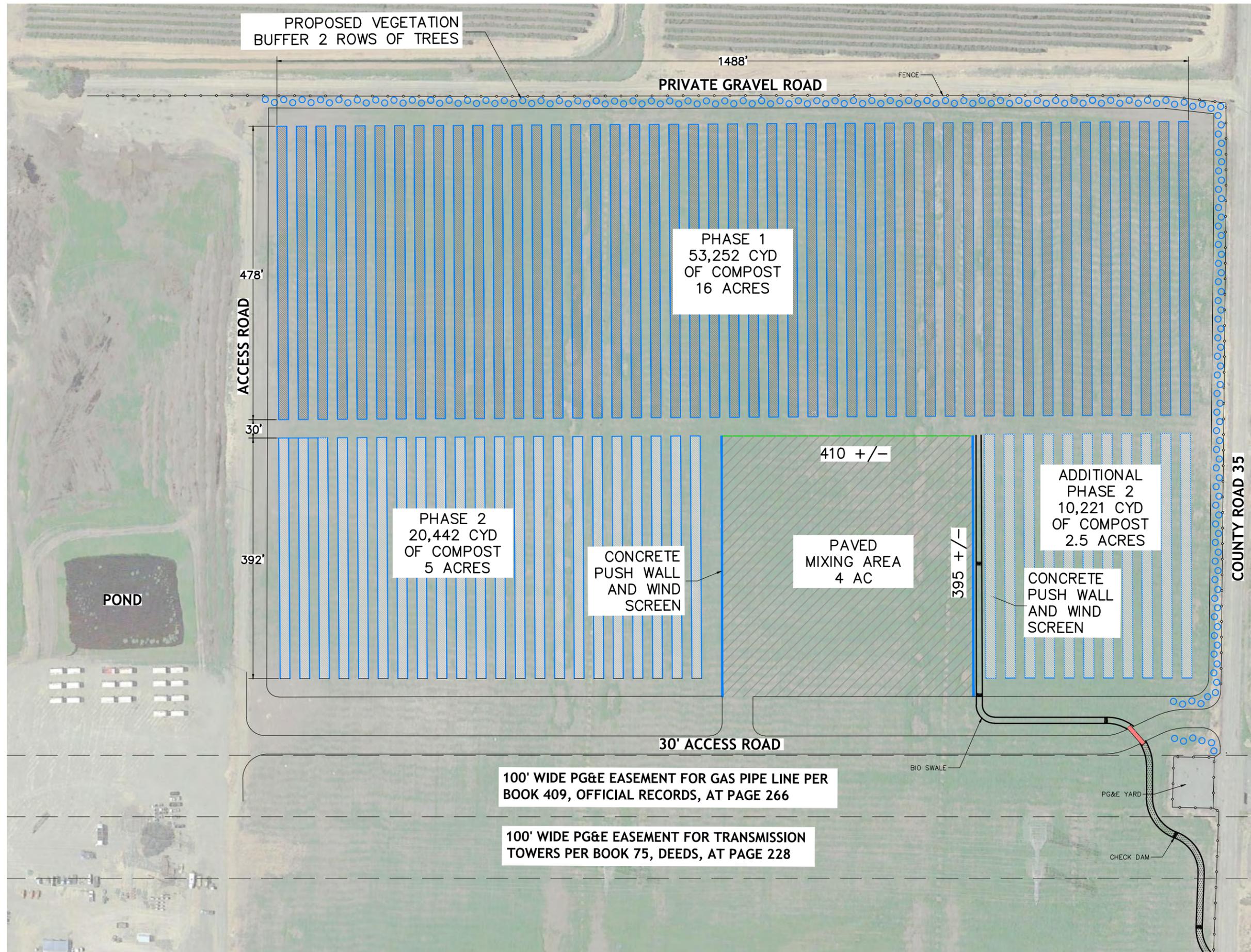


FIGURE 3-1  
EXAMPLE COMPOST COVER  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA



PROPOSED VEGETATION  
BUFFER 2 ROWS OF TREES

PRIVATE GRAVEL ROAD

PHASE 1  
53,252 CYD  
OF COMPOST  
16 ACRES

ACCESS ROAD  
478'

PHASE 2  
20,442 CYD  
OF COMPOST  
5 ACRES

CONCRETE  
PUSH WALL  
AND WIND  
SCREEN

PAVED  
MIXING AREA  
4 AC

ADDITIONAL  
PHASE 2  
10,221 CYD  
OF COMPOST  
2.5 ACRES

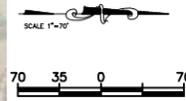
CONCRETE  
PUSH WALL  
AND WIND  
SCREEN

COUNTY ROAD 35

30' ACCESS ROAD

100' WIDE PG&E EASEMENT FOR GAS PIPE LINE PER  
BOOK 409, OFFICIAL RECORDS, AT PAGE 266

100' WIDE PG&E EASEMENT FOR TRANSMISSION  
TOWERS PER BOOK 75, DEEDS, AT PAGE 228



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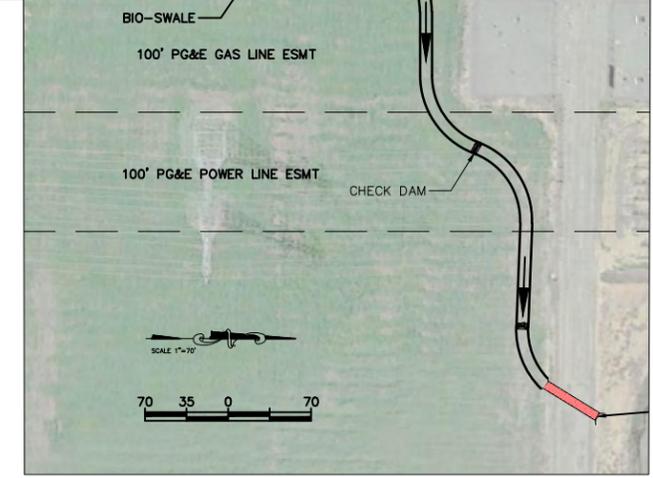
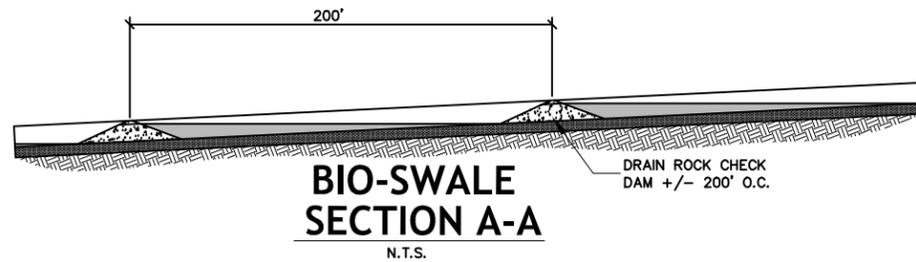
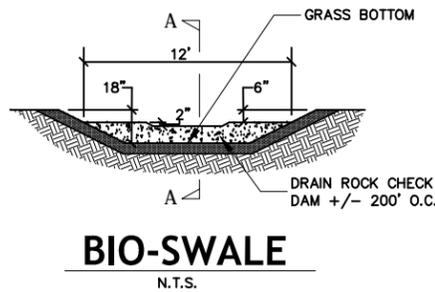
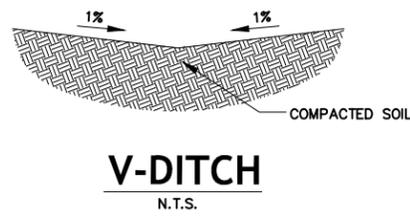
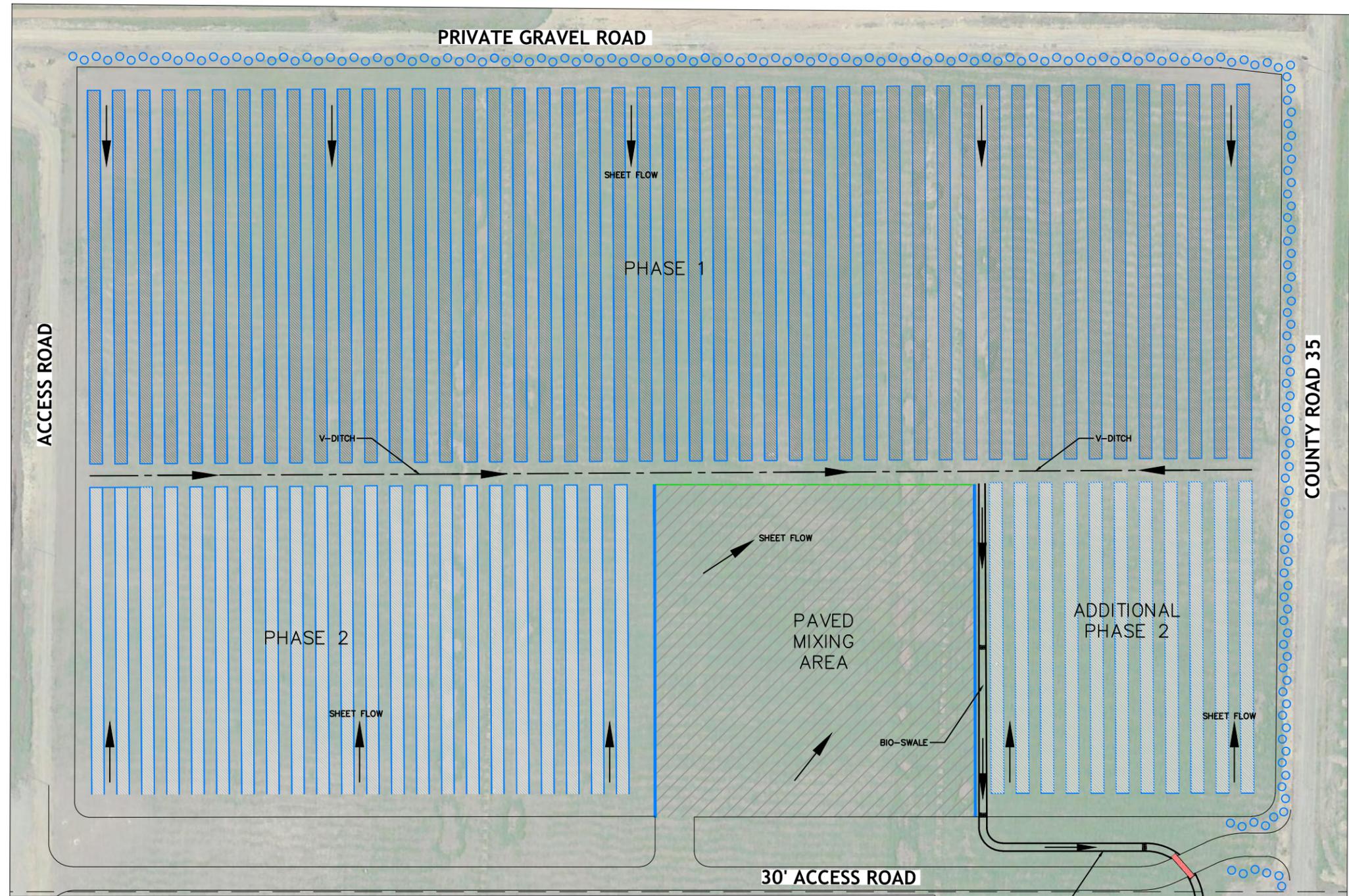
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 CHECKED: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_

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 PROPOSED SITE PLAN  
 GLENN COUNTY, CALIFORNIA

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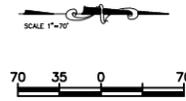
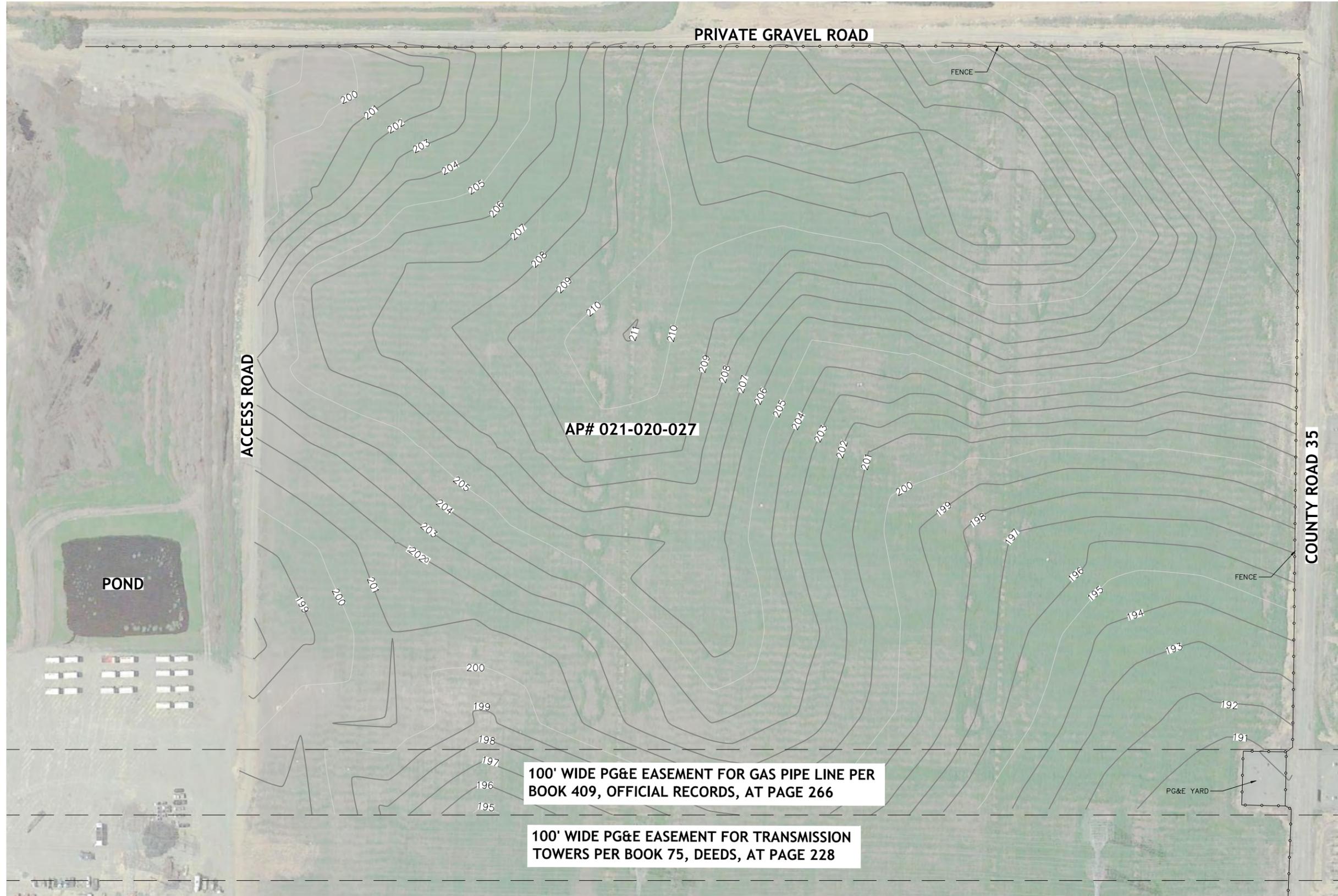
NO.	DATE	REVISION

DESIGN: DR: BLG CHK: SG APVD: DR

CALIFORNIA OLIVE RANCH  
 DRAINAGE PLAN - BMPs  
 GLENN COUNTY, CALIFORNIA

BY: 5300 AVIATION DRIVE - REDDING, CA 96002

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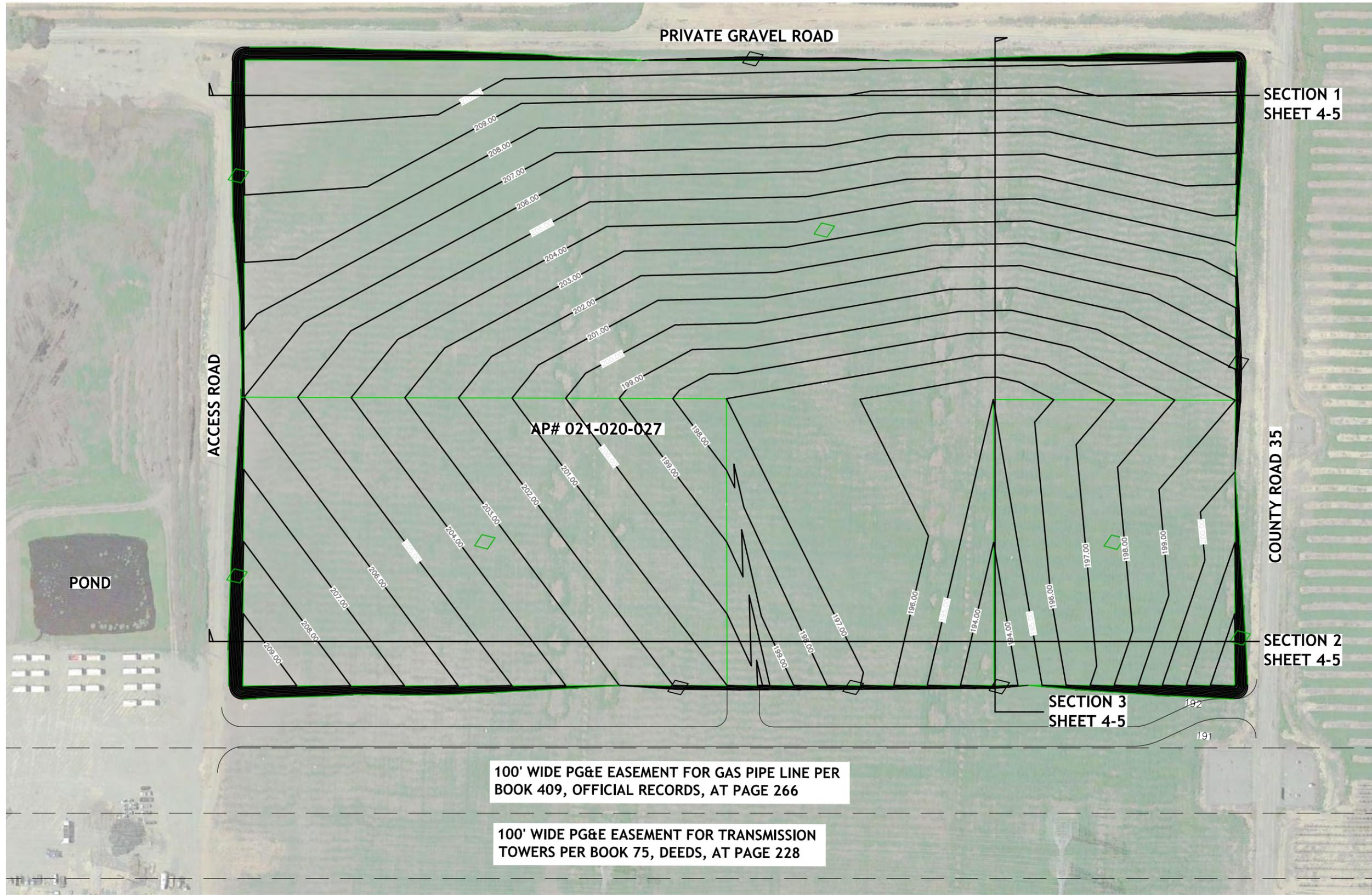
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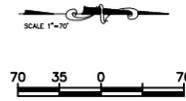
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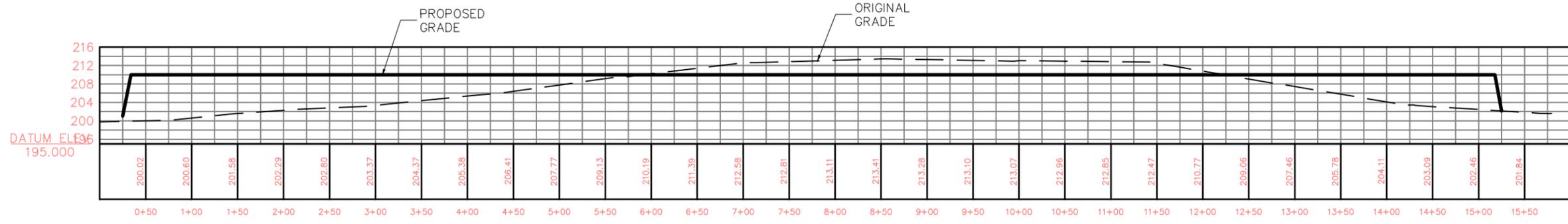
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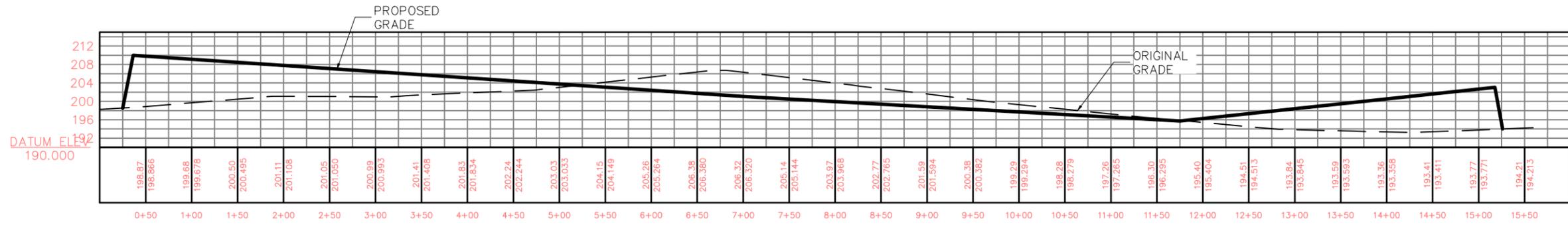
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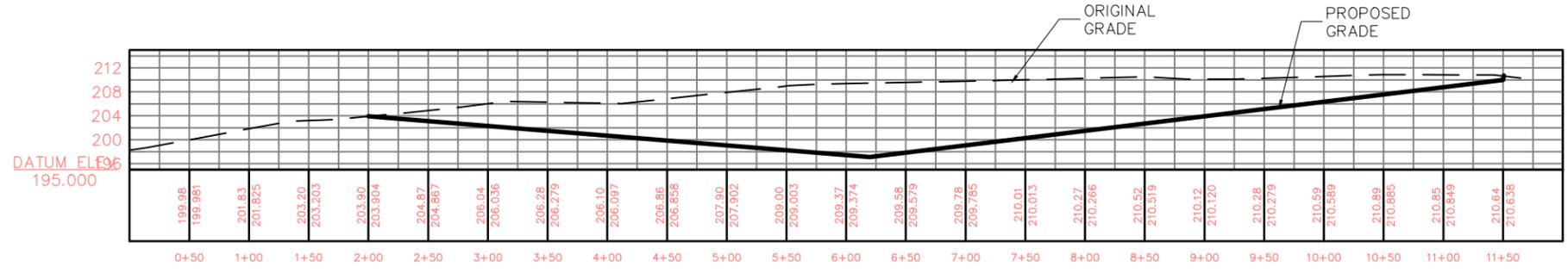
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**SECTION 1**



**SECTION 2**



**SECTION 3**

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CALIFORNIA OLIVE RANCH  
 CROSS - SECTION  
 GLENN COUNTY, CALIFORNIA

SHEET	4-5
DATE	2/8/17
JOB NO.	71630

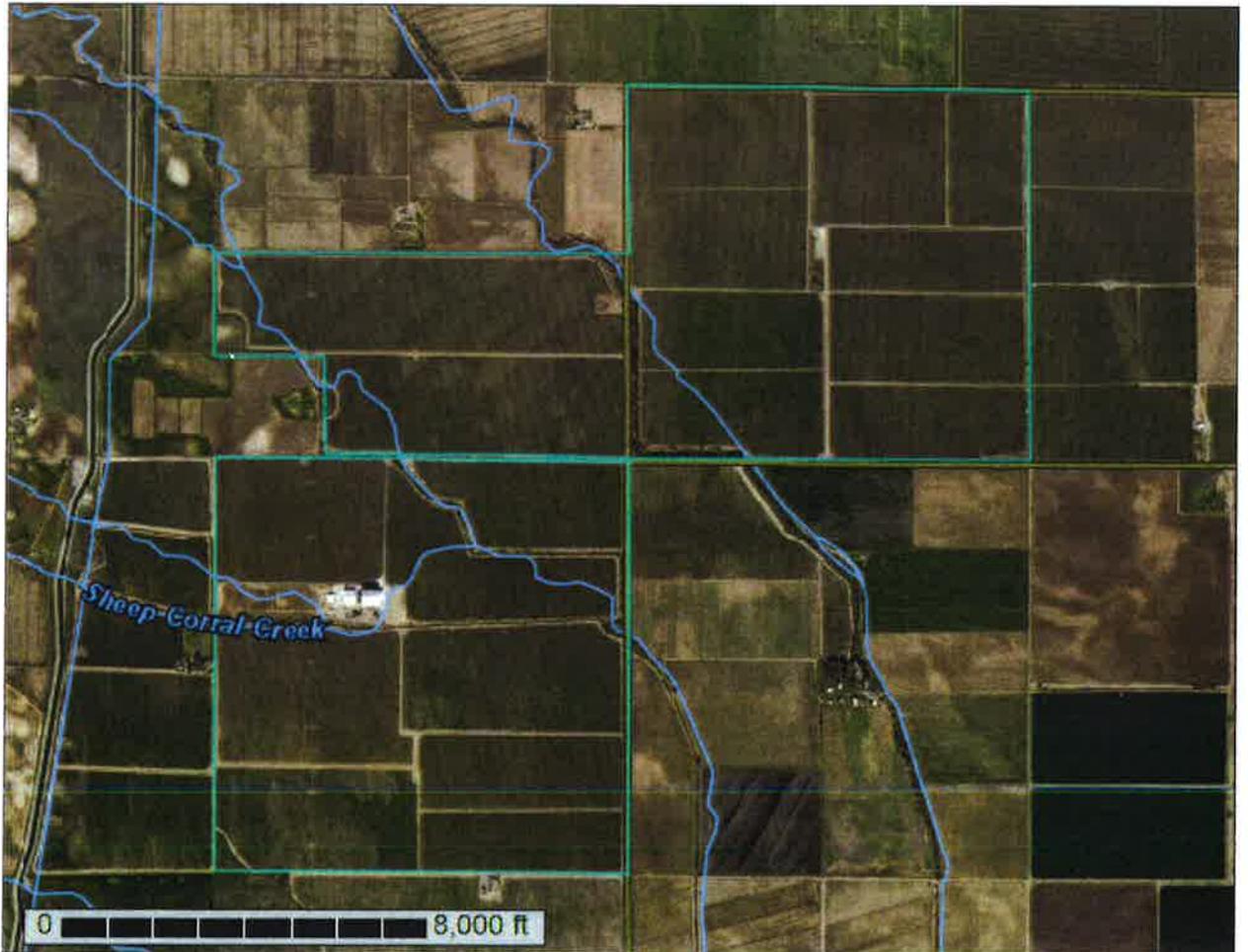




A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Glenn County, California

## California Olive Ranch



# Preface

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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 (<http://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](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.

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# How Soil Surveys Are Made

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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

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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

## 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 1:20,000.

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 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: Glenn County, California  
 Survey Area Data: Version 12, Sep 9, 2016

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

Date(s) aerial images were photographed: Feb 4, 2012—Feb 17, 2012

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 (California Olive Ranch)

Glenn County, California (CA021)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AaC	Altamont clay, 3 to 15 percent slopes	13.4	0.9%
AnC	Altamont-Shedd association, 3 to 15 percent slopes	78.6	5.3%
AoA	Arbuckle gravelly loam, 0 to 2 percent slopes, MLRA 17	4.9	0.3%
At	Artois loam	12.3	0.8%
Au	Artois clay loam	102.4	6.9%
Av	Artois gravelly loam	369.1	24.9%
Aw	Artois gravelly clay loam	104.8	7.1%
CaA	Capay clay, 0 to 2 percent slopes	448.1	30.3%
CwB	Corning gravelly loam, 2 to 8 percent slopes	28.5	1.9%
Czh	Cortina coarse sandy loam, MLRA 17	0.3	0.0%
Czr	Cortina very gravelly sandy loam, 0 to 3 percent slopes	79.6	5.4%
HgA	Hillgate loam, 0 to 2 percent slopes, MLRA 17	22.2	1.5%
HmA	Hillgate gravelly loam, 0 to 2 percent slopes	21.6	1.5%
Me	Maywood loam, shallow over gravel	0.2	0.0%
MzrA	Myers clay, 0 to 3 percent slopes	2.8	0.2%
NvC	Newville gravelly loam, 3 to 15 percent slopes	4.7	0.3%
Po	Pleasanton very gravelly sandy loam, 0 to 2 percent slopes	55.9	3.8%
Rh	Riverwash	16.4	1.1%
Yc	Yolo clay loam, 0 to 3 percent slopes, MLRA 17	38.5	2.6%
Yd	Yolo clay loam, moderately deep over clay	39.8	2.7%
Yf	Yolo clay loam, deep over claypan	32.7	2.2%
Za	Zamora silty clay, 0 to 2 percent slopes	0.9	0.1%
ZbA	Zamora silty clay loam, 0 to 2 percent slopes	2.7	0.2%
<b>Totals for Area of Interest</b>		<b>1,480.6</b>	<b>100.0%</b>

## Map Unit Descriptions (California Olive Ranch)

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.

## Glenn County, California

### AaC—Altamont clay, 3 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* hd56

*Elevation:* 200 to 2,300 feet

*Mean annual precipitation:* 10 to 25 inches

*Mean annual air temperature:* 57 to 63 degrees F

*Frost-free period:* 200 to 340 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Altamont and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Altamont

##### Setting

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Residuum weathered from sedimentary rock

##### Typical profile

*H1 - 0 to 18 inches:* clay

*H2 - 18 to 43 inches:* clay

*H3 - 43 to 60 inches:* weathered bedrock

##### Properties and qualities

*Slope:* 5 to 15 percent

*Depth to restrictive feature:* 40 to 60 inches to paralithic bedrock

*Natural drainage class:* Well drained

*Runoff class:* Very 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:* None

*Calcium carbonate, maximum in profile:* 10 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water storage in profile:* Moderate (about 6.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3e

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Hydric soil rating:* No

#### Minor Components

##### Unnamed

*Percent of map unit:* 13 percent

*Hydric soil rating:* No

**Unnamed**

*Percent of map unit: 2 percent*  
*Landform: Fan remnants*  
*Hydric soil rating: Yes*

**AnC—Altamont-Shedd association, 3 to 15 percent slopes**

**Map Unit Setting**

*National map unit symbol: hd5t*  
*Elevation: 200 to 2,500 feet*  
*Mean annual precipitation: 10 to 25 inches*  
*Mean annual air temperature: 57 to 63 degrees F*  
*Frost-free period: 200 to 340 days*  
*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Altamont and similar soils: 65 percent*  
*Shedd and similar soils: 20 percent*  
*Minor components: 15 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Altamont**

**Setting**

*Down-slope shape: Concave*  
*Across-slope shape: Linear*  
*Parent material: Residuum weathered from sedimentary rock*

**Typical profile**

*H1 - 0 to 18 inches: clay*  
*H2 - 18 to 43 inches: clay*  
*H3 - 43 to 60 inches: weathered bedrock*

**Properties and qualities**

*Slope: 5 to 15 percent*  
*Depth to restrictive feature: 40 to 60 inches to paralithic bedrock*  
*Natural drainage class: Well drained*  
*Runoff class: Very 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: None*  
*Calcium carbonate, maximum in profile: 10 percent*  
*Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*  
*Available water storage in profile: Moderate (about 6.4 inches)*

**Interpretive groups**

*Land capability classification (irrigated): 3e*  
*Land capability classification (nonirrigated): 3e*

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*Hydrologic Soil Group: C*

*Hydric soil rating: No*

### Description of Shedd

#### Setting

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Residuum weathered from sedimentary rock*

#### Typical profile

*H1 - 0 to 19 inches: silty clay loam*

*H2 - 19 to 29 inches: silty clay loam*

*H3 - 30 to 40 inches: weathered bedrock*

#### Properties and qualities

*Slope: 3 to 15 percent*

*Depth to restrictive feature: 24 to 40 inches to paralithic bedrock*

*Natural drainage class: Well drained*

*Runoff class: High*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum in profile: 20 percent*

*Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*

*Available water storage in profile: Low (about 5.4 inches)*

#### Interpretive groups

*Land capability classification (irrigated): 3e*

*Land capability classification (nonirrigated): 3e*

*Hydrologic Soil Group: C*

*Hydric soil rating: No*

### Minor Components

#### Nacimiento

*Percent of map unit: 8 percent*

*Hydric soil rating: No*

#### Newville

*Percent of map unit: 7 percent*

*Hydric soil rating: No*

## AoA—Arbuckle gravelly loam, 0 to 2 percent slopes, MLRA 17

### Map Unit Setting

*National map unit symbol: 2t7r8*

*Elevation: 30 to 1,420 feet*

*Mean annual precipitation: 20 to 32 inches*

## Custom Soil Resource Report

*Mean annual air temperature:* 61 to 63 degrees F

*Frost-free period:* 200 to 280 days

*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

*Arbuckle and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Arbuckle

#### Setting

*Landform:* Stream terraces

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from metamorphic and sedimentary rock

#### Typical profile

*A1 - 0 to 2 inches:* gravelly loam

*A2 - 2 to 14 inches:* gravelly loam

*Bt1 - 14 to 25 inches:* gravelly loam

*Bt2 - 25 to 59 inches:* gravelly sandy clay loam

*Bt3 - 59 to 72 inches:* very gravelly loam

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.28 to 1.28 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Salinity, maximum in profile:* Nonsaline (0.3 to 0.5 mmhos/cm)

*Available water storage in profile:* Moderate (about 8.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2s

*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* B

*Hydric soil rating:* No

### Minor Components

#### Maywood

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Hillgate

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Cortina

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **At—Artois loam**

### **Map Unit Setting**

*National map unit symbol:* hd61

*Elevation:* 150 to 500 feet

*Mean annual precipitation:* 20 inches

*Mean annual air temperature:* 63 degrees F

*Frost-free period:* 260 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Artois and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Artois**

#### **Setting**

*Landform:* Alluvial fans

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Gravelly alluvium derived from sedimentary rock

#### **Typical profile**

*H1 - 0 to 9 inches:* loam

*H2 - 9 to 18 inches:* clay loam

*H3 - 18 to 60 inches:* clay

#### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* About 18 inches to abrupt textural change

*Natural 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:* None

*Available water storage in profile:* Very low (about 3.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 3s

*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* C

*Hydric soil rating:* No

### **Minor Components**

#### **Artois, gr-l**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Arbuckle**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Au—Artois clay loam**

**Map Unit Setting**

*National map unit symbol:* hd62

*Elevation:* 150 to 500 feet

*Mean annual precipitation:* 20 inches

*Mean annual air temperature:* 63 degrees F

*Frost-free period:* 260 days

*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Artois and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Artois**

**Setting**

*Landform:* Alluvial fans

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Gravelly alluvium derived from sedimentary rock

**Typical profile**

*H1 - 0 to 9 inches:* clay loam

*H2 - 9 to 18 inches:* clay loam

*H3 - 18 to 60 inches:* clay

**Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* About 18 inches to abrupt textural change

*Natural 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:* None

*Available water storage in profile:* Low (about 3.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3s

*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* C

*Hydric soil rating:* No

**Minor Components**

**Unnamed**

*Percent of map unit: 10 percent*

*Hydric soil rating: No*

**Unnamed**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Av—Artois gravelly loam**

**Map Unit Setting**

*National map unit symbol: hd63*

*Elevation: 150 to 500 feet*

*Mean annual precipitation: 20 inches*

*Mean annual air temperature: 63 degrees F*

*Frost-free period: 260 days*

*Farmland classification: Farmland of statewide importance*

**Map Unit Composition**

*Artois and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Artois**

**Setting**

*Landform: Alluvial fans*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Gravelly alluvium derived from sedimentary rock*

**Typical profile**

*H1 - 0 to 9 inches: gravelly loam*

*H2 - 9 to 17 inches: gravelly clay loam*

*H3 - 17 to 60 inches: clay*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: About 17 inches to abrupt textural change*

*Natural 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: None*

*Available water storage in profile: Very low (about 2.4 inches)*

**Interpretive groups**

*Land capability classification (irrigated): 3s*  
*Land capability classification (nonirrigated): 3s*  
*Hydrologic Soil Group: C*  
*Hydric soil rating: No*

**Minor Components**

**Arbuckle**

*Percent of map unit: 10 percent*  
*Hydric soil rating: No*

**Hillgate**

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

**Aw—Artois gravelly clay loam**

**Map Unit Setting**

*National map unit symbol: hd64*  
*Elevation: 150 to 500 feet*  
*Mean annual precipitation: 20 inches*  
*Mean annual air temperature: 63 degrees F*  
*Frost-free period: 260 days*  
*Farmland classification: Farmland of statewide importance*

**Map Unit Composition**

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

**Description of Artois**

**Setting**

*Landform: Alluvial fans*  
*Down-slope shape: Linear*  
*Across-slope shape: Linear*  
*Parent material: Gravelly alluvium derived from sedimentary rock*

**Typical profile**

*H1 - 0 to 9 inches: gravelly clay loam*  
*H2 - 9 to 17 inches: gravelly clay loam*  
*H3 - 17 to 60 inches: clay*

**Properties and qualities**

*Slope: 0 to 2 percent*  
*Depth to restrictive feature: About 17 inches to abrupt textural change*  
*Natural 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)*

## Custom Soil Resource Report

*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Very low (about 2.5 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 3s  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* C  
*Hydric soil rating:* No

### **Minor Components**

#### **Arbuckle**

*Percent of map unit:* 10 percent  
*Hydric soil rating:* No

#### **Hillgate**

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

## **CaA—Capay clay, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* hd6b  
*Elevation:* 20 to 1,200 feet  
*Mean annual precipitation:* 10 to 25 inches  
*Mean annual air temperature:* 61 to 64 degrees F  
*Frost-free period:* 260 to 280 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:* Alluvial fans  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from sedimentary rock

#### **Typical profile**

*H1 - 0 to 21 inches:* clay  
*H2 - 21 to 60 inches:* clay

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat poorly drained

## Custom Soil Resource Report

*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:* About 48 to 72 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 10 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water storage in profile:* Moderate (about 9.0 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 2w

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C

*Hydric soil rating:* No

### **Minor Components**

#### **Clear lake**

*Percent of map unit:* 7 percent

*Landform:* Basin floors

*Hydric soil rating:* Yes

#### **Myers**

*Percent of map unit:* 6 percent

*Hydric soil rating:* No

#### **Unnamed**

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Unnamed**

*Percent of map unit:* 1 percent

*Landform:* Drainageways

*Hydric soil rating:* Yes

## **CwB—Corning gravelly loam, 2 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* hd77

*Elevation:* 80 to 1,000 feet

*Mean annual precipitation:* 16 to 30 inches

*Mean annual air temperature:* 61 to 63 degrees F

*Frost-free period:* 250 to 280 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Corning and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Corning

### Setting

*Landform:* Terraces

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Gravelly alluvium derived from sedimentary rock

### Typical profile

*H1 - 0 to 14 inches:* gravelly loam

*H2 - 14 to 27 inches:* gravelly clay

*H3 - 27 to 40 inches:* gravelly clay

*H4 - 40 to 60 inches:* stratified gravelly sandy loam to gravelly clay loam

### Properties and qualities

*Slope:* 2 to 8 percent

*Depth to restrictive feature:* About 14 inches to abrupt textural change

*Natural drainage class:* Well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* Very low (about 1.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* 4e

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* D

*Hydric soil rating:* No

## Minor Components

### Unnamrd

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

### Unnamed

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## Czh—Cortina coarse sandy loam, MLRA 17

### Map Unit Setting

*National map unit symbol:* 2t7qx

*Elevation:* 80 to 1,130 feet

*Mean annual precipitation:* 19 to 32 inches

*Mean annual air temperature:* 61 to 63 degrees F

*Frost-free period:* 240 to 270 days

*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Cortina and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Cortina**

**Setting**

*Landform:* Flood plains

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Gravelly alluvium derived from metamorphic and sedimentary rock

**Typical profile**

*A - 0 to 3 inches:* coarse sandy loam

*C1 - 3 to 15 inches:* very gravelly coarse sandy loam

*C2 - 15 to 36 inches:* very gravelly coarse sand

*C3 - 36 to 56 inches:* very gravelly coarse sand

*C4 - 56 to 72 inches:* gravelly coarse sandy loam

**Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Somewhat excessively drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* Occasional

*Frequency of ponding:* None

*Salinity, maximum in profile:* Nonsaline (0.3 to 0.5 mmhos/cm)

*Available water storage in profile:* Very low (about 2.1 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 4s

*Land capability classification (nonirrigated):* 4s

*Hydrologic Soil Group:* A

*Ecological site:* GRAVELLY LOAM (R015XD090CA), GRAVELLY LOAM  
(R015XD090CA)

*Hydric soil rating:* No

**Minor Components**

**Riverwash**

*Percent of map unit:* 5 percent

*Landform:* Drainageways

*Hydric soil rating:* Yes

**Maywood**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Orland**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Arbuckle**

*Percent of map unit: 2 percent*

*Hydric soil rating: No*

**Yolo**

*Percent of map unit: 2 percent*

*Hydric soil rating: No*

**Czr—Cortina very gravelly sandy loam, 0 to 3 percent slopes**

**Map Unit Setting**

*National map unit symbol: hd7h*

*Elevation: 30 to 2,400 feet*

*Mean annual precipitation: 8 to 20 inches*

*Mean annual air temperature: 61 to 63 degrees F*

*Frost-free period: 240 to 270 days*

*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Cortina and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Cortina**

**Setting**

*Landform: Alluvial fans*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Gravelly alluvium*

**Typical profile**

*H1 - 0 to 8 inches: very gravelly sandy loam*

*H2 - 8 to 40 inches: stratified very gravelly loamy sand to very gravelly loam*

*H3 - 40 to 60 inches: stratified very gravelly sand to very gravelly loamy sand*

**Properties and qualities**

*Slope: 0 to 3 percent*

*Depth to restrictive feature: About 40 inches to strongly contrasting textural stratification*

*Natural drainage class: Somewhat excessively drained*

*Runoff class: Very low*

*Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: Occasional*

*Frequency of ponding: None*

*Available water storage in profile: Very low (about 2.8 inches)*

**Interpretive groups**

*Land capability classification (irrigated): 4s*

*Land capability classification (nonirrigated): 4s*

*Hydrologic Soil Group: A*  
*Hydric soil rating: No*

**Minor Components**

**Unnamed**

*Percent of map unit: 5 percent*  
*Landform: Fans*  
*Hydric soil rating: Yes*

**Gravel pits**

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

**Unnamed**

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

**HgA—Hillgate loam, 0 to 2 percent slopes, MLRA 17**

**Map Unit Setting**

*National map unit symbol: 2t7q5*  
*Elevation: 20 to 1,180 feet*  
*Mean annual precipitation: 17 to 21 inches*  
*Mean annual air temperature: 61 to 63 degrees F*  
*Frost-free period: 225 to 250 days*  
*Farmland classification: Farmland of statewide importance*

**Map Unit Composition**

*Hillgate, loam, and similar soils: 90 percent*  
*Minor components: 10 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Hillgate, Loam**

**Setting**

*Landform: Terraces*  
*Landform position (two-dimensional): Toeslope*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Linear*  
*Across-slope shape: Linear*  
*Parent material: Alluvium derived from metamorphic and sedimentary rock*

**Typical profile**

*A1 - 0 to 3 inches: loam*  
*A2 - 3 to 11 inches: loam*  
*A3 - 11 to 19 inches: loam*  
*2Bt1 - 19 to 38 inches: clay*  
*2Bt2 - 38 to 53 inches: clay loam*  
*2Bt3 - 53 to 63 inches: clay loam*  
*2Bt4 - 63 to 73 inches: clay loam*

## Custom Soil Resource Report

### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* 6 to 32 inches to abrupt textural change

*Natural drainage class:* Well drained

*Runoff class:* Very low

*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:* None

*Calcium carbonate, maximum in profile:* 1 percent

*Gypsum, maximum in profile:* 2 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 4.0

*Available water storage in profile:* Low (about 3.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2s

*Land capability classification (nonirrigated):* 4s

*Hydrologic Soil Group:* C

*Ecological site:* Loamy Fan Remnant 8-10" P.Z. (R017XE061CA)

*Hydric soil rating:* No

### Minor Components

#### Capay, clay loam

*Percent of map unit:* 3 percent

*Landform:* Basin floors

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Altamont, silty clay

*Percent of map unit:* 2 percent

*Landform:* Hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Ayar, clay

*Percent of map unit:* 2 percent

*Landform:* Hills

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* No

#### Arand, very gravelly sandy loam

*Percent of map unit:* 1 percent

*Landform:* Flood plains

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Unnamed

*Percent of map unit:* 1 percent

*Landform: Channels*  
*Hydric soil rating: Yes*

**Riverwash**

*Percent of map unit: 1 percent*  
*Landform: Channels*  
*Hydric soil rating: Yes*

**HmA—Hillgate gravelly loam, 0 to 2 percent slopes**

**Map Unit Setting**

*National map unit symbol: hd84*  
*Elevation: 2,000 feet*  
*Mean annual precipitation: 22 inches*  
*Mean annual air temperature: 64 degrees F*  
*Frost-free period: 275 to 315 days*  
*Farmland classification: Farmland of statewide importance*

**Map Unit Composition**

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

**Description of Hillgate**

**Setting**

*Landform: Terraces*  
*Down-slope shape: Linear*  
*Across-slope shape: Linear*  
*Parent material: Alluvium derived from sedimentary rock*

**Typical profile**

*H1 - 0 to 15 inches: gravelly loam*  
*H2 - 15 to 28 inches: clay*  
*H3 - 28 to 60 inches: silty clay loam*

**Properties and qualities**

*Slope: 0 to 2 percent*  
*Depth to restrictive feature: About 15 inches to abrupt textural change*  
*Natural drainage class: Well drained*  
*Runoff class: Very high*  
*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Available water storage in profile: Very low (about 1.9 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 3s*

## Custom Soil Resource Report

*Hydrologic Soil Group: D*

*Hydric soil rating: No*

### Minor Components

#### **Arbuckle**

*Percent of map unit: 5 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

#### **Corning**

*Percent of map unit: 5 percent*

*Landform: Fans*

*Hydric soil rating: Yes*

#### **Kimball**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

## **Me—Maywood loam, shallow over gravel**

### **Map Unit Setting**

*National map unit symbol: hdb7*

*Elevation: 150 feet*

*Mean annual precipitation: 12 to 25 inches*

*Mean annual air temperature: 63 degrees F*

*Frost-free period: 260 days*

*Farmland classification: Farmland of statewide importance*

### **Map Unit Composition**

*Maywood and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Maywood**

#### **Setting**

*Landform: Stream terraces*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Alluvium*

#### **Typical profile**

*H1 - 0 to 26 inches: loam*

*H2 - 26 to 60 inches: sand and gravel*

#### **Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Natural drainage class: Well drained*

*Runoff class: Low*

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.57 to 1.98 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* Occasional  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 4.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4s  
*Hydrologic Soil Group:* B/D  
*Hydric soil rating:* Yes

**Minor Components**

**Riverwash**

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Hydric soil rating:* Yes

**Unnamed**

*Percent of map unit:* 5 percent  
*Landform:* Drainageways  
*Hydric soil rating:* Yes

**Cortina**

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

**MzrA—Myers clay, 0 to 3 percent slopes**

**Map Unit Setting**

*National map unit symbol:* hdc9  
*Elevation:* 30 to 2,000 feet  
*Mean annual precipitation:* 14 to 16 inches  
*Mean annual air temperature:* 61 to 63 degrees F  
*Frost-free period:* 225 to 250 days  
*Farmland classification:* Prime farmland if irrigated

**Map Unit Composition**

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

**Description of Myers**

**Setting**

*Landform:* Alluvial fans  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from sedimentary rock

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 29 inches: clay*  
*H2 - 29 to 60 inches: clay*

### Properties and qualities

*Slope: 0 to 3 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Natural drainage class: 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: None*  
*Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*  
*Available water storage in profile: Moderate (about 9.0 inches)*

### Interpretive groups

*Land capability classification (irrigated): 2s*  
*Land capability classification (nonirrigated): 3s*  
*Hydrologic Soil Group: C*  
*Hydric soil rating: No*

### Minor Components

#### Yolo

*Percent of map unit: 5 percent*  
*Landform: Fans*  
*Hydric soil rating: Yes*

#### Hillgate

*Percent of map unit: 5 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

#### Capay

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

## NvC—Newville gravelly loam, 3 to 15 percent slopes

### Map Unit Setting

*National map unit symbol: hdd4*  
*Elevation: 300 to 2,000 feet*  
*Mean annual precipitation: 20 inches*  
*Mean annual air temperature: 61 degrees F*  
*Frost-free period: 250 to 280 days*  
*Farmland classification: Not prime farmland*

### Map Unit Composition

*Newville and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Newville**

#### **Setting**

*Landform: Terraces*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Gravelly alluvium*

#### **Typical profile**

*H1 - 0 to 15 inches: gravelly loam*

*H2 - 15 to 26 inches: gravelly clay*

*H3 - 26 to 60 inches: very gravelly clay loam*

#### **Properties and qualities**

*Slope: 3 to 15 percent*

*Depth to restrictive feature: About 15 inches to abrupt textural change*

*Natural drainage class: Well drained*

*Runoff class: Very high*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water storage in profile: Very low (about 1.8 inches)*

#### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 4e*

*Hydrologic Soil Group: D*

*Hydric soil rating: No*

### **Minor Components**

#### **Corning**

*Percent of map unit: 10 percent*

*Hydric soil rating: No*

#### **Unnamed**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

## **Po—Pleasanton very gravelly sandy loam, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol: hdfd*

*Elevation: 2,400 feet*

*Mean annual precipitation: 25 inches*

*Mean annual air temperature: 59 degrees F*

*Farmland classification: Prime farmland if irrigated*

**Map Unit Composition**

*Pleasanton and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Pleasanton**

**Setting**

*Landform: Alluvial fans, terraces*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Gravelly alluvium*

**Typical profile**

*H1 - 0 to 11 inches: gravelly sandy loam*

*H2 - 11 to 60 inches: gravelly sandy clay loam*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Natural 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*

*Available water storage in profile: Moderate (about 7.5 inches)*

**Interpretive groups**

*Land capability classification (irrigated): 3s*

*Land capability classification (nonirrigated): 3s*

*Hydrologic Soil Group: C*

*Hydric soil rating: No*

**Minor Components**

**Capay**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Arbuckle**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Artois**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

## Rh—Riverwash

### Map Unit Setting

*National map unit symbol:* hdfm  
*Elevation:* 700 to 2,900 feet  
*Mean annual precipitation:* 8 to 15 inches  
*Mean annual air temperature:* 46 to 52 degrees F  
*Frost-free period:* 110 to 180 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Riverwash:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Riverwash

#### Setting

*Landform:* Drainageways  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Gravelly alluvium

#### Typical profile

*H1 - 0 to 6 inches:* very gravelly sand  
*H2 - 6 to 60 inches:* stratified very gravelly coarse sand to gravelly sand

#### Properties and qualities

*Natural drainage class:* Excessively drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (5.95 to 19.98 in/hr)  
*Depth to water table:* About 0 to 24 inches  
*Frequency of flooding:* Frequent  
*Available water storage in profile:* Very low (about 1.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8  
*Hydric soil rating:* Yes

### Minor Components

#### Unnamed

*Percent of map unit:* 10 percent  
*Hydric soil rating:* No

## **Yc—Yolo clay loam, 0 to 3 percent slopes, MLRA 17**

### **Map Unit Setting**

*National map unit symbol:* 2w89w  
*Elevation:* 150 to 550 feet  
*Mean annual precipitation:* 19 to 24 inches  
*Mean annual air temperature:* 61 to 62 degrees F  
*Frost-free period:* 280 to 300 days  
*Farmland classification:* Prime farmland if irrigated

### **Map Unit Composition**

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

### **Description of Yolo**

#### **Setting**

*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from sedimentary rock

#### **Typical profile**

*Ap - 0 to 9 inches:* clay loam  
*C1 - 9 to 34 inches:* stratified silty clay loam to very fine sandy loam to loam to silt loam  
*C2 - 34 to 60 inches:* stratified loam to clay loam to fine sandy loam to silt loam

#### **Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* Rare  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 1 percent  
*Salinity, maximum in profile:* Nonsaline (0.3 to 0.5 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 1.0  
*Available water storage in profile:* High (about 11.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 1  
*Land capability classification (nonirrigated):* 3c  
*Hydrologic Soil Group:* B  
*Hydric soil rating:* No

### Minor Components

#### Zamora

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

#### Myers

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

#### Cortina

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

## Yd—Yolo clay loam, moderately deep over clay

### Map Unit Setting

*National map unit symbol:* hdjk  
*Elevation:* 30 to 400 feet  
*Mean annual precipitation:* 16 to 22 inches  
*Mean annual air temperature:* 61 degrees F  
*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition

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

### Description of Yolo

#### Setting

*Landform:* Alluvial fans  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from sedimentary rock

#### Typical profile

*H1 - 0 to 9 inches:* clay loam  
*H2 - 9 to 32 inches:* silty clay loam  
*H3 - 32 to 60 inches:* clay

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* About 32 inches to abrupt textural change  
*Natural drainage class:* Well drained  
*Runoff class:* Medium  
*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:* None

## Custom Soil Resource Report

*Available water storage in profile:* Low (about 5.7 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 2s

*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* C

*Hydric soil rating:* No

### **Minor Components**

#### **Zamora**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Myers**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Hillgate**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **Yf—Yolo clay loam, deep over claypan**

### **Map Unit Setting**

*National map unit symbol:* hdjl

*Elevation:* 30 to 400 feet

*Mean annual precipitation:* 16 to 22 inches

*Mean annual air temperature:* 61 degrees F

*Farmland classification:* Prime farmland if irrigated

### **Map Unit Composition**

*Yolo and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Yolo**

#### **Setting**

*Landform:* Alluvial fans

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from sedimentary rock

#### **Typical profile**

*H1 - 0 to 9 inches:* clay loam

*H2 - 9 to 32 inches:* silty clay loam

*H3 - 32 to 60 inches:* clay

#### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* About 32 inches to abrupt textural change

## Custom Soil Resource Report

*Natural drainage class:* Well drained  
*Runoff class:* Medium  
*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:* None  
*Available water storage in profile:* Low (about 5.7 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 2s  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* C  
*Hydric soil rating:* No

### **Minor Components**

#### **Zamora**

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

#### **Myers**

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

#### **Hillgate**

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

## **Za—Zamora silty clay, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* hdjs  
*Elevation:* 0 to 1,200 feet  
*Mean annual precipitation:* 10 to 25 inches  
*Mean annual air temperature:* 61 to 63 degrees F  
*Frost-free period:* 200 to 300 days  
*Farmland classification:* Prime farmland if irrigated

### **Map Unit Composition**

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

### **Description of Zamora**

#### **Setting**

*Landform:* Alluvial fans  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from sedimentary rock

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 11 inches: silty clay*  
*H2 - 11 to 60 inches: silty clay*

### Properties and qualities

*Slope: 0 to 2 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Natural drainage class: 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: None*  
*Calcium carbonate, maximum in profile: 5 percent*  
*Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*  
*Available water storage in profile: Moderate (about 9.0 inches)*

### Interpretive groups

*Land capability classification (irrigated): 2s*  
*Land capability classification (nonirrigated): 3s*  
*Hydrologic Soil Group: C*  
*Hydric soil rating: No*

### Minor Components

#### Hillgate

*Percent of map unit: 8 percent*  
*Hydric soil rating: No*

#### Myers

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

#### Yolo

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

## ZbA—Zamora silty clay loam, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol: hdjt*  
*Elevation: 30 to 400 feet*  
*Mean annual precipitation: 16 to 22 inches*  
*Mean annual air temperature: 61 degrees F*  
*Frost-free period: 300 to 320 days*  
*Farmland classification: Prime farmland if irrigated*

### Map Unit Composition

*Zamora and similar soils: 85 percent*  
*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **Description of Zamora**

### **Setting**

*Landform:* Alluvial fans

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from sedimentary rock

### **Typical profile**

*H1 - 0 to 11 inches:* silty clay loam

*H2 - 11 to 60 inches:* clay loam

### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.57 to 1.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 5 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water storage in profile:* High (about 10.8 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 1

*Land capability classification (nonirrigated):* 3c

*Hydrologic Soil Group:* B

*Hydric soil rating:* No

## **Minor Components**

### **Hillgate**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### **Yolo**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### **Marvin**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

### **Myers**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

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## Groundwater Levels for Station 396060N1222621W001 - *COR well*

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data** ▶
Recent Groundwater Level Data ▶
Historical Groundwater Level Data

**State Well Number:** 20N04W12F002M  
**Local Well ID:** 20N04W12F002M  
**Site Code:** 396060N1222621W001  
**Latitude (NAD83):** 39.606000  
**Longitude (NAD83):** -122.2621  
**Groundwater Basin (code):** Colusa (5-21.52)

**Well Use:** Residential  
**Well Status:** Active  
**Well Completion Report Number:** 120058  
**Reference Point Elevation (NAVD88 ft):** 189.970  
**Ground Surface Elevation (NAVD88 ft):** 189.470  
**Total Depth (ft):** 172  
**Perforated Interval Depths (ft):** 80.000 88.000  
130.000 136.000  
162.000 167.000

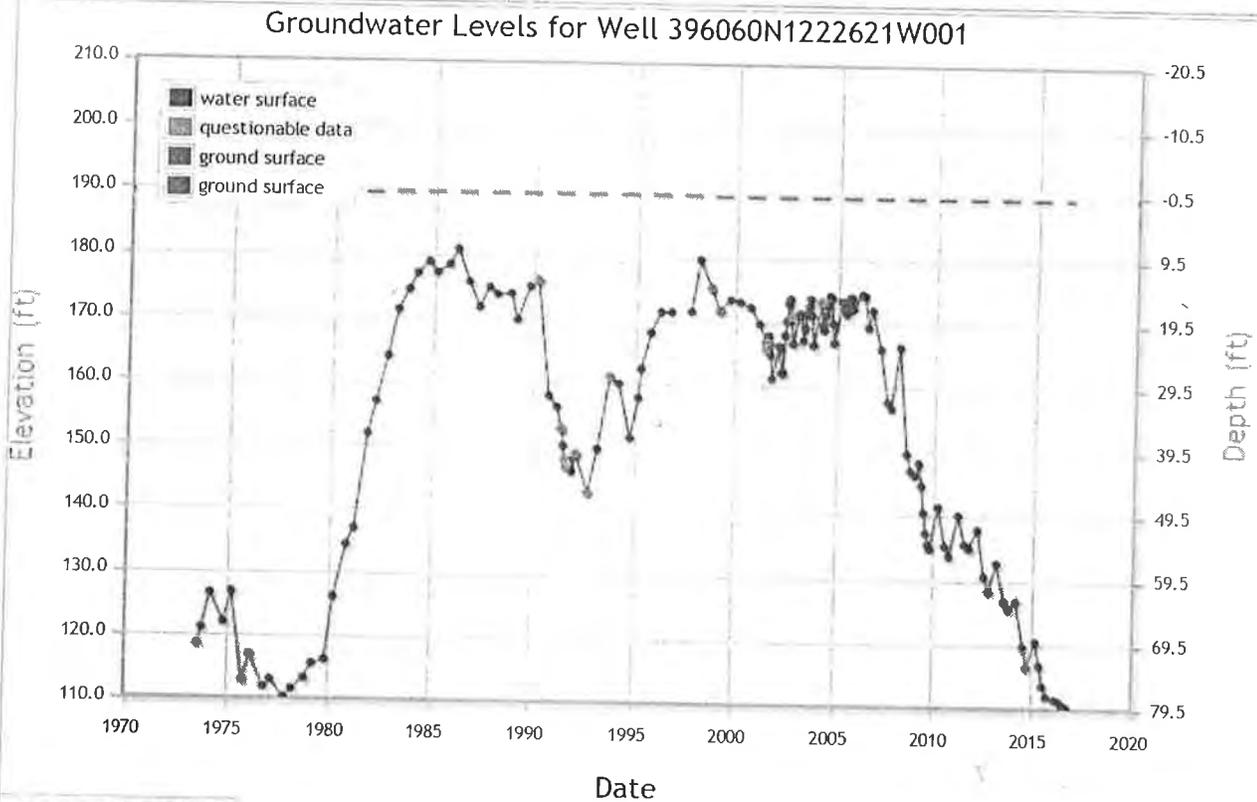
Bureau of Land Management, Esri, HERE, ...

[Perform a New Well Search](#)

## Groundwater Levels for Station 396060N1222621W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data >> **Recent Groundwater Level Data** >> Historical Groundwater Level Data



[Download CSV File](#)

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
08/10/1973 00:00	189.970	189.470	71.5	118.47	71		N	1
10/19/1973 00:00	189.970	189.470	69	120.97	68.5		N	1
03/12/1974 00:00	189.970	189.470	63.5	126.47	63		N	1
11/13/1974 00:00	189.970	189.470	68.1	121.87	67.6		N	624
03/27/1975 00:00	189.970	189.470	63.3	126.67	62.8		N	624
10/31/1975 00:00	189.970	189.470	77.1	112.87	76.6		N	624
03/09/1976 00:00	189.970	189.470	73.1	116.87	72.6		N	624
11/04/1976 00:00	189.970	189.470	78.1	111.87	77.6		N	624
03/01/1977 00:00	189.970	189.470	77	112.97	76.5		N	624

11/03/1977 00:00	189.970	189.470	79.8	110.17	79.3		N	624
03/16/1978 00:00	189.970	189.470	78.4	111.57	77.9		N	624
10/31/1978 00:00	189.970	189.470	76.7	113.27	76.2		N	624
03/13/1979 00:00	189.970	189.470	74.4	115.57	73.9		N	624
10/30/1979 00:00	189.970	189.470	73.8	116.17	73.3		N	624
03/18/1980 00:00	189.970	189.470	63.9	126.07	63.4		N	624
10/21/1980 00:00	189.970	189.470	55.7	134.27	55.2		N	624
03/03/1981 00:00	189.970	189.470	53.1	136.87	52.6		N	624
10/14/1981 00:00	189.970	189.470	38.2	151.77	37.7		N	624
03/11/1982 00:00	189.970	189.470	33.1	156.87	32.6		N	624
10/06/1982 00:00	189.970	189.470	26	163.97	25.5		N	624
04/02/1983 00:00	189.970	189.470	18.7	171.27	18.2		N	624
10/11/1983 00:00	189.970	189.470	15.5	174.47	15		N	624
03/06/1984 00:00	189.970	189.470	13	176.97	12.5		N	624
10/10/1984 00:00	189.970	189.470	11.2	178.77	10.7		N	624
03/07/1985 00:00	189.970	189.470	12.9	177.07	12.4		N	624
10/18/1985 00:00	189.970	189.470	11.6	178.37	11.1		N	624
03/13/1986 00:00	189.970	189.470	9.2	180.77	8.7		N	624
10/08/1986 00:00	189.970	189.470	14.3	175.67	13.8		N	624
04/17/1987 00:00	189.970	189.470	18.2	171.77	17.7		N	624
10/14/1987 00:00	189.970	189.470	15.1	174.87	14.6		N	624
03/08/1988 00:00	189.970	189.470	16.2	173.77	15.7		N	624
11/12/1988 00:00	189.970	189.470	16	173.97	15.5		N	624
03/07/1989 00:00	189.970	189.470	20.1	169.87	19.6		N	624
10/16/1989 00:00	189.970	189.470	14.9	175.07	14.4		N	624
03/14/1990 00:00	189.970	189.470	14	175.97	13.5	Q-1	N	624
10/17/1990 00:00	189.970	189.470	32	157.97	31.5		N	624
03/11/1991 00:00	189.970	189.470	33.7	156.27	33.2		N	1
06/11/1991 00:00	189.970	189.470	37.2	152.77	36.7	Q-4	N	1
07/09/1991 00:00	189.970	189.470	39.8	150.17	39.3		N	1
08/08/1991 00:00	189.970	189.470	42	147.97	41.5	Q-3	N	1
09/13/1991 00:00	189.970	189.470	43.2	146.77	42.7	Q-1	N	1
10/01/1991 00:00	189.970	189.470	42.6	147.37	42.1	Q-4	N	1
11/13/1991 00:00	189.970	189.470	42.1	147.87	41.6		N	1
12/16/1991 00:00	189.970	189.470	43.9	146.07	43.4		N	1
03/02/1992 00:00	189.970	189.470	41.1	148.87	40.6	Q-4	N	1
10/06/1992 00:00	189.970	189.470	47.2	142.77	46.7	Q-4	N	1
03/16/1993 00:00	189.970	189.470	40.3	149.67	39.8		N	1
10/05/1993 00:00	189.970	189.470	28.9	161.07	28.4	Q-4	N	1
03/15/1994 00:00	189.970	189.470	29.9	160.07	29.4		N	1
10/18/1994 00:00	189.970	189.470	38.5	151.47	38		N	1
03/07/1995 00:00	189.970	189.470	32.1	157.87	31.6		N	1
04/18/1995 00:00	189.970	189.470	27.6	162.37	27.1		N	1
10/03/1995 00:00	189.970	189.470	21.9	168.07	21.4		N	1

03/27/1996 00:00	189.970	189.470	18.6	171.37	18.1		N	1
10/08/1996 00:00	189.970	189.470	18.6	171.37	18.1		N	1
03/04/1997 00:00	189.970	189.470				N-1	N	1
10/07/1997 00:00	189.970	189.470	18.5	171.47	18		N	1
03/11/1998 00:00	189.970	189.470	10.4	179.57	9.9		N	1
10/08/1998 00:00	189.970	189.470	14.8	175.17	14.3	Q-4	N	1
03/16/1999 00:00	189.970	189.470	18.3	171.67	17.8	Q-4	N	1
10/04/1999 00:00	189.970	189.470	16.6	173.37	16.1		N	1
03/23/2000 00:00	189.970	189.470	16.9	173.07	16.4		N	1
10/04/2000 00:00	189.970	189.470	17.7	172.27	17.2		N	1
03/20/2001 00:00	189.970	189.470	20.3	169.67	19.8		N	1
07/19/2001 00:00	189.970	189.470	23.2	166.77	22.7		N	1
07/31/2001 00:00	189.970	189.470	24.2	165.77	23.7	Q-1	N	1
08/16/2001 00:00	189.970	189.470	23.1	166.87	22.6	Q-1	N	1
09/04/2001 00:00	189.970	189.470	22.1	167.87	21.6		N	1
10/11/2001 00:00	189.970	189.470	25.1	164.87	24.6		N	1
11/09/2001 00:00	189.970	189.470	28.8	161.17	28.3		N	1
03/19/2002 00:00	189.970	189.470	23.7	166.27	23.2		N	1
04/23/2002 00:00	189.970	189.470	27.9	162.07	27.4		N	1
05/21/2002 00:00	189.970	189.470	27.8	162.17	27.3		N	1
06/26/2002 00:00	189.970	189.470	22	167.97	21.5		N	1
07/24/2002 00:00	189.970	189.470	19.8	170.17	19.3		N	1
08/20/2002 00:00	189.970	189.470	17	172.97	16.5		N	1
09/24/2002 00:00	189.970	189.470	16.3	173.67	15.8		N	1
10/15/2002 00:00	189.970	189.470	19.1	170.87	18.6	Q-4	N	1
11/20/2002 00:00	189.970	189.470	23.3	166.67	22.8		N	1
03/13/2003 00:00	189.970	189.470	18.6	171.37	18.1		N	1
04/08/2003 00:00	189.970	189.470	18.9	171.07	18.4		N	1
05/20/2003 00:00	189.970	189.470	22.8	167.17	22.3		N	1
06/20/2003 00:00	189.970	189.470	20.9	169.07	20.4		N	1
07/30/2003 00:00	189.970	189.470	18.5	171.47	18		N	1
08/28/2003 00:00	189.970	189.470	17.4	172.57	16.9		N	1
09/18/2003 00:00	189.970	189.470	16.3	173.67	15.8		N	1
10/15/2003 00:00	189.970	189.470	18.9	171.07	18.4		N	1
11/18/2003 00:00	189.970	189.470	23.5	166.47	23		N	1
03/31/2004 00:00	189.970	189.470	16.8	173.17	16.3	Q-4	N	1
04/27/2004 00:00	189.970	189.470	20.4	169.57	19.9		N	1
05/21/2004 00:00	189.970	189.470	21.1	168.87	20.6		N	1
06/22/2004 00:00	189.970	189.470	18.8	171.17	18.3		N	1
07/28/2004 00:00	189.970	189.470	17.2	172.77	16.7		N	1
08/25/2004 00:00	189.970	189.470	15.8	174.17	15.3		N	1
09/22/2004 00:00	189.970	189.470	16	173.97	15.5		N	1
10/20/2004 00:00	189.970	189.470	20	169.97	19.5		N	1
11/16/2004 00:00	189.970	189.470	23.1	166.87	22.6		N	1

03/29/2005 00:00	189.970	189.470	16.6	173.37	16.1	N	1
04/28/2005 00:00	189.970	189.470	17.7	172.27	17.2	N	1
05/26/2005 00:00	189.970	189.470				N-1	1
06/24/2005 00:00	189.970	189.470	18.6	171.37	18.1	N	1
07/27/2005 00:00	189.970	189.470	17	172.97	16.5	N	1
08/24/2005 00:00	189.970	189.470	16	173.97	15.5	N	1
09/30/2005 00:00	189.970	189.470	16	173.97	15.5	N	1
10/19/2005 00:00	189.970	189.470	17.8	172.17	17.3	N	1
03/27/2006 00:00	189.970	189.470	15.5	174.47	15	N	1
05/18/2006 00:00	189.970	189.470	15.7	174.27	15.2	N	1
08/02/2006 00:00	189.970	189.470	20.7	169.27	20.2	N	1
10/12/2006 00:00	189.970	189.470	18	171.97	17.5	N	1
03/21/2007 00:00	189.970	189.470	24	165.97	23.5	N	1
08/06/2007 00:00	189.970	189.470	32.3	157.67	31.8	N	1
10/15/2007 00:00	189.970	189.470	33.3	156.67	32.8	N	1
03/10/2008 00:00	189.970	189.470	23.7	166.27	23.2	N	1
08/05/2008 00:00	189.970	189.470	40.34	149.63	39.84	N	1
10/20/2008 00:00	189.970	189.470	43	146.97	42.5	N	1
01/14/2009 00:00	189.970	189.470	43.8	146.17	43.3	N	1
03/25/2009 00:00	189.970	189.470	41.75	148.22	41.25	N	1
05/13/2009 00:00	189.970	189.470	45.3	144.67	44.8	N	1
06/24/2009 00:00	189.970	189.470	49.43	140.54	48.93	N	1
08/06/2009 00:00	189.970	189.470	52.65	137.32	52.15	N	1
09/15/2009 00:00	189.970	189.470	54.49	135.48	53.99	N	1
10/22/2009 00:00	189.970	189.470	55.13	134.84	54.63	N	1
03/23/2010 00:00	189.970	189.470	48.57	141.4	48.07	N	1
08/03/2010 00:00	189.970	189.470	54.68	135.29	54.18	N	1
10/20/2010 00:00	189.970	189.470	56.3	133.67	55.8	N	1
04/04/2011 00:00	189.970	189.470	49.86	140.11	49.36	N	1
08/02/2011 00:00	189.970	189.470	54.4	135.57	53.9	N	1
10/11/2011 00:00	189.970	189.470	54.88	135.09	54.38	N	1
10/11/2011 00:00	189.970	189.470	54.88	135.09	54.38	N	1
03/27/2012 00:00	189.970	189.470	52.13	137.84	51.63	N	1
07/31/2012 00:00	189.970	189.470	59.42	130.55	58.92	N	1
10/16/2012 00:00	189.970	189.470	61.77	128.2	61.27	N	1
03/18/2013 00:00	189.970	189.470	57.28	132.69	56.78	N	1
07/29/2013 00:00	189.970	189.470	63.38	126.59	62.88	N	1
10/15/2013 00:00	189.970	189.470	64.39	125.58	63.89	N	1
03/17/2014 00:00	189.970	189.470	63.27	126.7	62.77	Y	1
08/04/2014 00:00	189.970	189.470	70.27	119.7	69.77	N	1
10/13/2014 09:00	189.970	189.470	73.51	116.46	73.01	N	1
03/16/2015 00:00	189.970	189.470	69.49	120.48	68.99	N	1
06/01/2015 00:00	189.970	189.470	73.2	116.77	72.7	N	1
08/03/2015 00:00	189.970	189.470	76.41	113.56	75.91	N	1

10/13/2015 09:00	189.970	189.470	78.04	111.93	77.54	N	1
03/15/2016 00:00	189.970	189.470	78.52	111.45	78.02	N	1
06/06/2016 00:00	189.970	189.470	78.75	111.22	78.25	N	1
08/02/2016 00:00	189.970	189.470	79.3	110.67	78.8	N	1
10/10/2016 00:00	189.970	189.470	79.61	110.36	79.11	N	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data**
Recent Groundwater Level Data
Historical Groundwater Level Data

**State Well Number:** 20N03W07E001M  
**Local Well ID:** 20N03W07E001M  
**Site Code:** 396049N1222495W001  
**Latitude (NAD83):** 39.604900  
**Longitude (NAD83):** -122.2495  
**Groundwater Basin (code):** Colusa (5-21.52)

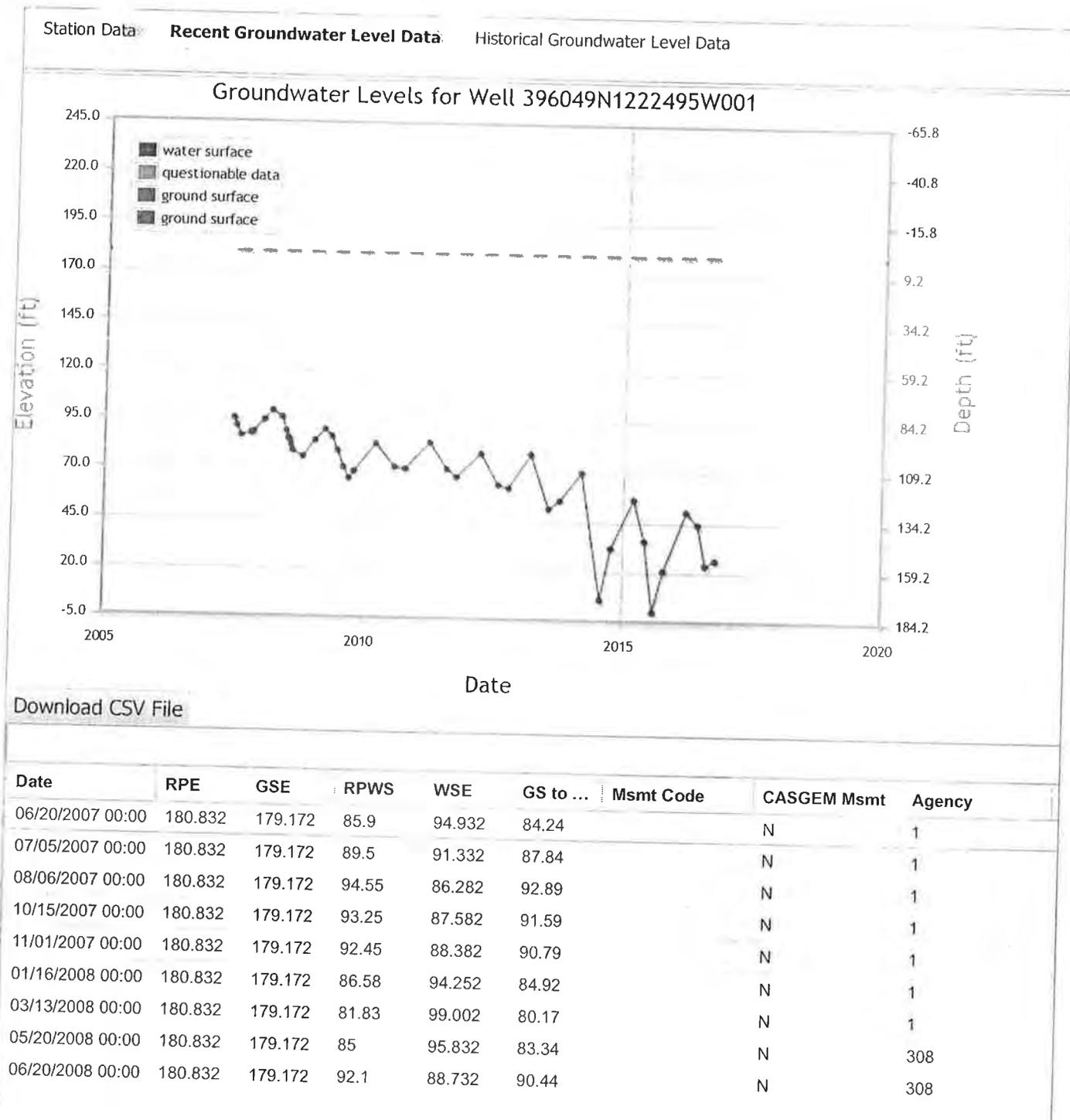
**Well Use:** Observation  
**Well Status:** Active  
**Well Completion Report Number:** E057712D  
**Reference Point Elevation (NAVD88 ft):** 180.830  
**Ground Surface Elevation (NAVD88 ft):** 179.170  
**Total Depth (ft):** 1030  
**Perforated Interval Depths (ft):** 984.000 1014.000

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[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



07/03/2008 00:00	180.832	179.172	95.77	85.062	94.11	N	1
07/07/2008 00:00	180.832	179.172	95.59	85.242	93.93	N	1
07/08/2008 00:00	180.832	179.172	96.1	84.732	94.44	N	1
07/22/2008 00:00	180.832	179.172	99.25	81.582	97.59	N	1
08/05/2008 00:00	180.832	179.172	101.96	78.872	100.3	N	1
10/20/2008 00:00	180.832	179.172	104.85	75.982	103.19	N	1
01/14/2009 00:00	180.832	179.172	96.6	84.232	94.94	N	1
03/25/2009 00:00	180.832	179.172	91.06	89.772	89.4	N	1
05/13/2009 00:00	180.832	179.172	94.4	86.432	92.74	N	1
06/24/2009 00:00	180.832	179.172	101.52	79.312	99.86	N	1
08/06/2009 00:00	180.832	179.172	109.78	71.052	108.12	N	1
09/15/2009 00:00	180.832	179.172	115.56	65.272	113.9	N	1
10/22/2009 00:00	180.832	179.172	111.92	68.912	110.26	N	1
03/23/2010 00:00	180.832	179.172	97.88	82.952	96.22	N	1
08/03/2010 00:00	180.832	179.172	109.44	71.392	107.78	N	1
10/18/2010 00:00	180.832	179.172	110.38	70.452	108.72	N	1
04/04/2011 00:00	180.832	179.172	97.05	83.782	95.39	N	1
08/02/2011 00:00	180.832	179.172	110.33	70.502	108.67	N	1
10/11/2011 00:00	180.832	179.172	114.21	66.622	112.55	Y	1
03/27/2012 00:00	180.832	179.172	102.23	78.602	100.57	Y	1
07/31/2012 00:00	180.832	179.172	117.95	62.882	116.29	Y	1
10/16/2012 00:00	180.832	179.172	119.63	61.202	117.97	Y	1
03/18/2013 00:00	180.832	179.172	102.26	78.572	100.6	Y	1
07/29/2013 00:00	180.832	179.172	129.73	51.102	128.07	Y	1
10/15/2013 00:00	180.832	179.172	125.5	55.332	123.84	Y	1
03/17/2014 00:00	180.830	179.170	111.25	69.58	109.59	Y	1
08/04/2014 00:00	180.830	179.170	175.29	5.54	173.63	Y	1
10/13/2014 00:00	180.830	179.170	149.18	31.65	147.52	Y	1
03/16/2015 00:00	180.830	179.170	124.45	56.38	122.79	Y	1
06/01/2015 00:00	180.830	179.170	145.28	35.55	143.62	Y	1
08/03/2015 00:00	180.830	179.170	181.17	-0.34	179.51	Y	1
10/13/2015 00:00	180.830	179.170	160.33	20.5	158.67	Y	1
03/15/2016 00:00	180.830	179.170	130.44	50.39	128.78	Y	1
06/06/2016 00:00	180.830	179.170	136.76	44.07	135.1	Y	1
08/02/2016 00:00	180.830	179.170	157.42	23.41	155.76	Y	1
10/10/2016 00:00	180.830	179.170	154.82	26.01	153.16	Y	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396034N1222377W001

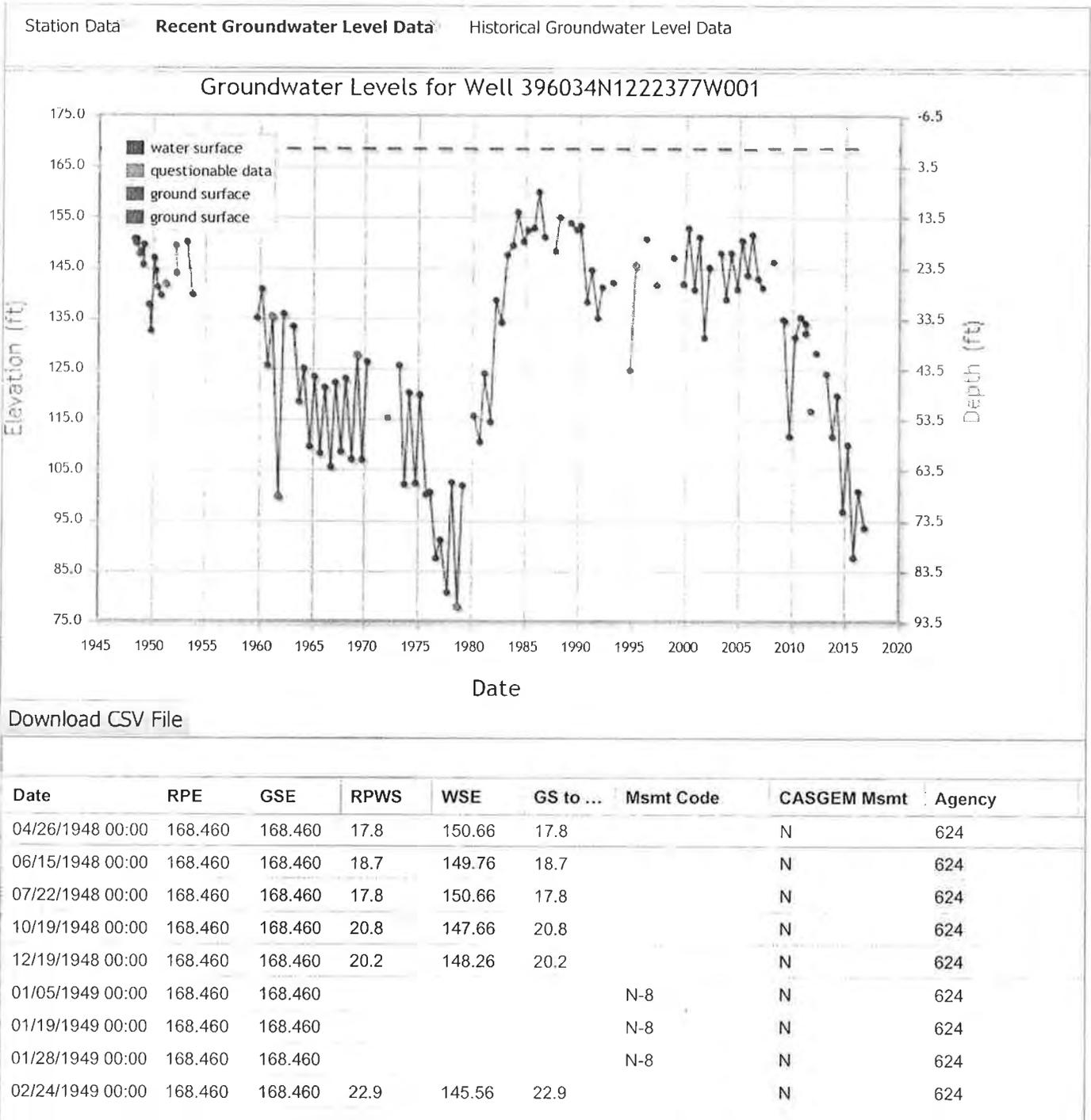
Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDI tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

<b>Station Data</b> <span style="font-weight: normal;">Recent Groundwater Level Data</span> <span style="font-weight: normal;">Historical Groundwater Level Data</span>	
<p> <b>State Well Number:</b> 20N03W07K003M  <b>Local Well ID:</b> 20N03W07K003M  <b>Site Code:</b> 396034N1222377W001  <b>Latitude (NAD83):</b> 39.603400  <b>Longitude (NAD83):</b> -122.2377  <b>Groundwater Basin (code):</b> ( )                 </p>	<p> <b>Well Use:</b>  <b>Well Status:</b> Inactive  <b>Well Completion Report Number:</b>  <b>Reference Point Elevation (NAVD88 ft):</b> 168.460  <b>Ground Surface Elevation (NAVD88 ft):</b> 168.460  <b>Total Depth (ft):</b> 150  <b>Perforated Interval Depths (ft):</b> </p>
<p style="text-align: right; font-size: small;">Bureau of Land Management, Esri, HERE, ...</p>	

[Perform a New Well Search](#)

## Groundwater Levels for Station 396034N1222377W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



03/29/1949 00:00	168.460	168.460	18.9	149.56	18.9		N	624
07/06/1949 00:00	168.460	168.460				N-1	N	624
09/08/1949 00:00	168.460	168.460	30.8	137.66	30.8		N	624
11/23/1949 00:00	168.460	168.460	36	132.46	36		N	624
03/07/1950 00:00	168.460	168.460	21.6	146.86	21.6		N	624
04/24/1950 00:00	168.460	168.460	24.1	144.36	24.1		N	624
07/06/1950 00:00	168.460	168.460	27.4	141.06	27.4		N	624
11/01/1950 00:00	168.460	168.460	29	139.46	29		N	624
12/27/1950 00:00	168.460	168.460				N-8	N	624
04/20/1951 00:00	168.460	168.460	26.7	141.76	26.7	Q-8	N	624
04/03/1952 00:00	168.460	168.460	19	149.46	19		N	624
04/18/1952 00:00	168.460	168.460	24.5	143.96	24.5		N	624
04/20/1953 00:00	168.460	168.460	18.4	150.06	18.4		N	624
10/27/1953 00:00	168.460	168.460	28.8	139.66	28.8		N	624
04/17/1959 00:00	168.460	168.460				N-8	N	624
10/06/1959 00:00	168.460	168.460	33.4	135.06	33.4		N	624
03/16/1960 00:00	168.460	168.460	27.7	140.76	27.7		N	624
10/04/1960 00:00	168.460	168.460	42.8	125.66	42.8		N	624
03/07/1961 00:00	168.460	168.460	33.1	135.36	33.1	Q-2	N	624
10/17/1961 00:00	168.460	168.460	68.8	99.66	68.8	Q-1	N	624
03/28/1962 00:00	168.460	168.460	32.6	135.86	32.6		N	624
10/05/1962 00:00	168.460	168.460				N-1	N	624
03/12/1963 00:00	168.460	168.460	35.1	133.36	35.1		N	624
10/09/1963 00:00	168.460	168.460	50	118.46	50		N	624
03/10/1964 00:00	168.460	168.460	43.4	125.06	43.4		N	624
10/06/1964 00:00	168.460	168.460	58.9	109.56	58.9		N	624
03/17/1965 00:00	168.460	168.460	45	123.46	45		N	624
10/07/1965 00:00	168.460	168.460	60.2	108.26	60.2		N	624
03/10/1966 00:00	168.460	168.460	47.2	121.26	47.2		N	624
10/14/1966 00:00	168.460	168.460	62.9	105.56	62.9		N	624
03/15/1967 00:00	168.460	168.460	46.2	122.26	46.2		N	624
10/04/1967 00:00	168.460	168.460	59.9	108.56	59.9		N	624
03/07/1968 00:00	168.460	168.460	45.4	123.06	45.4		N	624
10/11/1968 00:00	168.460	168.460	61.4	107.06	61.4		N	624
04/03/1969 00:00	168.460	168.460	40.7	127.76	40.7	Q-7	N	624
10/06/1969 00:00	168.460	168.460	61.5	106.96	61.5		N	624
03/19/1970 00:00	168.460	168.460	42.1	126.36	42.1		N	624
10/08/1970 00:00	168.460	168.460				N-1	N	624
03/10/1971 00:00	168.460	168.460				N-1	N	624
10/06/1971 00:00	168.460	168.460				N-1	N	624
03/07/1972 00:00	168.460	168.460	53	115.46	53		N	624
10/13/1972 00:00	168.460	168.460				N-3	N	624
03/28/1973 00:00	168.460	168.460	42.8	125.66	42.8		N	624
10/09/1973 00:00	168.460	168.460	66.4	102.06	66.4		N	624

03/06/1974 00:00	168.460	168.460	48.2	120.26	48.2		N	624
10/16/1974 00:00	168.460	168.460	66.2	102.26	66.2		N	624
03/05/1975 00:00	168.460	168.460	48.6	119.86	48.6		N	624
10/22/1975 00:00	168.460	168.460	68.4	100.06	68.4		N	624
03/08/1976 00:00	168.460	168.460	67.9	100.56	67.9		N	624
10/06/1976 00:00	168.460	168.460	81	87.46	81		N	624
03/02/1977 00:00	168.460	168.460	77.4	91.06	77.4		N	624
10/20/1977 00:00	168.460	168.460	87.8	80.66	87.8		N	624
03/15/1978 00:00	168.460	168.460	66	102.46	66		N	624
10/03/1978 00:00	168.460	168.460	90.6	77.86	90.6	Q-4	N	624
03/13/1979 00:00	168.460	168.460	66.6	101.86	66.6		N	624
10/03/1979 00:00	168.460	168.460				N-1	N	624
03/18/1980 00:00	168.460	168.460	52.8	115.66	52.8		N	624
10/16/1980 00:00	168.460	168.460	58	110.46	58		N	624
03/09/1981 00:00	168.460	168.460	44.4	124.06	44.4		N	624
10/06/1981 00:00	168.460	168.460	54	114.46	54		N	624
03/23/1982 00:00	168.460	168.460	29.9	138.56	29.9		N	624
10/07/1982 00:00	168.460	168.460	34.3	134.16	34.3		N	624
03/29/1983 00:00	168.460	168.460	20.9	147.56	20.9		N	624
10/13/1983 00:00	168.460	168.460	19	149.46	19		N	624
03/15/1984 00:00	168.460	168.460	12.5	155.96	12.5		N	624
10/11/1984 00:00	168.460	168.460	18.3	150.16	18.3		N	624
03/07/1985 00:00	168.460	168.460	16	152.46	16		N	624
10/07/1985 00:00	168.460	168.460	15.6	152.86	15.6		N	624
03/18/1986 00:00	168.460	168.460	8.5	159.96	8.5		N	624
10/08/1986 00:00	168.460	168.460	17.4	151.06	17.4		N	624
04/07/1987 00:00	168.460	168.460				N-1	N	624
09/29/1987 00:00	168.460	168.460	20.2	148.26	20.2		N	624
03/01/1988 00:00	168.460	168.460	13.5	154.96	13.5		N	624
10/04/1988 00:00	168.460	168.460				N-1	N	624
03/27/1989 00:00	168.460	168.460	14.6	153.86	14.6		N	624
10/23/1989 00:00	168.460	168.460	16	152.46	16		N	624
03/05/1990 00:00	168.460	168.460	15.1	153.36	15.1		N	624
10/16/1990 00:00	168.460	168.460	30.2	138.26	30.2		N	624
03/21/1991 00:00	168.460	168.460	23.9	144.56	23.9		N	624
10/22/1991 00:00	168.460	168.460	33.4	135.06	33.4		N	624
03/19/1992 00:00	168.460	168.460	27.3	141.16	27.3		N	624
10/09/1992 00:00	168.460	168.460				N-1	N	624
03/15/1993 00:00	168.460	168.460	26.4	142.06	26.4		N	624
03/14/1994 00:00	168.460	168.460				N-1	N	624
10/18/1994 00:00	168.460	168.460	43.6	124.86	43.6		N	624
04/11/1995 00:00	168.460	168.460	22.8	145.66	22.8	Q-4	N	624
10/18/1995 00:00	168.460	168.460				N-1	N	624
04/03/1996 00:00	168.460	168.460	17.8	150.66	17.8		N	624

09/25/1996 00:00	168.460	168.460				N-1	N	624
03/13/1997 00:00	168.460	168.460	26.9	141.56	26.9		N	624
10/14/1998 00:00	168.460	168.460	21.5	146.96	21.5		N	624
10/01/1999 00:00	168.460	168.460	26.7	141.76	26.7		N	624
03/23/2000 00:00	168.460	168.460	15.6	152.86	15.6		N	624
10/16/2000 00:00	168.460	168.460	27.8	140.66	27.8		N	624
03/26/2001 00:00	168.460	168.460	17.4	151.06	17.4		N	624
09/21/2001 00:00	168.460	168.460	37.3	131.16	37.3		N	624
03/06/2002 00:00	168.460	168.460	23.4	145.06	23.4		N	624
10/22/2002 00:00	168.460	168.460				N-1	N	624
04/07/2003 00:00	168.460	168.460	20.6	147.86	20.6		N	624
10/14/2003 00:00	168.460	168.460	29.7	138.76	29.7		N	624
04/01/2004 00:00	168.460	168.460	20.5	147.96	20.5		N	624
11/05/2004 00:00	168.460	168.460	27.7	140.76	27.7		N	624
04/14/2005 00:00	168.460	168.460	18.1	150.36	18.1		N	624
10/18/2005 00:00	168.460	168.460	24.9	143.56	24.9		N	624
03/30/2006 00:00	168.460	168.460	16.9	151.56	16.9		N	624
10/17/2006 00:00	168.460	168.460	25.6	142.86	25.6		N	624
03/28/2007 00:00	168.460	168.460	27.4	141.06	27.4		N	624
10/23/2007 00:00	168.460	168.460				N-1	N	624
03/14/2008 00:00	168.460	168.460	22.3	146.16	22.3		N	624
09/30/2008 00:00	168.460	168.460				N-1	N	624
03/23/2009 00:00	168.460	168.460	33.7	134.76	33.7		N	624
03/24/2009 00:00	168.460	168.460	33.8	134.66	33.8		N	308
10/20/2009 00:00	168.460	168.460	56.8	111.66	56.8		N	624
04/08/2010 00:00	168.460	168.460	37.2	131.26	37.2		N	624
10/18/2010 00:00	168.460	168.460	33.2	135.26	33.2		N	624
04/04/2011 00:00	168.460	168.460	34.5	133.96	34.5		N	624
04/07/2011 00:00	168.460	168.460	36.35	132.11	36.35		N	308
10/11/2011 00:00	168.460	168.460				N-9	N	624
10/12/2011 00:00	168.460	168.460	51.81	116.65	51.81		N	308
03/28/2012 00:00	168.460	168.460				N-0	N	624
03/28/2012 09:30	168.460	168.460	40.3	128.16	40.3		N	5049
10/15/2012 00:00	168.460	168.460				N-1	N	5049
03/20/2013 00:00	168.460	168.460	44.4	124.06	44.4		N	5049
10/14/2013 00:00	168.460	168.460	56.9	111.56	56.9		N	5049
03/19/2014 00:00	168.460	168.460	48.73	119.73	48.73		N	5049
10/16/2014 00:00	168.460	168.460	71.71	96.75	71.71		N	5049
03/30/2015 00:00	168.460	168.460	58.5	109.96	58.5		N	5049
10/13/2015 00:00	168.460	168.460	80.83	87.63	80.83		N	5049
03/16/2016 00:00	168.460	168.460	67.7	100.76	67.7		N	5049
10/18/2016 00:00	168.460	168.460	74.93	93.53	74.93		N	5049

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W002

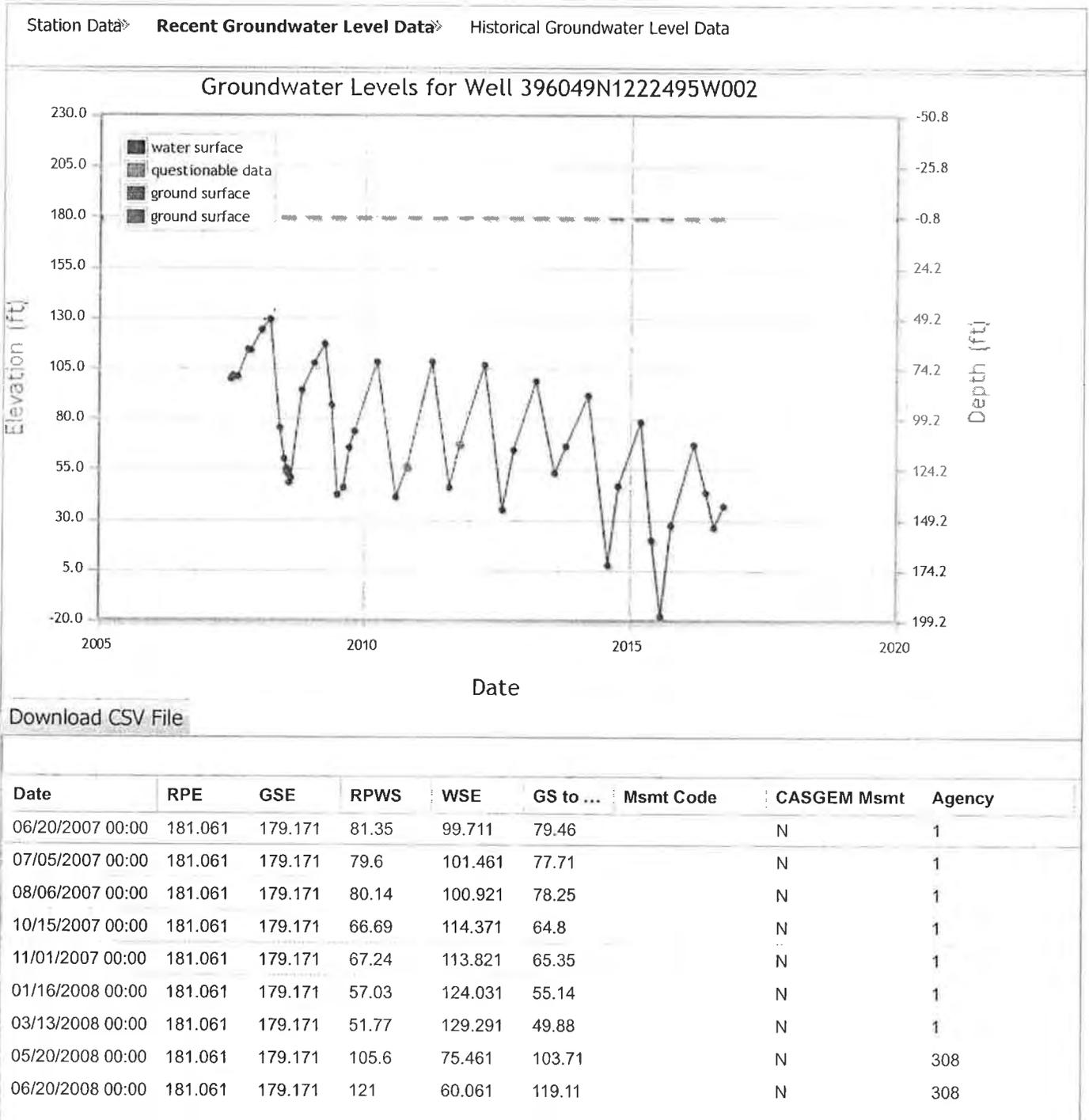
Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

<b>Station Data</b> > Recent Groundwater Level Data > Historical Groundwater Level Data	
<p> <b>State Well Number:</b> 20N03W07E002M  <b>Local Well ID:</b> 20N03W07E002M  <b>Site Code:</b> 396049N1222495W002  <b>Latitude (NAD83):</b> 39.604900  <b>Longitude (NAD83):</b> -122.2495  <b>Groundwater Basin (code):</b> Colusa (5-21.52)                 </p>	<p> <b>Well Use:</b> Observation  <b>Well Status:</b> Active  <b>Well Completion Report Number:</b> E057712C  <b>Reference Point Elevation (NAVD88 ft):</b> 181.060  <b>Ground Surface Elevation (NAVD88 ft):</b> 179.170  <b>Total Depth (ft):</b> 664  <b>Perforated Interval Depths (ft):</b> 616.000 636.000                 </p>
<p style="font-size: small; text-align: right;">Bureau of Land Management, Esri, HERE, ...</p>	

[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



07/03/2008 00:00	181.061	179.171	126.71	54.351	124.82		N	1
07/07/2008 00:00	181.061	179.171	125.77	55.291	123.88		N	1
07/08/2008 00:00	181.061	179.171	128.35	52.711	126.46		N	1
07/22/2008 00:00	181.061	179.171	132.86	48.201	130.97		N	1
08/05/2008 00:00	181.061	179.171	130.43	50.631	128.54		N	1
10/20/2008 00:00	181.061	179.171	86.93	94.131	85.04		N	1
01/14/2009 00:00	181.061	179.171	73.57	107.491	71.68		N	1
03/25/2009 00:00	181.061	179.171	63.9	117.161	62.01		N	1
05/13/2009 00:00	181.061	179.171	94.3	86.761	92.41		N	1
06/24/2009 00:00	181.061	179.171	138.89	42.171	137		N	1
08/06/2009 00:00	181.061	179.171	135.22	45.841	133.33		N	1
09/15/2009 00:00	181.061	179.171	115.52	65.541	113.63		N	1
10/22/2009 00:00	181.061	179.171	107.23	73.831	105.34		N	1
03/23/2010 00:00	181.061	179.171	72.86	108.201	70.97		N	1
08/03/2010 00:00	181.061	179.171	140.15	40.911	138.26		N	1
10/18/2010 00:00	181.061	179.171	124.88	56.181	122.99	Q-2	N	1
04/04/2011 00:00	181.061	179.171	72.7	108.361	70.81		N	1
08/02/2011 00:00	181.061	179.171	135.29	45.771	133.4		N	1
10/11/2011 00:00	181.061	179.171	113.88	67.181	111.99	Q-2	Y	1
03/27/2012 00:00	181.061	179.171	74.28	106.781	72.39		Y	1
07/31/2012 00:00	181.061	179.171	146.35	34.711	144.46		Y	1
10/16/2012 00:00	181.061	179.171	116.66	64.401	114.77		Y	1
03/18/2013 00:00	181.061	179.171	82.24	98.821	80.35		Y	1
07/29/2013 00:00	181.061	179.171	128.07	52.991	126.18		Y	1
10/15/2013 00:00	181.061	179.171	114.75	66.311	112.86		Y	1
03/17/2014 00:00	181.060	179.170	89.55	91.51	87.66		Y	1
08/04/2014 00:00	181.060	179.170	173.63	7.43	171.74		Y	1
10/13/2014 01:00	181.060	179.170	134.35	46.71	132.46		Y	1
03/16/2015 00:00	181.060	179.170	102.63	78.43	100.74		Y	1
06/01/2015 00:00	181.060	179.170	161.13	19.93	159.24		Y	1
08/03/2015 00:00	181.060	179.170	199	-17.94	197.11		Y	1
10/13/2015 01:00	181.060	179.170	153.88	27.18	151.99		Y	1
03/15/2016 00:00	181.060	179.170	113.86	67.2	111.97		Y	1
06/06/2016 00:00	181.060	179.170	137.61	43.45	135.72		Y	1
08/02/2016 00:00	181.060	179.170	154.94	26.12	153.05		Y	1
10/10/2016 00:00	181.060	179.170	144.21	36.85	142.32		Y	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

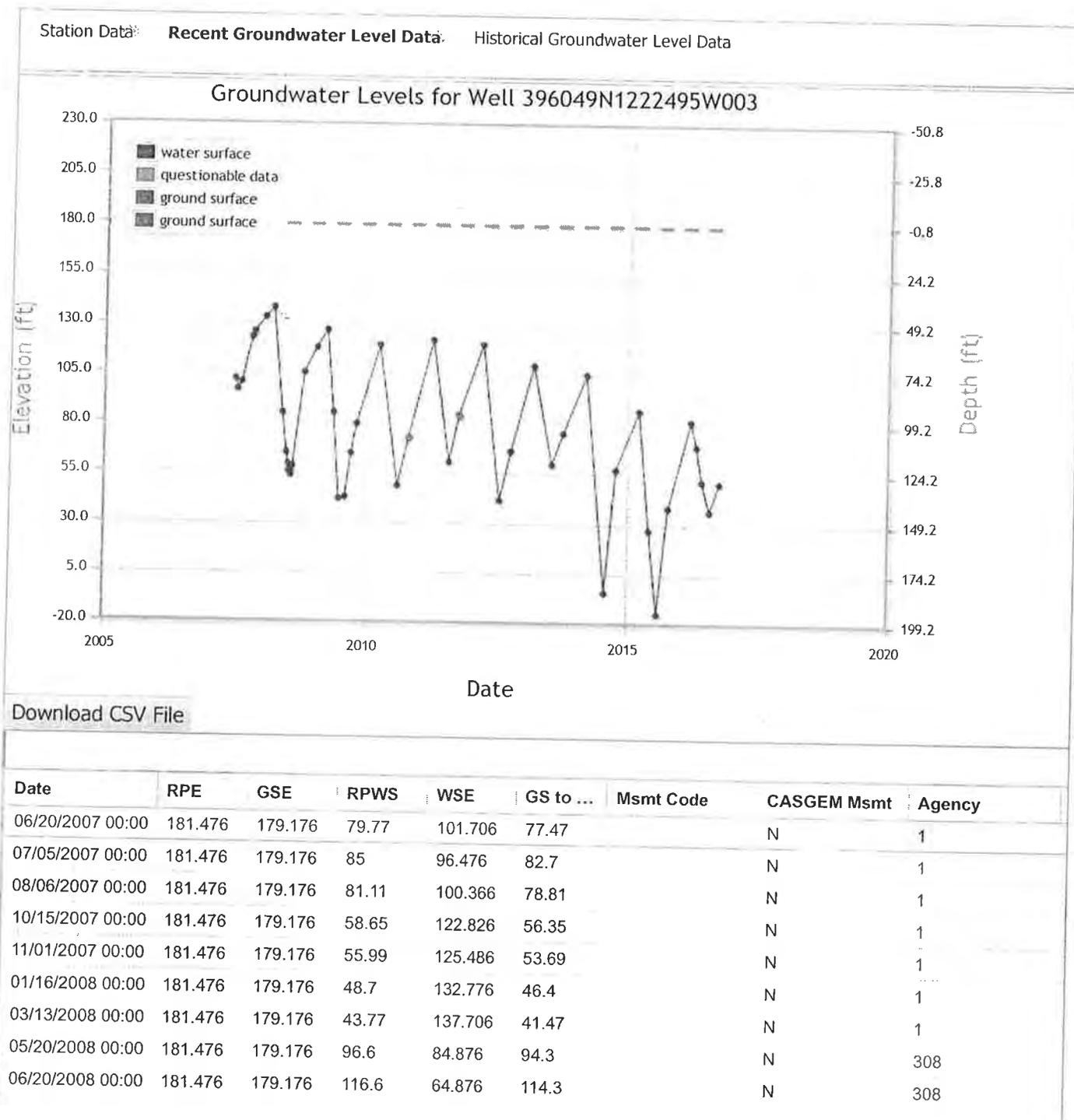
<b>Station Data</b>	<a href="#">Recent Groundwater Level Data</a>	<a href="#">Historical Groundwater Level Data</a>
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<p><b>State Well Number:</b> 20N03W07E003M  <b>Local Well ID:</b> 20N03W07E003M  <b>Site Code:</b> 396049N1222495W003  <b>Latitude (NAD83):</b> 39.604900  <b>Longitude (NAD83):</b> -122.2495  <b>Groundwater Basin (code):</b> Colusa (5-21.52)</p>	<p><b>Well Use:</b> Observation  <b>Well Status:</b> Active  <b>Well Completion Report Number:</b> E057712B  <b>Reference Point Elevation (NAVD88 ft):</b> 181.470  <b>Ground Surface Elevation (NAVD88 ft):</b> 179.170  <b>Total Depth (ft):</b> 515  <b>Perforated Interval Depths (ft):</b> 380.000 410.000                      465.000 485.000</p>
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[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



07/03/2008 00:00	181.476	179.176	122.33	59.146	120.03		N	1
07/07/2008 00:00	181.476	179.176	126.31	55.166	124.01		N	1
07/08/2008 00:00	181.476	179.176	125.45	56.026	123.15		N	1
07/22/2008 00:00	181.476	179.176	128.16	53.316	125.86		N	1
08/05/2008 00:00	181.476	179.176	123.65	57.826	121.35		N	1
10/20/2008 00:00	181.476	179.176	76.27	105.206	73.97		N	1
01/14/2009 00:00	181.476	179.176	63.75	117.726	61.45		N	1
03/25/2009 00:00	181.476	179.176	54.84	126.636	52.54		N	1
05/13/2009 00:00	181.476	179.176	96.38	85.096	94.08		N	1
06/24/2009 00:00	181.476	179.176	139.76	41.716	137.46		N	1
08/06/2009 00:00	181.476	179.176	138.81	42.666	136.51		N	1
09/15/2009 00:00	181.476	179.176	116.74	64.736	114.44		N	1
10/22/2009 00:00	181.476	179.176	101.95	79.526	99.65		N	1
03/23/2010 00:00	181.476	179.176	62.18	119.296	59.88		N	1
08/03/2010 00:00	181.476	179.176	133.05	48.426	130.75		N	1
10/18/2010 00:00	181.476	179.176	108.62	72.856	106.32	Q-2	N	1
04/04/2011 00:00	181.476	179.176	59.78	121.696	57.48		N	1
08/02/2011 00:00	181.476	179.176	121.03	60.446	118.73		N	1
10/11/2011 00:00	181.476	179.176	97.29	84.186	94.99	Q-2	Y	1
03/27/2012 00:00	181.476	179.176	61.78	119.696	59.48		Y	1
07/31/2012 00:00	181.476	179.176	140.08	41.396	137.78		Y	1
10/16/2012 00:00	181.476	179.176	115.42	66.056	113.12		Y	1
03/18/2013 00:00	181.476	179.176	72.23	109.246	69.93		Y	1
07/29/2013 00:00	181.476	179.176	121.93	59.546	119.63		Y	1
10/15/2013 00:00	181.476	179.176	106.12	75.356	103.82		Y	1
03/17/2014 00:00	181.480	179.180	76.55	104.93	74.25		Y	1
08/04/2014 00:00	181.470	179.170	186.11	-4.64	183.81		Y	1
10/13/2014 02:00	181.470	179.170	124.21	57.26	121.91		Y	1
03/16/2015 00:00	181.470	179.170	94.7	86.77	92.4		Y	1
06/01/2015 00:00	181.470	179.170	154.55	26.92	152.25		Y	1
08/03/2015 00:00	181.470	179.170	196.56	-15.09	194.26		Y	1
10/13/2015 02:00	181.470	179.170	143.31	38.16	141.01		Y	1
03/15/2016 00:00	181.470	179.170	99.74	81.73	97.44		Y	1
04/27/2016 08:40	181.470	179.170	112.3	69.17	110		Y	1
06/06/2016 00:00	181.470	179.170	129.99	51.48	127.69		Y	1
08/02/2016 00:00	181.470	179.170	145	36.47	142.7		Y	1
10/10/2016 00:00	181.470	179.170	130.77	50.7	128.47		Y	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W004

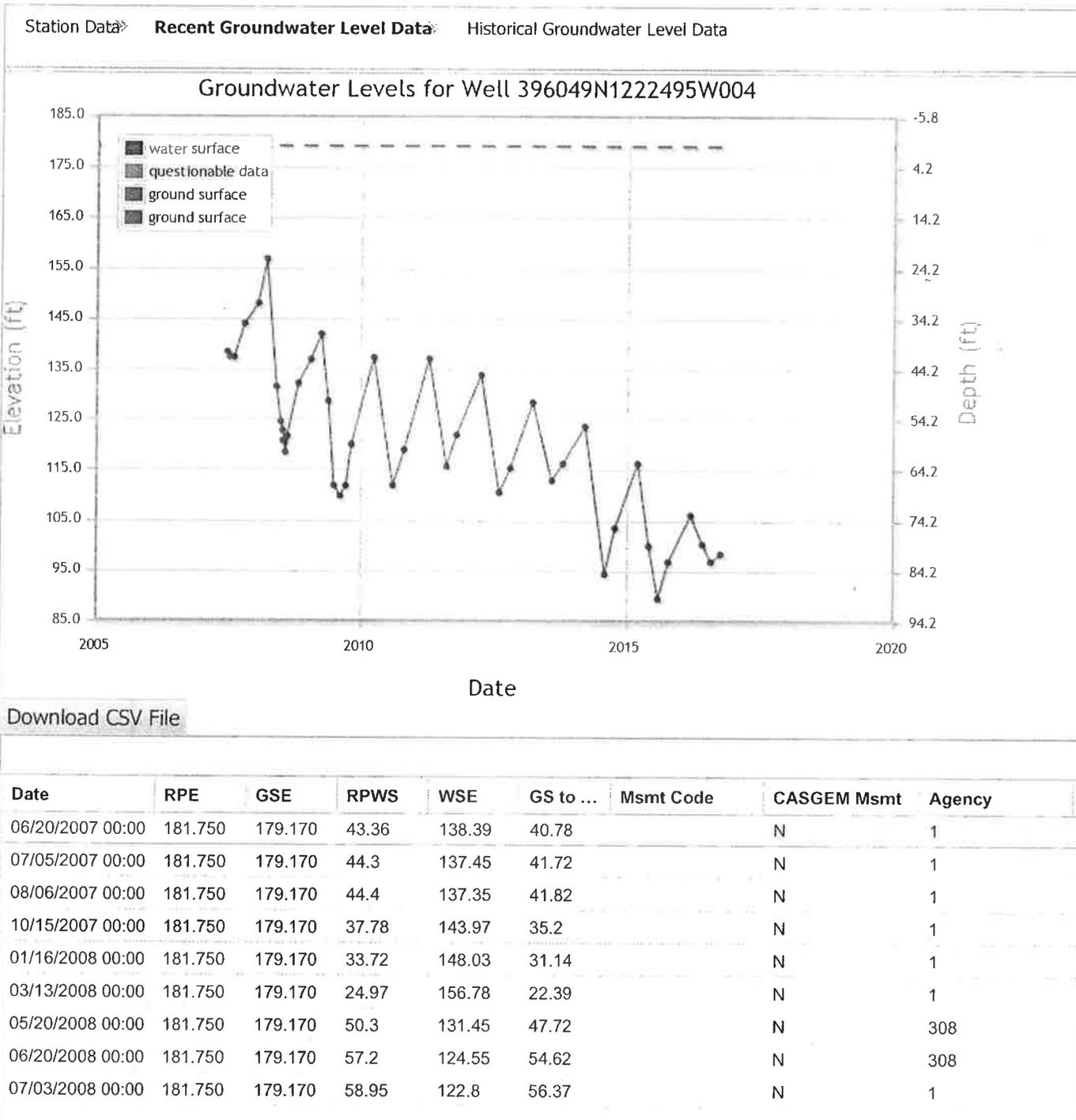
Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

<b>Station Data</b> Recent Groundwater Level Data   Historical Groundwater Level Data	
<p> <b>State Well Number:</b> 20N03W07E004M  <b>Local Well ID:</b> 20N03W07E004M  <b>Site Code:</b> 396049N1222495W004  <b>Latitude (NAD83):</b> 39.604900  <b>Longitude (NAD83):</b> -122.2495  <b>Groundwater Basin (code):</b> Colusa (5-21.52)                 </p>	<p> <b>Well Use:</b> Observation  <b>Well Status:</b> Active  <b>Well Completion Report Number:</b> E057712A  <b>Reference Point Elevation (NAVD88 ft):</b> 181.750  <b>Ground Surface Elevation (NAVD88 ft):</b> 179.170  <b>Total Depth (ft):</b> 160  <b>Perforated Interval Depths (ft):</b> 118.000 128.000                 </p>
<p style="font-size: small; text-align: right;">Bureau of Land Management, Esri, HERE, ...</p>	

[Perform a New Well Search](#)

## Groundwater Levels for Station 396049N1222495W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



07/07/2008 00:00	181.750	179.170	61.01	120.74	58.43	N	1
07/08/2008 00:00	181.750	179.170	61.01	120.74	58.43	N	1
07/22/2008 00:00	181.750	179.170	63.29	118.46	60.71	N	1
08/05/2008 00:00	181.750	179.170	60.08	121.67	57.5	N	1
10/20/2008 00:00	181.750	179.170	49.57	132.18	46.99	N	1
01/14/2009 00:00	181.750	179.170	44.85	136.9	42.27	N	1
03/25/2009 00:00	181.750	179.170	39.82	141.93	37.24	N	1
05/13/2009 00:00	181.750	179.170	53.11	128.64	50.53	N	1
06/24/2009 00:00	181.750	179.170	69.91	111.84	67.33	N	1
08/06/2009 00:00	181.750	179.170	71.95	109.8	69.37	N	1
09/15/2009 00:00	181.750	179.170	69.93	111.82	67.35	N	1
10/22/2009 00:00	181.750	179.170	61.71	120.04	59.13	N	1
03/23/2010 00:00	181.750	179.170	44.46	137.29	41.88	N	1
08/03/2010 00:00	181.750	179.170	69.89	111.86	67.31	N	1
10/18/2010 00:00	181.750	179.170	62.81	118.94	60.23	N	1
04/04/2011 00:00	181.750	179.170	44.73	137.02	42.15	N	1
08/02/2011 00:00	181.750	179.170	66.09	115.66	63.51	N	1
10/11/2011 00:00	181.750	179.170	59.81	121.94	57.23	Y	1
03/27/2012 00:00	181.750	179.170	47.91	133.84	45.33	Y	1
07/31/2012 00:00	181.750	179.170	71.31	110.44	68.73	Y	1
10/16/2012 00:00	181.750	179.170	66.43	115.32	63.85	Y	1
03/18/2013 00:00	181.750	179.170	53.4	128.35	50.82	Y	1
07/29/2013 00:00	181.750	179.170	68.92	112.83	66.34	Y	1
10/15/2013 00:00	181.750	179.170	65.53	116.22	62.95	Y	1
03/17/2014 00:00	181.750	179.170	58.12	123.63	55.54	Y	1
08/04/2014 00:00	181.750	179.170	87.47	94.28	84.89	Y	1
10/13/2014 03:00	181.750	179.170	78.31	103.44	75.73	Y	1
03/16/2015 00:00	181.750	179.170	65.48	116.27	62.9	Y	1
06/01/2015 00:00	181.750	179.170	81.85	99.9	79.27	Y	1
08/03/2015 00:00	181.750	179.170	92.34	89.41	89.76	Y	1
10/13/2015 03:00	181.750	179.170	85.03	96.72	82.45	Y	1
03/15/2016 00:00	181.750	179.170	75.72	106.03	73.14	Y	1
06/06/2016 00:00	181.750	179.170	81.53	100.22	78.95	Y	1
08/02/2016 00:00	181.750	179.170	84.97	96.78	82.39	Y	1
10/10/2016 00:00	181.750	179.170	83.44	98.31	80.86	Y	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396312N1222419W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data**
Recent Groundwater Level Data
Historical Groundwater Level Data

**State Well Number:** 21N03W31K001M  
**Local Well ID:**  
**Site Code:** 396312N1222419W001  
**Latitude (NAD83):** 39.631200  
**Longitude (NAD83):** -122.2419  
**Groundwater Basin (code):** Colusa (5-21.52)

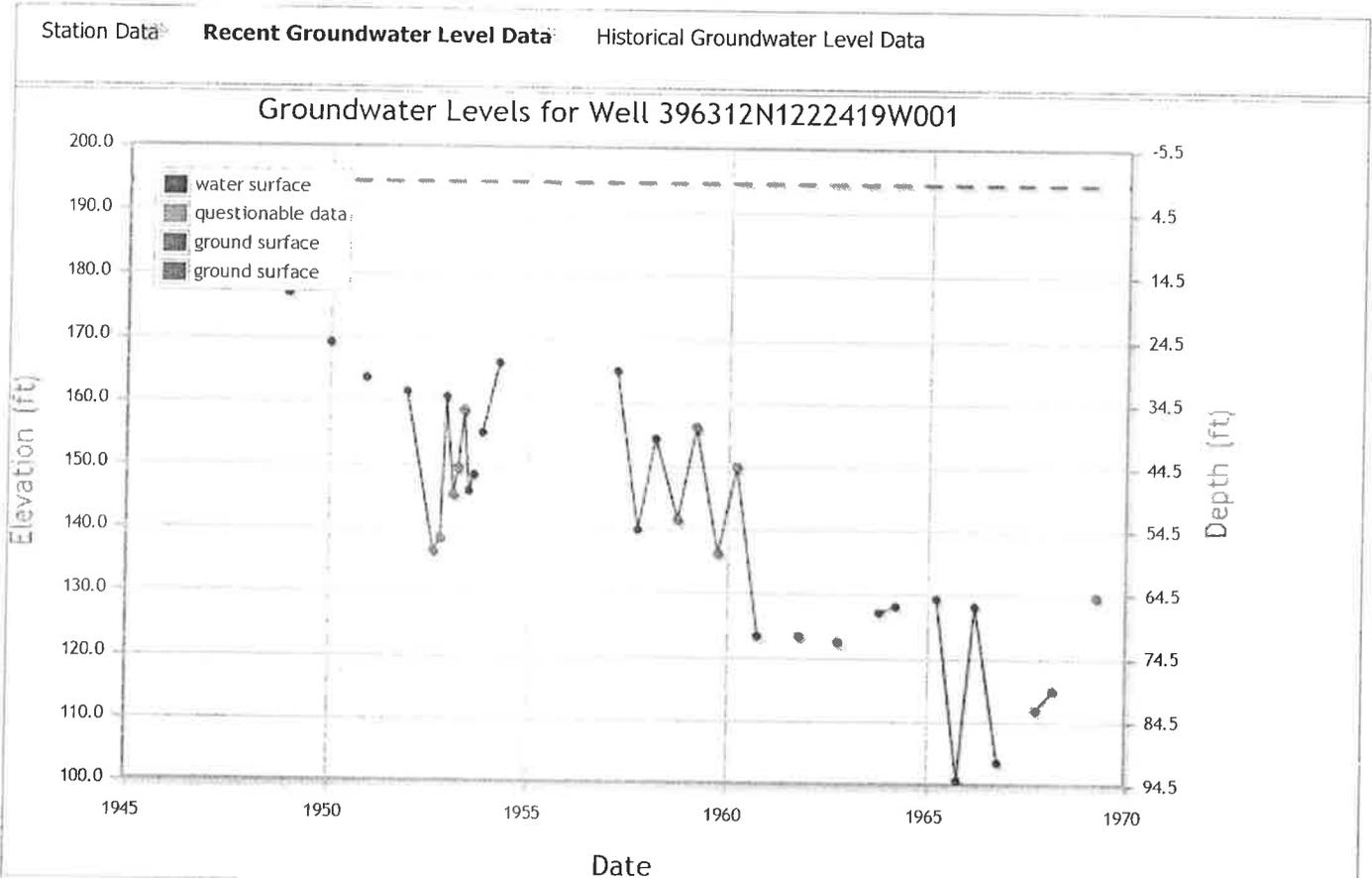
**Well Use:** Stockwatering  
**Well Status:** Inactive  
**Well Completion Report Number:**  
**Reference Point Elevation (NAVD88 ft):** 196.070  
**Ground Surface Elevation (NAVD88 ft):** 194.470  
**Total Depth (ft):** 142  
**Perforated Interval Depths (ft):**

Bureau of Land Management, Esri, HERE, ...

[Perform a New Well Search](#)

## Groundwater Levels for Station 396312N1222419W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



[Download CSV File](#)

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
12/16/1948 00:00	196.070	194.470	19.1	176.97	17.5		N	1
01/03/1950 00:00	196.070	194.470	27	169.07	25.4		N	1
11/28/1950 00:00	196.070	194.470	32.5	163.57	30.9		N	1
12/06/1951 00:00	196.070	194.470	34.6	161.47	33		N	1
08/21/1952 00:00	196.070	194.470	59.8	136.27	58.2	Q-2	N	1
10/23/1952 00:00	196.070	194.470	57.7	138.37	56.1	Q-2	N	1
12/11/1952 00:00	196.070	194.470	35.4	160.67	33.8		N	1
02/18/1953 00:00	196.070	194.470	50.9	145.17	49.3	Q-4	N	1
04/01/1953 00:00	196.070	194.470	46.6	149.47	45	Q-6	N	1

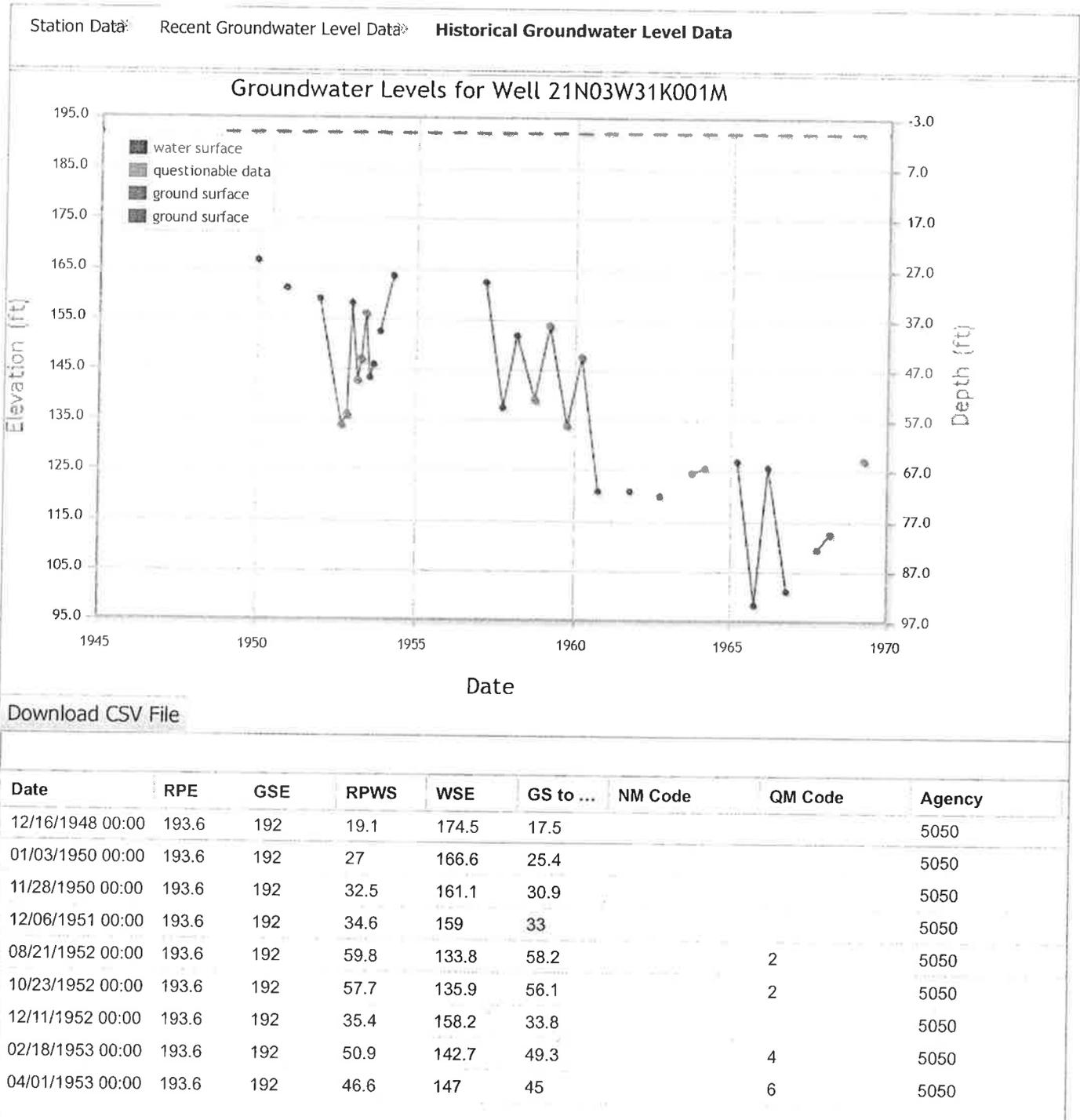
05/20/1953 00:00	196.070	194.470	37.5	158.57	35.9	Q-6	N	1
07/08/1953 00:00	196.070	194.470	50.3	145.77	48.7		N	1
08/24/1953 00:00	196.070	194.470	47.7	148.37	46.1		N	1
10/26/1953 00:00	196.070	194.470				N-1	N	1
11/04/1953 00:00	196.070	194.470	41.1	154.97	39.5		N	1
04/02/1954 00:00	196.070	194.470	30	166.07	28.4		N	1
03/13/1957 00:00	196.070	194.470	31.2	164.87	29.6		N	1
10/03/1957 00:00	196.070	194.470	56.2	139.87	54.6		N	1
03/05/1958 00:00	196.070	194.470	41.8	154.27	40.2		N	1
09/30/1958 00:00	196.070	194.470	54.6	141.47	53	Q-4	N	1
03/13/1959 00:00	196.070	194.470	39.9	156.17	38.3	Q-4	N	1
10/06/1959 00:00	196.070	194.470	59.8	136.27	58.2	Q-4	N	624
03/16/1960 00:00	196.070	194.470	46.1	149.97	44.5	Q-4	N	624
10/04/1960 00:00	196.070	194.470	72.8	123.27	71.2		N	624
03/07/1961 00:00	196.070	194.470				N-8	N	624
10/17/1961 00:00	196.070	194.470	72.8	123.27	71.2		N	624
03/28/1962 00:00	196.070	194.470				N-7	N	624
10/04/1962 00:00	196.070	194.470	73.7	122.37	72.1		N	624
03/12/1963 00:00	196.070	194.470				N-1	N	624
10/09/1963 00:00	196.070	194.470	69	127.07	67.4		N	624
03/10/1964 00:00	196.070	194.470	68	128.07	66.4		N	624
10/06/1964 00:00	196.070	194.470				N-1	N	624
03/17/1965 00:00	196.070	194.470	66.8	129.27	65.2		N	624
10/07/1965 00:00	196.070	194.470	95.4	100.67	93.8		N	624
03/10/1966 00:00	196.070	194.470	68	128.07	66.4		N	624
10/19/1966 00:00	196.070	194.470	92.6	103.47	91		N	624
03/15/1967 00:00	196.070	194.470				N-1	N	624
10/05/1967 00:00	196.070	194.470	84.3	111.77	82.7		N	624
03/07/1968 00:00	196.070	194.470	81.2	114.87	79.6		N	624
10/11/1968 00:00	196.070	194.470				N-9	N	624
04/03/1969 00:00	196.070	194.470	66.5	129.57	64.9	Q-3	N	624
10/17/1969 00:00	196.070	194.470				N-7	N	624

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396312N1222419W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



05/20/1953 00:00	193.6	192	37.5	156.1	35.9		6	5050
07/08/1953 00:00	193.6	192	50.3	143.3	48.7			5050
08/24/1953 00:00	193.6	192	47.7	145.9	46.1			5050
10/26/1953 00:00	193.6	192				1		5050
11/04/1953 00:00	193.6	192	41.1	152.5	39.5			5050
04/02/1954 00:00	193.6	192	30	163.6	28.4			5050
03/13/1957 00:00	193.6	192	31.2	162.4	29.6			5050
10/03/1957 00:00	193.6	192	56.2	137.4	54.6			5050
03/05/1958 00:00	193.6	192	41.8	151.8	40.2			5050
09/30/1958 00:00	193.6	192	54.6	139	53		4	5050
03/13/1959 00:00	193.6	192	39.9	153.7	38.3		4	5050
10/06/1959 00:00	193.6	192	59.8	133.8	58.2		4	5001
03/16/1960 00:00	193.6	192	46.1	147.5	44.5		4	5001
10/04/1960 00:00	193.6	192	72.8	120.8	71.2			5001
03/07/1961 00:00	193.6	192				8		5001
10/17/1961 00:00	193.6	192	72.8	120.8	71.2			5001
03/28/1962 00:00	193.6	192				7		5001
10/04/1962 00:00	193.6	192	73.7	119.9	72.1			5001
03/12/1963 00:00	193.6	192				1		5001
10/09/1963 00:00	193.6	192	69	124.6	67.4			5001
03/10/1964 00:00	193.6	192	68	125.6	66.4			5001
10/06/1964 00:00	193.6	192				1		5001
03/17/1965 00:00	193.6	192	66.8	126.8	65.2			5001
10/07/1965 00:00	193.6	192	95.4	98.2	93.8			5001
03/10/1966 00:00	193.6	192	68	125.6	66.4			5001
10/19/1966 00:00	193.6	192	92.6	101	91			5001
03/15/1967 00:00	193.6	192				1		5001
10/05/1967 00:00	193.6	192	84.3	109.3	82.7			5001
03/07/1968 00:00	193.6	192	81.2	112.4	79.6			5001
10/11/1968 00:00	193.6	192				9		5001
04/03/1969 00:00	193.6	192	66.5	127.1	64.9		3	5001
10/17/1969 00:00	193.6	192				7		5001

All elevation and depth measurements are in feet. The vertical datum for historical measurements is NGVD29.

[Perform a New Well Search](#)

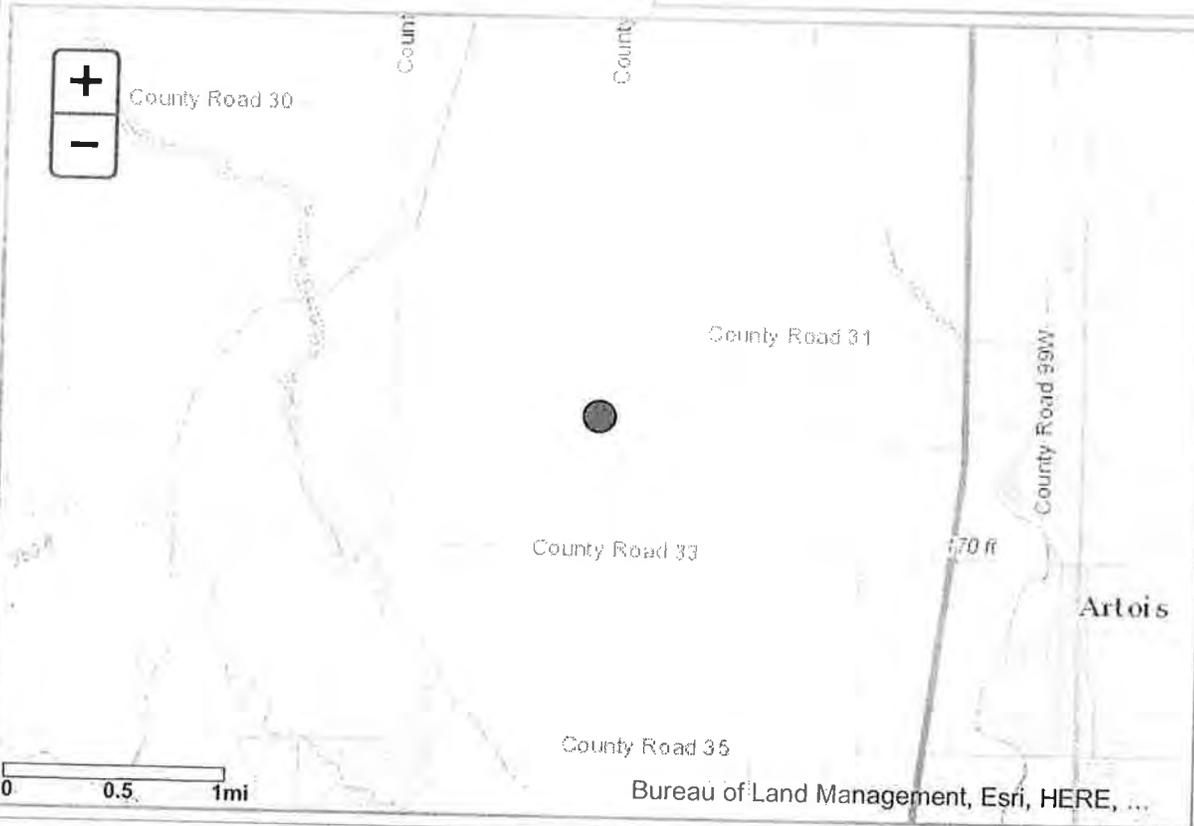
## Groundwater Levels for Station 396332N1222356W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

Station Data  Recent Groundwater Level Data  Historical Groundwater Level Data

**State Well Number:** 21N03W31H001M  
**Local Well ID:** 21N03W31H001M  
**Site Code:** 396332N1222356W001  
**Latitude (NAD83):** 39.633200  
**Longitude (NAD83):** -122.2356  
**Groundwater Basin (code):** Colusa (5-21.52)

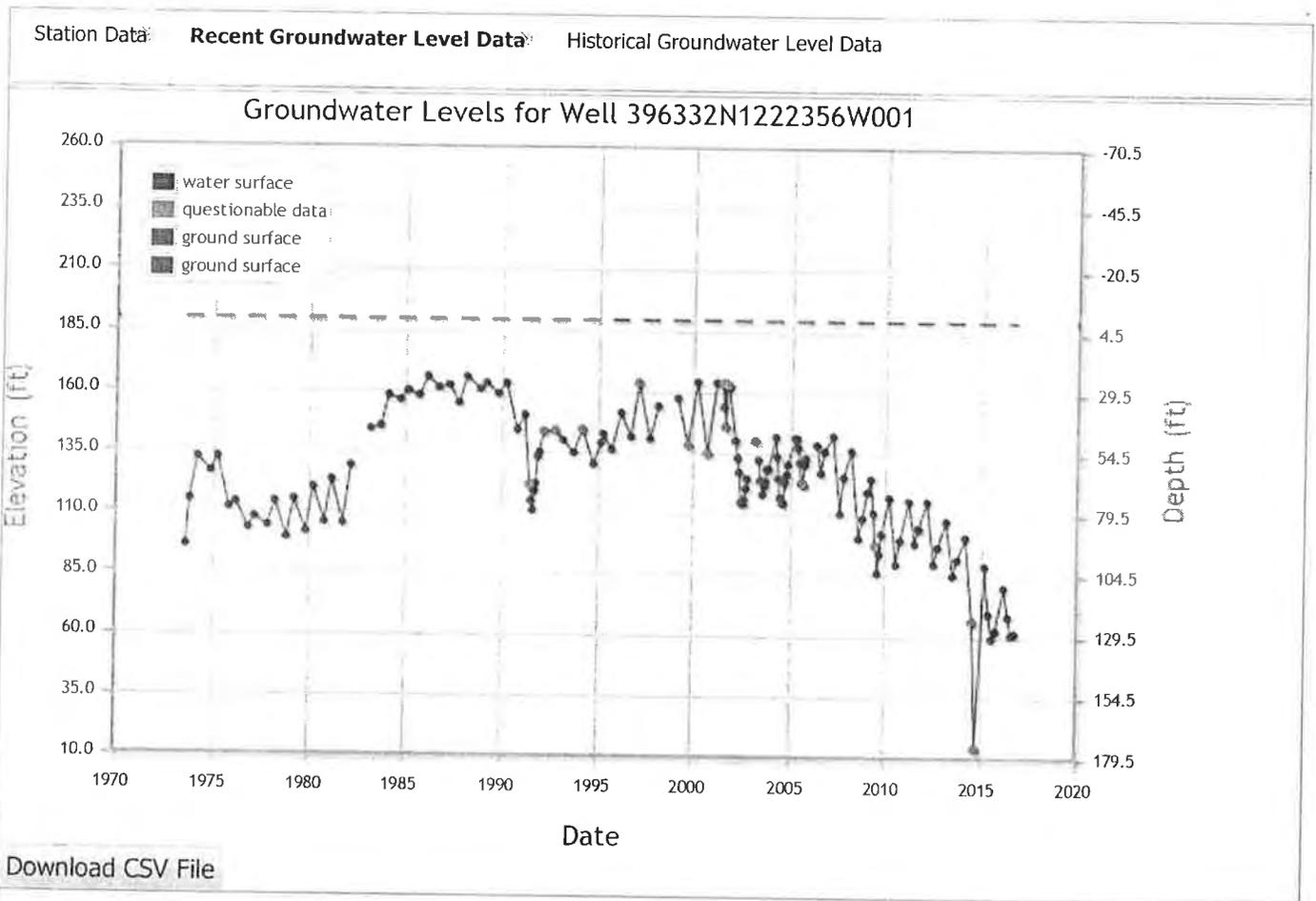
**Well Use:** Residential  
**Well Status:** Active  
**Well Completion Report Number:** 57173  
**Reference Point Elevation (NAVD88 ft):** 189.940  
**Ground Surface Elevation (NAVD88 ft):** 189.460  
**Total Depth (ft):** 161  
**Perforated Interval Depths (ft):** 142.000 156.000



[Perform a New Well Search](#)

# Groundwater Levels for Station 396332N1222356W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
08/10/1973 00:00	189.960	189.460	94	95.96	93.5		N	1
10/19/1973 00:00	189.960	189.460	75.2	114.76	74.7		N	1
03/12/1974 00:00	189.960	189.460	57.8	132.16	57.3		N	1
11/13/1974 00:00	189.960	189.460	63.7	126.26	63.2		N	1
03/27/1975 00:00	189.960	189.460	57.7	132.26	57.2		N	1
10/31/1975 00:00	189.960	189.460	78.4	111.56	77.9		N	1
03/09/1976 00:00	189.960	189.460	76.3	113.66	75.8		N	1
11/04/1976 00:00	189.960	189.460	87	102.96	86.5		N	1
03/01/1977 00:00	189.960	189.460	82.4	107.56	81.9		N	1

11/03/1977 00:00	189.960	189.460	85.9	104.06	85.4		N	1
03/16/1978 00:00	189.960	189.460	76	113.96	75.5		N	1
10/31/1978 00:00	189.960	189.460	90.8	99.16	90.3		N	1
03/13/1979 00:00	189.960	189.460	75.1	114.86	74.6		N	1
10/30/1979 00:00	189.960	189.460	88.3	101.66	87.8		N	1
03/18/1980 00:00	189.960	189.460	70	119.96	69.5		N	1
10/21/1980 00:00	189.960	189.460	84.4	105.56	83.9		N	1
03/03/1981 00:00	189.960	189.460	66.8	123.16	66.3		N	1
10/14/1981 00:00	189.960	189.460	84.8	105.16	84.3		N	1
03/11/1982 00:00	189.960	189.460	61	128.96	60.5		N	1
10/06/1982 00:00	189.960	189.460				N-9	N	1
04/01/1983 00:00	189.960	189.460	45.8	144.16	45.3		N	1
10/11/1983 00:00	189.960	189.460	44.6	145.36	44.1		N	1
03/06/1984 00:00	189.960	189.460	32	157.96	31.5		N	1
10/10/1984 00:00	189.960	189.460	33.8	156.16	33.3		N	1
03/07/1985 00:00	189.960	189.460	30	159.96	29.5		N	1
10/01/1985 00:00	189.960	189.460	32	157.96	31.5		N	1
03/13/1986 00:00	189.960	189.460	24.3	165.66	23.8		N	1
10/08/1986 00:00	189.960	189.460	28.7	161.26	28.2		N	1
04/17/1987 00:00	189.960	189.460	27.7	162.26	27.2		N	1
10/14/1987 00:00	189.960	189.460	35	154.96	34.5		N	1
03/08/1988 00:00	189.960	189.460	24.2	165.76	23.7		N	1
11/12/1988 00:00	189.960	189.460	29.2	160.76	28.7		N	1
03/07/1989 00:00	189.960	189.460	26.7	163.26	26.2		N	1
10/16/1989 00:00	189.960	189.460	31.1	158.86	30.6		N	1
03/14/1990 00:00	189.960	189.460	26.7	163.26	26.2		N	1
10/17/1990 00:00	189.960	189.460	46	143.96	45.5		N	1
03/11/1991 00:00	189.960	189.460	39.8	150.16	39.3		N	1
06/11/1991 00:00	189.960	189.460	68.4	121.56	67.9	Q-4	N	1
07/09/1991 00:00	189.960	189.460	75.2	114.76	74.7		N	1
08/08/1991 00:00	189.960	189.460	79	110.96	78.5		N	1
09/12/1991 00:00	189.960	189.460	71	118.96	70.5		N	1
10/01/1991 00:00	189.960	189.460	67.9	122.06	67.4		N	1
11/13/1991 00:00	189.960	189.460	56.9	133.06	56.4		N	1
12/16/1991 00:00	189.960	189.460	55	134.96	54.5		N	1
03/02/1992 00:00	189.960	189.460	46.4	143.56	45.9	Q-4	N	1
10/06/1992 00:00	189.960	189.460	46	143.96	45.5	Q-4	N	1
03/16/1993 00:00	189.960	189.460	50.1	139.86	49.6		N	1
10/05/1993 00:00	189.960	189.460	55.2	134.76	54.7		N	1
03/15/1994 00:00	189.960	189.460	45.5	144.46	45	Q-3	N	1
10/18/1994 00:00	189.960	189.460	59.9	130.06	59.4		N	1
03/07/1995 00:00	189.960	189.460	51	138.96	50.5		N	1
04/18/1995 00:00	189.960	189.460	47.3	142.66	46.8		N	1
10/03/1995 00:00	189.960	189.460	53.8	136.16	53.3		N	1

03/27/1996 00:00	189.960	189.460	38.6	151.36	38.1		N	1
10/08/1996 00:00	189.960	189.460	48.6	141.36	48.1		N	1
03/04/1997 00:00	189.960	189.460	26.2	163.76	25.7	Q-4	N	1
10/07/1997 00:00	189.960	189.460	49.3	140.66	48.8		N	1
03/11/1998 00:00	189.960	189.460	35.8	154.16	35.3		N	1
10/08/1998 00:00	189.960	189.460				N-9	N	1
03/16/1999 00:00	189.960	189.460	32.5	157.46	32		N	1
10/04/1999 00:00	189.960	189.460	51.7	138.26	51.2	Q-1	N	1
03/23/2000 00:00	189.960	189.460	25.8	164.16	25.3		N	1
10/04/2000 00:00	189.960	189.460	55.2	134.76	54.7	Q-4	N	1
03/20/2001 00:00	189.960	189.460	26	163.96	25.5		N	1
07/17/2001 00:00	189.960	189.460	26.4	163.56	25.9	Q-4	N	1
08/01/2001 00:00	189.960	189.460	36.1	153.86	35.6		N	1
08/16/2001 00:00	189.960	189.460	26.1	163.86	25.6	Q-3	N	1
09/05/2001 00:00	189.960	189.460	44.1	145.86	43.6	Q-3	N	1
10/09/2001 00:00	189.960	189.460	26.8	163.16	26.3		N	1
11/08/2001 00:00	189.960	189.460	27.1	162.86	26.6	Q-3	N	1
03/19/2002 00:00	189.960	189.460	49.8	140.16	49.3		N	1
04/23/2002 00:00	189.960	189.460	57	132.96	56.5		N	1
05/21/2002 00:00	189.960	189.460	62.8	127.16	62.3		N	1
06/26/2002 00:00	189.960	189.460	75.2	114.76	74.7		N	1
07/24/2002 00:00	189.960	189.460	76	113.96	75.5		N	1
08/20/2002 00:00	189.960	189.460	74	115.96	73.5		N	1
09/24/2002 00:00	189.960	189.460	69.4	120.56	68.9		N	1
10/17/2002 00:00	189.960	189.460	65.4	124.56	64.9		N	1
11/20/2002 00:00	189.960	189.460				N-1	N	1
03/13/2003 00:00	189.960	189.460	49.7	140.26	49.2		N	1
04/08/2003 00:00	189.960	189.460				N-2	N	1
05/20/2003 00:00	189.960	189.460	57.7	132.26	57.2		N	1
06/20/2003 00:00	189.960	189.460	66.2	123.76	65.7		N	1
07/30/2003 00:00	189.960	189.460	71.8	118.16	71.3		N	1
08/28/2003 00:00	189.960	189.460	68.3	121.66	67.8		N	1
09/18/2003 00:00	189.960	189.460	66.4	123.56	65.9		N	1
10/15/2003 00:00	189.960	189.460	61.6	128.36	61.1		N	1
11/18/2003 00:00	189.960	189.460	61.3	128.66	60.8		N	1
03/31/2004 00:00	189.960	189.460	48.2	141.76	47.7		N	1
04/27/2004 00:00	189.960	189.460	56.2	133.76	55.7		N	1
05/21/2004 00:00	189.960	189.460	65.4	124.56	64.9		N	1
06/22/2004 00:00	189.960	189.460	73.2	116.76	72.7		N	1
07/28/2004 00:00	189.960	189.460	75.5	114.46	75		N	1
08/25/2004 00:00	189.960	189.460	75.2	114.76	74.7		N	1
09/22/2004 00:00	189.960	189.460	66.9	123.06	66.4		N	1
10/20/2004 00:00	189.960	189.460	63.6	126.36	63.1		N	1
11/16/2004 00:00	189.960	189.460	59.4	130.56	58.9		N	1

03/29/2005 00:00	189.960	189.460	48.7	141.26	48.2		N	1
04/29/2005 00:00	189.960	189.460	48.6	141.36	48.1		N	1
05/25/2005 00:00	189.960	189.460	52.5	137.46	52		N	1
06/24/2005 00:00	189.960	189.460	58.6	131.36	58.1		N	1
07/27/2005 00:00	189.960	189.460	67.4	122.56	66.9		N	1
08/24/2005 00:00	189.960	189.460	67.3	122.66	66.8	Q-1	N	1
09/30/2005 00:00	189.960	189.460	59.3	130.66	58.8		N	1
10/19/2005 00:00	189.960	189.460	57	132.96	56.5		N	1
03/28/2006 00:00	189.960	189.460				N-9	N	1
05/18/2006 00:00	189.960	189.460	51.4	138.56	50.9		N	1
08/02/2006 00:00	189.960	189.460	62.9	127.06	62.4		N	1
10/10/2006 00:00	189.960	189.460	54	135.96	53.5		N	1
03/19/2007 00:00	189.960	189.460	47.7	142.26	47.2		N	1
08/06/2007 00:00	189.960	189.460	79.65	110.31	79.15		N	1
10/16/2007 00:00	189.940	189.460	64.65	125.29	64.17		N	1
03/10/2008 00:00	189.940	189.460	53.7	136.24	53.22		N	1
08/05/2008 00:00	189.940	189.460	89.8	100.14	89.32		N	1
10/21/2008 00:00	189.940	189.460	81.5	108.44	81.02		N	1
01/14/2009 00:00	189.940	189.460	70.63	119.31	70.15		N	1
03/25/2009 00:00	189.940	189.460	65.2	124.74	64.72		N	1
05/13/2009 00:00	189.940	189.460	79.18	110.76	78.7		N	1
06/25/2009 00:00	189.940	189.460	92.5	97.44	92.02	Q-1	N	1
08/05/2009 00:00	189.940	189.460	103.86	86.08	103.38		N	1
09/15/2009 00:00	189.940	189.460	96.25	93.69	95.77		N	1
10/22/2009 00:00	189.940	189.460	87.82	102.12	87.34		N	1
03/23/2010 00:00	189.940	189.460	72.93	117.01	72.45		N	1
08/03/2010 00:00	189.940	189.460	100.3	89.64	99.82		N	1
10/18/2010 00:00	189.940	189.460	90.36	99.58	89.88		N	1
04/04/2011 00:00	189.940	189.460	74.21	115.73	73.73		N	1
08/02/2011 00:00	189.940	189.460	91.78	98.16	91.3		N	1
10/11/2011 00:00	189.940	189.460	85.37	104.57	84.89		N	1
10/11/2011 00:00	189.940	189.460	85.37	104.57	84.89		N	1
03/27/2012 00:00	189.940	189.460	74.4	115.54	73.92		N	1
07/31/2012 00:00	189.940	189.460	100.21	89.73	99.73		N	1
10/16/2012 00:00	189.940	189.460	93.12	96.82	92.64		N	1
03/21/2013 00:00	189.940	189.460	82.3	107.64	81.82		N	1
07/29/2013 00:00	189.940	189.460	104.81	85.13	104.33		N	1
10/15/2013 00:00	189.940	189.460	98.19	91.75	97.71		N	1
03/17/2014 00:00	189.940	189.460	88.94	101	88.46		Y	1
08/04/2014 00:00	189.940	189.460	123.46	66.48	122.98	Q-6	N	1
10/13/2014 00:00	189.940	189.460	175.85	14.09	175.37	Q-6	N	1
03/16/2015 00:00	189.940	189.460	100.84	89.1	100.36		N	1
06/03/2015 00:00	189.940	189.460	120.5	69.44	120.02		N	1
08/03/2015 00:00	189.940	189.460	130.8	59.14	130.32		N	1

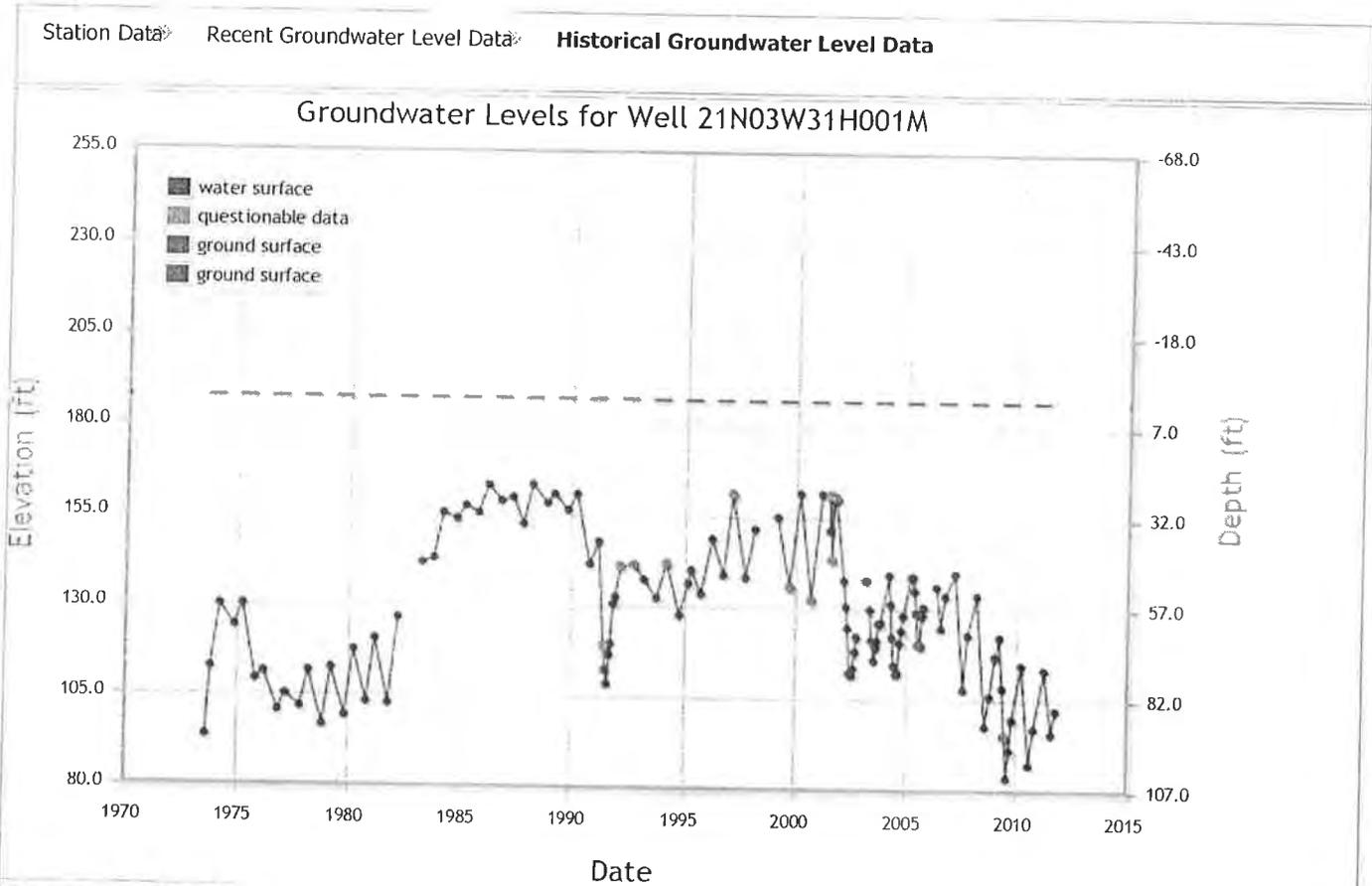
10/13/2015 01:00	189.940	189.460	127.5	62.44	127.02	N	1
03/15/2016 00:00	189.940	189.460	109.67	80.27	109.19	N	1
06/06/2016 00:00	189.940	189.460	121.6	68.34	121.12	N	1
08/02/2016 00:00	189.940	189.460	129.44	60.5	128.96	N	1
10/10/2016 00:00	189.940	189.460	128.5	61.44	128.02	N	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396332N1222356W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



[Download CSV File](#)

Date	RPE	GSE	RPWS	WSE	GS to ...	NM Code	QM Code	Agency
08/10/1973 00:00	187.5	187	94	93.5	93.5			5050
10/19/1973 00:00	187.5	187	75.2	112.3	74.7			5050
03/12/1974 00:00	187.5	187	57.8	129.7	57.3			5050
11/13/1974 00:00	187.5	187	63.7	123.8	63.2			5050
03/27/1975 00:00	187.5	187	57.7	129.8	57.2			5050
10/31/1975 00:00	187.5	187	78.4	109.1	77.9			5050
03/09/1976 00:00	187.5	187	76.3	111.2	75.8			5050
11/04/1976 00:00	187.5	187	87	100.5	86.5			5050
03/01/1977 00:00	187.5	187	82.4	105.1	81.9			5050

11/03/1977 00:00	187.5	187	85.9	101.6	85.4		5050
03/16/1978 00:00	187.5	187	76	111.5	75.5		5050
10/31/1978 00:00	187.5	187	90.8	96.7	90.3		5050
03/13/1979 00:00	187.5	187	75.1	112.4	74.6		5050
10/30/1979 00:00	187.5	187	88.3	99.2	87.8		5050
03/18/1980 00:00	187.5	187	70	117.5	69.5		5050
10/21/1980 00:00	187.5	187	84.4	103.1	83.9		5050
03/03/1981 00:00	187.5	187	66.8	120.7	66.3		5050
10/14/1981 00:00	187.5	187	84.8	102.7	84.3		5050
03/11/1982 00:00	187.5	187	61	126.5	60.5		5050
10/06/1982 00:00	187.5	187				9	5050
04/01/1983 00:00	187.5	187	45.8	141.7	45.3		5050
10/11/1983 00:00	187.5	187	44.6	142.9	44.1		5050
03/06/1984 00:00	187.5	187	32	155.5	31.5		5050
10/10/1984 00:00	187.5	187	33.8	153.7	33.3		5050
03/07/1985 00:00	187.5	187	30	157.5	29.5		5050
10/01/1985 00:00	187.5	187	32	155.5	31.5		5050
03/13/1986 00:00	187.5	187	24.3	163.2	23.8		5050
10/08/1986 00:00	187.5	187	28.7	158.8	28.2		5050
04/17/1987 00:00	187.5	187	27.7	159.8	27.2		5050
10/14/1987 00:00	187.5	187	35	152.5	34.5		5050
03/08/1988 00:00	187.5	187	24.2	163.3	23.7		5050
11/12/1988 00:00	187.5	187	29.2	158.3	28.7		5050
03/07/1989 00:00	187.5	187	26.7	160.8	26.2		5050
10/16/1989 00:00	187.5	187	31.1	156.4	30.6		5050
03/14/1990 00:00	187.5	187	26.7	160.8	26.2		5050
10/17/1990 00:00	187.5	187	46	141.5	45.5		5050
03/11/1991 00:00	187.5	187	39.8	147.7	39.3		5050
06/11/1991 00:00	187.5	187	68.4	119.1	67.9	4	5050
07/09/1991 00:00	187.5	187	75.2	112.3	74.7		5050
08/08/1991 00:00	187.5	187	79	108.5	78.5		5050
09/12/1991 00:00	187.5	187	71	116.5	70.5		5050
10/01/1991 00:00	187.5	187	67.9	119.6	67.4		5050
11/13/1991 00:00	187.5	187	56.9	130.6	56.4		5050
12/16/1991 00:00	187.5	187	55	132.5	54.5		5050
03/02/1992 00:00	187.5	187	46.4	141.1	45.9	4	5050
10/06/1992 00:00	187.5	187	46	141.5	45.5	4	5050
03/16/1993 00:00	187.5	187	50.1	137.4	49.6		5050
10/05/1993 00:00	187.5	187	55.2	132.3	54.7		5050
03/15/1994 00:00	187.5	187	45.5	142	45	3	5050
10/18/1994 00:00	187.5	187	59.9	127.6	59.4		5050
03/07/1995 00:00	187.5	187	51	136.5	50.5		5050
04/18/1995 00:00	187.5	187	47.3	140.2	46.8		5050
10/03/1995 00:00	187.5	187	53.8	133.7	53.3		5050

03/27/1996 00:00	187.5	187	38.6	148.9	38.1		5050
10/08/1996 00:00	187.5	187	48.6	138.9	48.1		5050
03/04/1997 00:00	187.5	187	26.2	161.3	25.7	4	5050
10/07/1997 00:00	187.5	187	49.3	138.2	48.8		5050
03/11/1998 00:00	187.5	187	35.8	151.7	35.3		5050
10/08/1998 00:00	187.5	187				9	5050
03/16/1999 00:00	187.5	187	32.5	155	32		5050
10/04/1999 00:00	187.5	187	51.7	135.8	51.2	1	5050
03/23/2000 00:00	187.5	187	25.8	161.7	25.3		5050
10/04/2000 00:00	187.5	187	55.2	132.3	54.7	4	5050
03/20/2001 00:00	187.5	187	26	161.5	25.5		5050
07/17/2001 00:00	187.5	187	26.4	161.1	25.9	4	5050
08/01/2001 00:00	187.5	187	36.1	151.4	35.6		5050
08/16/2001 00:00	187.5	187	26.1	161.4	25.6	3	5050
09/05/2001 00:00	187.5	187	44.1	143.4	43.6	3	5050
10/09/2001 00:00	187.5	187	26.8	160.7	26.3		5050
11/08/2001 00:00	187.5	187	27.1	160.4	26.6	3	5050
03/19/2002 00:00	187.5	187	49.8	137.7	49.3		5050
04/23/2002 00:00	187.5	187	57	130.5	56.5		5050
05/21/2002 00:00	187.5	187	62.8	124.7	62.3		5050
06/26/2002 00:00	187.5	187	75.2	112.3	74.7		5050
07/24/2002 00:00	187.5	187	76	111.5	75.5		5050
08/20/2002 00:00	187.5	187	74	113.5	73.5		5050
09/24/2002 00:00	187.5	187	69.4	118.1	68.9		5050
10/17/2002 00:00	187.5	187	65.4	122.1	64.9		5050
11/20/2002 00:00	187.5	187				1	5050
03/13/2003 00:00	187.5	187	49.7	137.8	49.2		5050
04/08/2003 00:00	187.5	187				2	5050
05/20/2003 00:00	187.5	187	57.7	129.8	57.2		5050
06/20/2003 00:00	187.5	187	66.2	121.3	65.7		5050
07/30/2003 00:00	187.5	187	71.8	115.7	71.3		5050
08/28/2003 00:00	187.5	187	68.3	119.2	67.8		5050
09/18/2003 00:00	187.5	187	66.4	121.1	65.9		5050
10/15/2003 00:00	187.5	187	61.6	125.9	61.1		5050
11/18/2003 00:00	187.5	187	61.3	126.2	60.8		5050
03/31/2004 00:00	187.5	187	48.2	139.3	47.7		5050
04/27/2004 00:00	187.5	187	56.2	131.3	55.7		5050
05/21/2004 00:00	187.5	187	65.4	122.1	64.9		5050
06/22/2004 00:00	187.5	187	73.2	114.3	72.7		5050
07/28/2004 00:00	187.5	187	75.5	112	75		5050
08/25/2004 00:00	187.5	187	75.2	112.3	74.7		5050
09/22/2004 00:00	187.5	187	66.9	120.6	66.4		5050
10/20/2004 00:00	187.5	187	63.6	123.9	63.1		5050
11/16/2004 00:00	187.5	187	59.4	128.1	58.9		5050

03/29/2005 00:00	187.5	187	48.7	138.8	48.2		5050
04/29/2005 00:00	187.5	187	48.6	138.9	48.1		5050
05/25/2005 00:00	187.5	187	52.5	135	52		5050
06/24/2005 00:00	187.5	187	58.6	128.9	58.1		5050
07/27/2005 00:00	187.5	187	67.4	120.1	66.9		5050
08/24/2005 00:00	187.5	187	67.3	120.2	66.8	1	5050
09/30/2005 00:00	187.5	187	59.3	128.2	58.8		5050
10/19/2005 00:00	187.5	187	57	130.5	56.5		5050
03/28/2006 00:00	187.5	187				9	5050
05/18/2006 00:00	187.5	187	51.4	136.1	50.9		5050
08/02/2006 00:00	187.5	187	62.9	124.6	62.4		5050
10/10/2006 00:00	187.5	187	54	133.5	53.5		5050
03/19/2007 00:00	187.5	187	47.7	139.8	47.2		5050
08/06/2007 00:00	187.5	187	79.65	107.85	79.15		5050
10/16/2007 00:00	187.48	187	64.65	122.83	64.17		5050
03/10/2008 00:00	187.48	187	53.7	133.78	53.22		5050
08/05/2008 00:00	187.48	187	89.8	97.68	89.32		5050
10/21/2008 00:00	187.48	187	81.5	105.98	81.02		5050
01/14/2009 00:00	187.48	187	70.63	116.85	70.15		5050
03/25/2009 00:00	187.48	187	65.2	122.28	64.72		5050
05/13/2009 00:00	187.48	187	79.18	108.3	78.7		5050
06/25/2009 00:00	187.48	187	92.5	94.98	92.02	1	5050
08/05/2009 00:00	187.48	187	103.86	83.62	103.38		5050
09/15/2009 00:00	187.48	187	96.25	91.23	95.77		5050
10/22/2009 00:00	187.48	187	87.82	99.66	87.34		5050
03/23/2010 00:00	187.48	187	72.93	114.55	72.45		5050
08/03/2010 00:00	187.48	187	100.3	87.18	99.82		5050
10/18/2010 00:00	187.48	187	90.36	97.12	89.88		5050
04/04/2011 00:00	187.48	187	74.21	113.27	73.73		5050
08/02/2011 00:00	187.48	187	91.78	95.7	91.3		5050
10/11/2011 00:00	187.48	187	85.37	102.11	84.89		5050

All elevation and depth measurements are in feet. The vertical datum for historical measurements is NGVD29.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396309N1222335W001

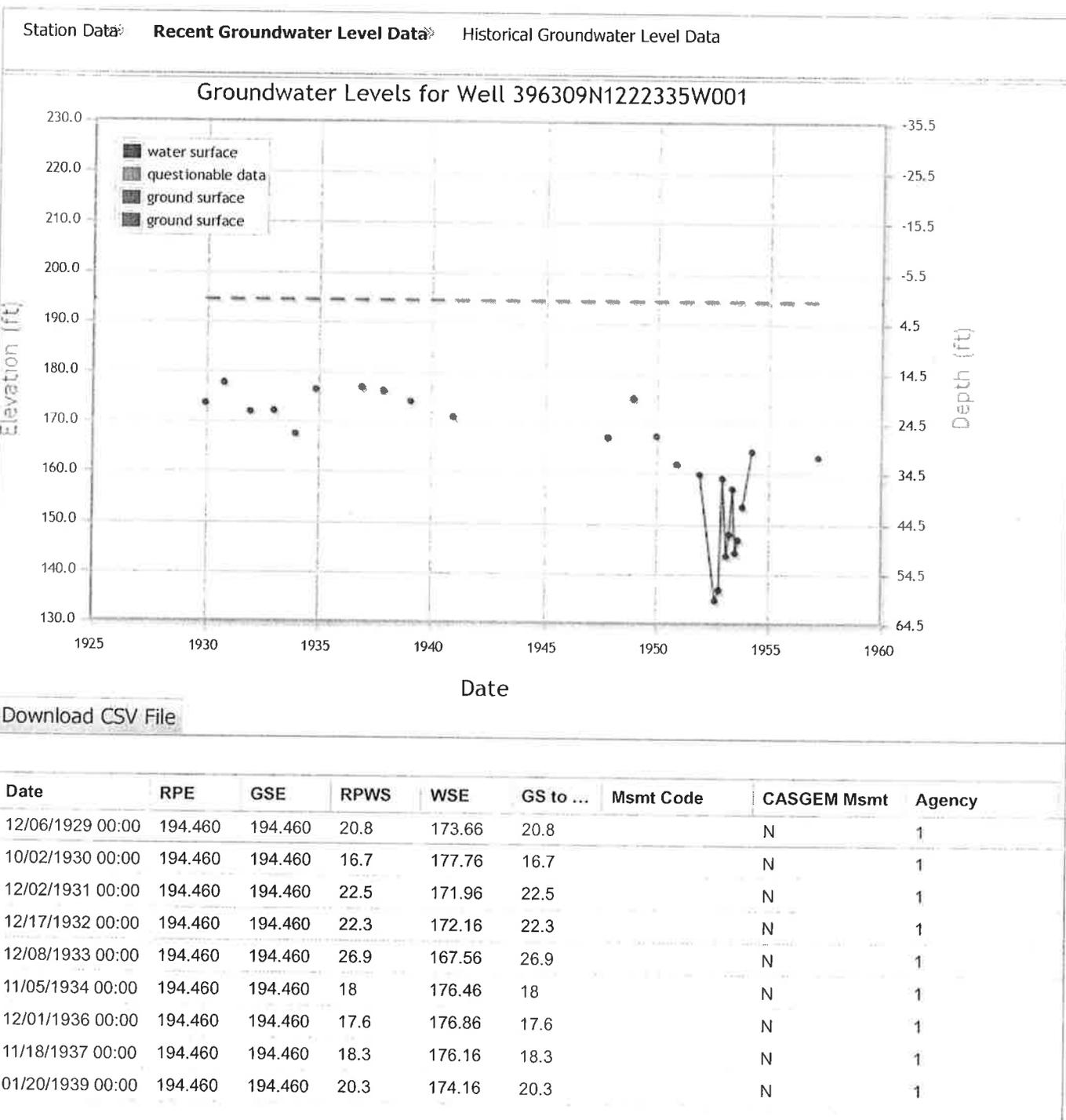
Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

<span style="font-weight: bold;">Station Data</span> <a href="#">Recent Groundwater Level Data</a> <a href="#">Historical Groundwater Level Data</a>	
<p><b>State Well Number:</b> 21N03W32M001M  <b>Local Well ID:</b>  <b>Site Code:</b> 396309N1222335W001  <b>Latitude (NAD83):</b> 39.630900  <b>Longitude (NAD83):</b> -122.2335  <b>Groundwater Basin (code):</b> Colusa (5-21.52)</p>	<p><b>Well Use:</b> Unknown  <b>Well Status:</b> Inactive  <b>Well Completion Report Number:</b>  <b>Reference Point Elevation (NAVD88 ft):</b> 194.460  <b>Ground Surface Elevation (NAVD88 ft):</b> 194.460  <b>Total Depth (ft):</b> 33  <b>Perforated Interval Depths (ft):</b></p>
<p style="text-align: right; font-size: small;">Bureau of Land Management, Esri, HERE, ...</p>	

[Perform a New Well Search](#)

## Groundwater Levels for Station 396309N1222335W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



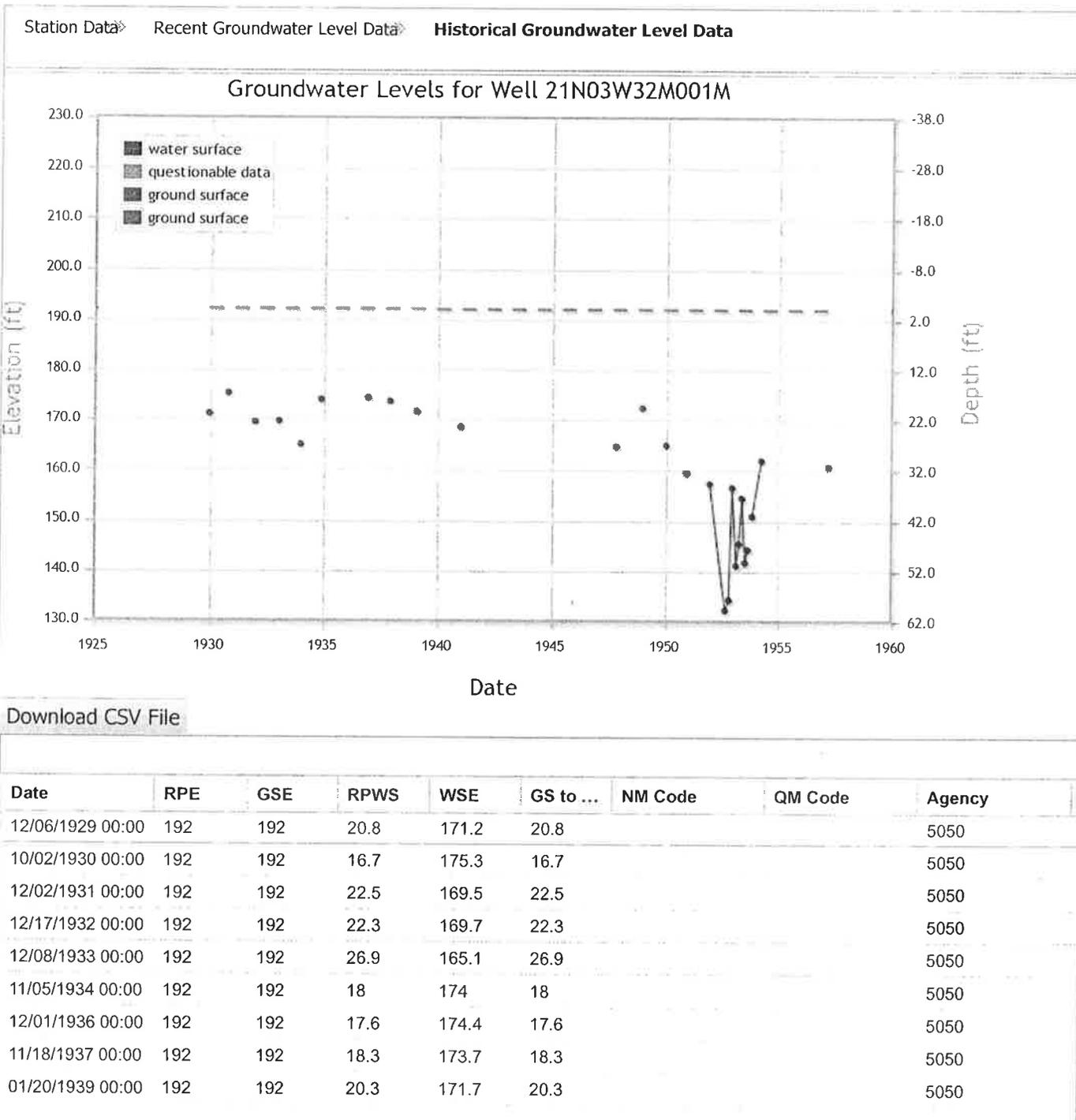
12/13/1940 00:00	194.460	194.460	23.4	171.06	23.4		N	1
10/24/1947 00:00	194.460	194.460	27.2	167.26	27.2		N	1
12/16/1948 00:00	194.460	194.460	19.6	174.86	19.6		N	1
01/03/1950 00:00	194.460	194.460	27	167.46	27		N	1
11/28/1950 00:00	194.460	194.460	32.5	161.96	32.5		N	1
12/06/1951 00:00	194.460	194.460	34.6	159.86	34.6		N	1
08/21/1952 00:00	194.460	194.460	59.8	134.66	59.8		N	1
10/23/1952 00:00	194.460	194.460	57.7	136.76	57.7		N	1
12/11/1952 00:00	194.460	194.460	35.4	159.06	35.4		N	1
02/18/1953 00:00	194.460	194.460	50.9	143.56	50.9		N	1
04/01/1953 00:00	194.460	194.460	46.6	147.86	46.6		N	1
05/20/1953 00:00	194.460	194.460	37.5	156.96	37.5		N	1
07/08/1953 00:00	194.460	194.460	50.3	144.16	50.3		N	1
08/24/1953 00:00	194.460	194.460	47.7	146.76	47.7		N	1
10/26/1953 00:00	194.460	194.460				N-1	N	1
11/04/1953 00:00	194.460	194.460	41.1	153.36	41.1		N	1
04/02/1954 00:00	194.460	194.460	30	164.46	30		N	1
03/13/1957 00:00	194.460	194.460	31.2	163.26	31.2		N	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396309N1222335W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



12/13/1940 00:00	192	192	23.4	168.6	23.4	5050
10/24/1947 00:00	192	192	27.2	164.8	27.2	5050
12/16/1948 00:00	192	192	19.6	172.4	19.6	5050
01/03/1950 00:00	192	192	27	165	27	5050
11/28/1950 00:00	192	192	32.5	159.5	32.5	5050
12/06/1951 00:00	192	192	34.6	157.4	34.6	5050
08/21/1952 00:00	192	192	59.8	132.2	59.8	5050
10/23/1952 00:00	192	192	57.7	134.3	57.7	5050
12/11/1952 00:00	192	192	35.4	156.6	35.4	5050
02/18/1953 00:00	192	192	50.9	141.1	50.9	5050
04/01/1953 00:00	192	192	46.6	145.4	46.6	5050
05/20/1953 00:00	192	192	37.5	154.5	37.5	5050
07/08/1953 00:00	192	192	50.3	141.7	50.3	5050
08/24/1953 00:00	192	192	47.7	144.3	47.7	5050
10/26/1953 00:00	192	192			1	5050
11/04/1953 00:00	192	192	41.1	150.9	41.1	5050
04/02/1954 00:00	192	192	30	162	30	5050
03/13/1957 00:00	192	192	31.2	160.8	31.2	5050

All elevation and depth measurements are in feet. The vertical datum for historical measurements is NGVD29.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396258N1222343W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data**
Recent Groundwater Level Data
Historical Groundwater Level Data

**State Well Number:** 21N03W31R001M  
**Local Well ID:**  
**Site Code:** 396258N1222343W001  
**Latitude (NAD83):** 39.625800  
**Longitude (NAD83):** -122.2343  
**Groundwater Basin (code):** ()

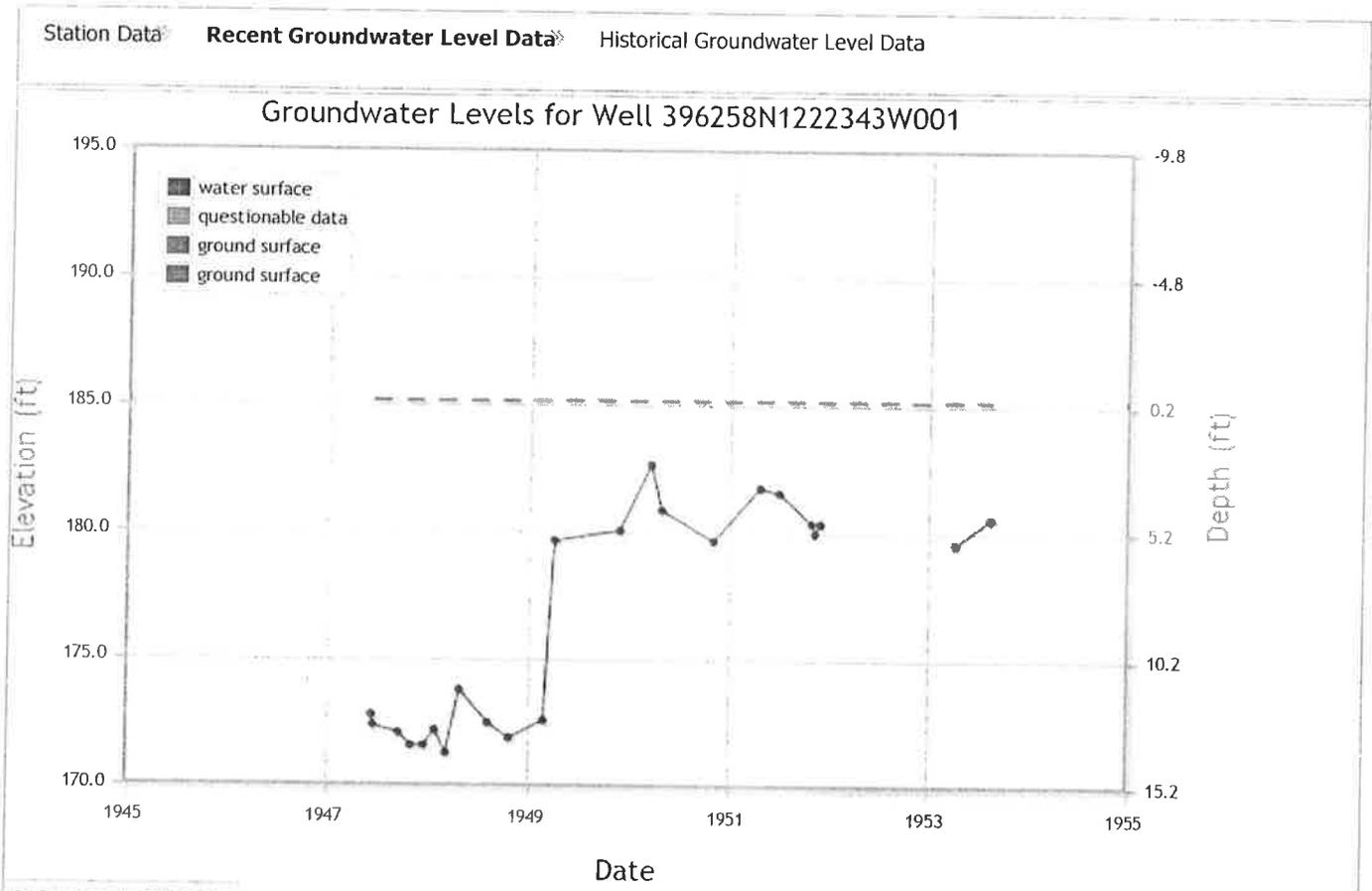
**Well Use:**  
**Well Status:** Inactive  
**Well Completion Report Number:**  
**Reference Point Elevation (NAVD88 ft):** 185.160  
**Ground Surface Elevation (NAVD88 ft):** 185.160  
**Total Depth (ft):** 21  
**Perforated Interval Depths (ft):**



[Perform a New Well Search](#)

## Groundwater Levels for Station 396258N1222343W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



[Download CSV File](#)

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
06/12/1947 00:00	185.460	185.160	12.7	172.76	12.4		N	624
06/17/1947 00:00	185.460	185.160	13.1	172.36	12.8		N	624
09/17/1947 00:00	185.460	185.160	13.4	172.06	13.1		N	624
10/30/1947 00:00	185.460	185.160	13.9	171.56	13.6		N	624
12/17/1947 00:00	185.460	185.160	13.9	171.56	13.6		N	624
01/26/1948 00:00	185.460	185.160	13.3	172.16	13		N	624
03/05/1948 00:00	185.460	185.160	14.2	171.26	13.9		N	624
04/21/1948 00:00	185.460	185.160	11.7	173.76	11.4		N	624
08/02/1948 00:00	185.460	185.160	13	172.46	12.7		N	624

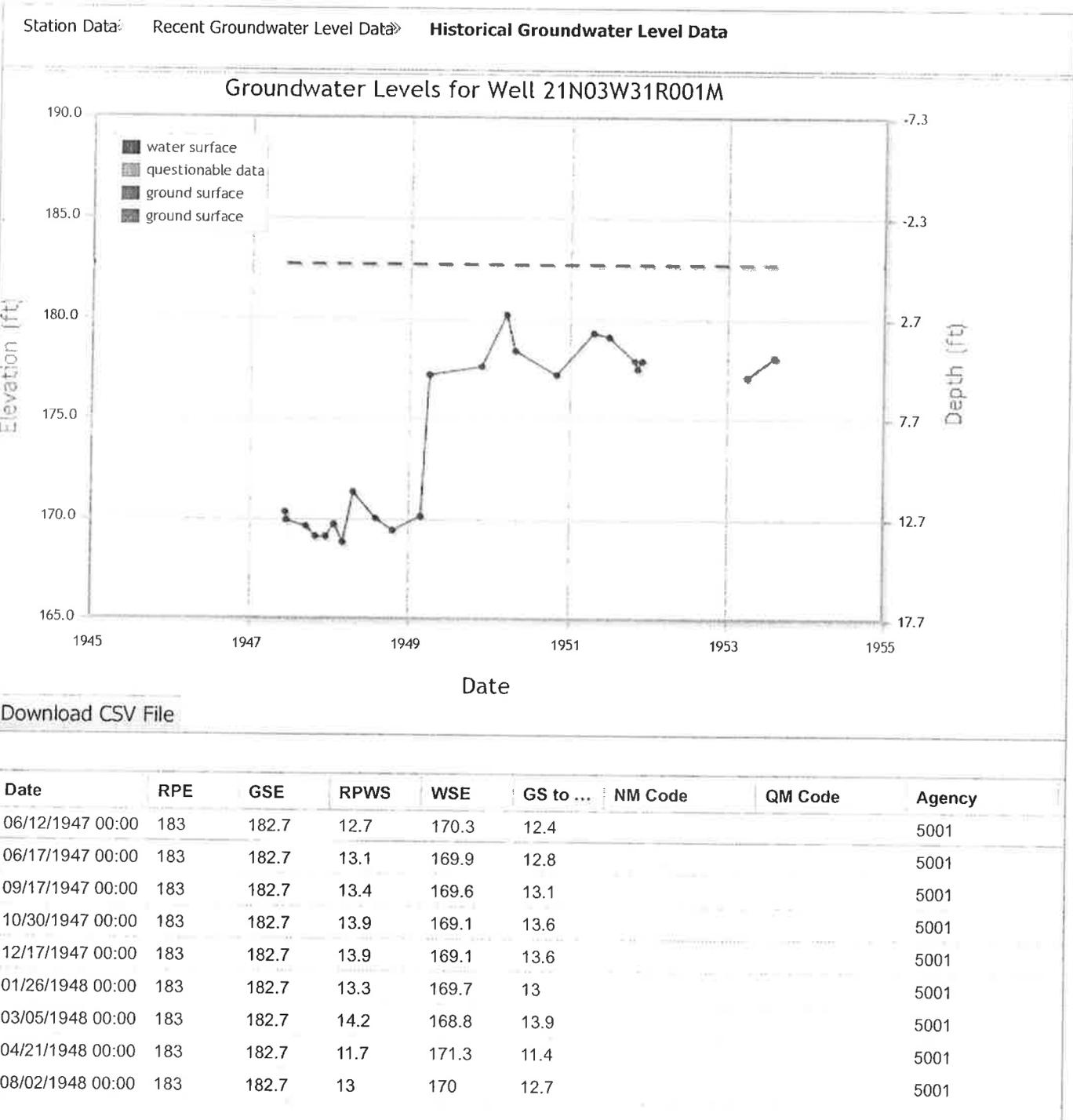
10/19/1948 00:00	185.460	185.160	13.6	171.86	13.3	N	624	
02/24/1949 00:00	185.460	185.160	12.9	172.56	12.6	N	624	
03/29/1949 00:00	185.460	185.160	5.8	179.66	5.5	N	624	
11/23/1949 00:00	185.460	185.160	5.4	180.06	5.1	N	624	
03/14/1950 00:00	185.460	185.160	2.8	182.66	2.5	N	624	
04/24/1950 00:00	185.460	185.160	4.6	180.86	4.3	N	624	
11/01/1950 00:00	185.460	185.160	5.8	179.66	5.5	N	624	
04/18/1951 00:00	185.160	185.160	3.4	181.76	3.4	N	624	
06/27/1951 00:00	185.160	185.160	3.6	181.56	3.6	N	624	
10/26/1951 00:00	185.160	185.160	4.8	180.36	4.8	N	624	
11/08/1951 00:00	185.160	185.160	5.2	179.96	5.2	N	624	
11/30/1951 00:00	185.160	185.160	4.8	180.36	4.8	N	624	
04/02/1953 00:00	185.160	185.160	5.6	179.56	5.6	N	624	
08/07/1953 00:00	185.160	185.160	4.6	180.56	4.6	N	624	
08/08/1953 00:00	185.160	185.160				N-0	N	624

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396258N1222343W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



10/19/1948 00:00	183	182.7	13.6	169.4	13.3	5001
02/24/1949 00:00	183	182.7	12.9	170.1	12.6	5001
03/29/1949 00:00	183	182.7	5.8	177.2	5.5	5001
11/23/1949 00:00	183	182.7	5.4	177.6	5.1	5001
03/14/1950 00:00	183	182.7	2.8	180.2	2.5	5001
04/24/1950 00:00	183	182.7	4.6	178.4	4.3	5001
11/01/1950 00:00	183	182.7	5.8	177.2	5.5	5001
04/18/1951 00:00	182.7	182.7	3.4	179.3	3.4	5001
06/27/1951 00:00	182.7	182.7	3.6	179.1	3.6	5001
10/26/1951 00:00	182.7	182.7	4.8	177.9	4.8	5001
11/08/1951 00:00	182.7	182.7	5.2	177.5	5.2	5001
11/30/1951 00:00	182.7	182.7	4.8	177.9	4.8	5001
04/02/1953 00:00	182.7	182.7	5.6	177.1	5.6	5001
08/07/1953 00:00	182.7	182.7	4.6	178.1	4.6	5001
08/08/1953 00:00	182.7	182.7			0	5001

All elevation and depth measurements are in feet. The vertical datum for historical measurements is NGVD29.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W001

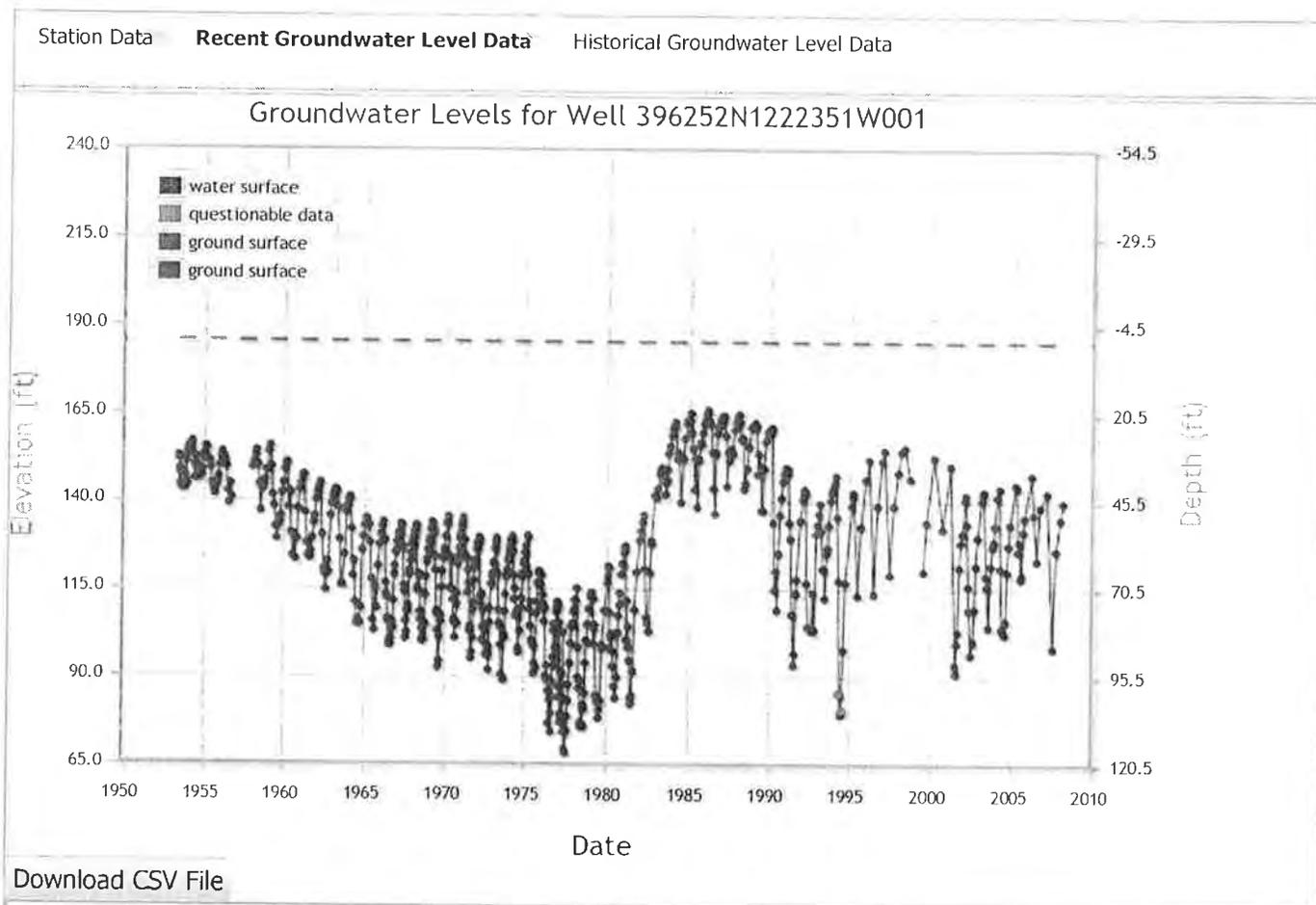
Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

<span style="border: 1px solid black; padding: 2px;">Station Data</span> <span style="border: 1px solid black; padding: 2px; margin-left: 10px;">Recent Groundwater Level Data</span> <span style="border: 1px solid black; padding: 2px; margin-left: 10px;">Historical Groundwater Level Data</span>	
<p><b>State Well Number:</b> 21N03W31R002M  <b>Local Well ID:</b>  <b>Site Code:</b> 396252N1222351W001  <b>Latitude (NAD83):</b> 39.625200  <b>Longitude (NAD83):</b> -122.2351  <b>Groundwater Basin (code):</b> ( )</p>	<p><b>Well Use:</b>  <b>Well Status:</b> Inactive  <b>Well Completion Report Number:</b>  <b>Reference Point Elevation (NAVD88 ft):</b> 187.160  <b>Ground Surface Elevation (NAVD88 ft):</b> 185.460  <b>Total Depth (ft):</b> 410  <b>Perforated Interval Depths (ft):</b> 270.000 410.000</p>
	

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
05/27/1953 00:00	187.160	185.460	35.4	151.76	33.7		N	624
05/29/1953 00:00	187.160	185.460	34.6	152.56	32.9		N	624
06/18/1953 00:00	187.160	185.460	38.3	148.86	36.6		N	624
06/19/1953 00:00	187.160	185.460	39.3	147.86	37.6		N	624
07/03/1953 00:00	187.160	185.460	42.8	144.36	41.1		N	624
07/10/1953 00:00	187.160	185.460	42.7	144.46	41		N	624
07/16/1953 00:00	187.160	185.460	42.9	144.26	41.2		N	624
07/22/1953 00:00	187.160	185.460	43.8	143.36	42.1		N	624
07/24/1953 00:00	187.160	185.460	42.6	144.56	40.9		N	624

08/07/1953 00:00	187.160	185.460	41.3	145.86	39.6	N	624
08/12/1953 00:00	187.160	185.460	43.7	143.46	42	N	624
08/17/1953 00:00	187.160	185.460	41.6	145.56	39.9	N	624
09/03/1953 00:00	187.160	185.460	40	147.16	38.3	N	624
09/11/1953 00:00	187.160	185.460	41.8	145.36	40.1	N	624
09/21/1953 00:00	187.160	185.460	39.6	147.56	37.9	N	624
09/29/1953 00:00	187.160	185.460	42.7	144.46	41	N	624
10/09/1953 00:00	187.160	185.460	40.6	146.56	38.9	N	624
10/14/1953 00:00	187.160	185.460	42.2	144.96	40.5	N	624
10/27/1953 00:00	187.160	185.460	41.6	145.56	39.9	N	624
11/13/1953 00:00	187.160	185.460	36.3	150.86	34.6	N	624
11/25/1953 00:00	187.160	185.460	34.2	152.96	32.5	N	624
12/14/1953 00:00	187.160	185.460	32.9	154.26	31.2	N	624
01/04/1954 00:00	187.160	185.460	33.2	153.96	31.5	N	624
01/06/1954 00:00	187.160	185.460	33.2	153.96	31.5	N	624
01/21/1954 00:00	187.160	185.460	32.2	154.96	30.5	N	624
01/26/1954 00:00	187.160	185.460	31.8	155.36	30.1	N	624
02/15/1954 00:00	187.160	185.460	31.3	155.86	29.6	N	624
03/22/1954 00:00	187.160	185.460	30.5	156.66	28.8	N	624
04/20/1954 00:00	187.160	185.460	34.4	152.76	32.7	N	624
05/24/1954 00:00	187.160	185.460	34.8	152.36	33.1	N	624
05/26/1954 00:00	187.160	185.460	37	150.16	35.3	N	624
06/05/1954 00:00	187.160	185.460	41.1	146.06	39.4	N	624
06/14/1954 00:00	187.160	185.460	37	150.16	35.3	N	624
06/21/1954 00:00	187.160	185.460	38.5	148.66	36.8	N	624
07/17/1954 00:00	187.160	185.460	40.1	147.06	38.4	N	624
07/19/1954 00:00	187.160	185.460	40	147.16	38.3	N	624
08/19/1954 00:00	187.160	185.460	38.7	148.46	37	N	624
09/21/1954 00:00	187.160	185.460	40.2	146.96	38.5	N	624
10/29/1954 00:00	187.160	185.460	38.5	148.66	36.8	N	624
11/24/1954 00:00	187.160	185.460	35.2	151.96	33.5	N	624
12/06/1954 00:00	187.160	185.460	34.2	152.96	32.5	N	624
12/16/1954 00:00	187.160	185.460	34.6	152.56	32.9	N	624
01/25/1955 00:00	187.160	185.460	32.1	155.06	30.4	N	624
02/17/1955 00:00	187.160	185.460	32	155.16	30.3	N	624
03/21/1955 00:00	187.160	185.460	35.5	151.66	33.8	N	624
04/19/1955 00:00	187.160	185.460	35.9	151.26	34.2	N	624
05/19/1955 00:00	187.160	185.460	38.1	149.06	36.4	N	624
06/15/1955 00:00	187.160	185.460	42.4	144.76	40.7	N	624
07/19/1955 00:00	187.160	185.460	44	143.16	42.3	N	624
08/16/1955 00:00	187.160	185.460	45.4	141.76	43.7	N	624
09/20/1955 00:00	187.160	185.460	43.2	143.96	41.5	N	624
10/20/1955 00:00	187.160	185.460	42.1	145.06	40.4	N	624
11/17/1955 00:00	187.160	185.460	40.5	146.66	38.8	N	624

12/14/1955 00:00	187.160	185.460	37.3	149.86	35.6	N	624
01/18/1956 00:00	187.160	185.460	35.1	152.06	33.4	N	624
02/14/1956 00:00	187.160	185.460	33.4	153.76	31.7	N	624
03/15/1956 00:00	187.160	185.460	34.8	152.36	33.1	N	624
03/22/1956 00:00	187.160	185.460	36.7	150.46	35	N	624
04/17/1956 00:00	187.160	185.460	35.7	151.46	34	N	624
05/15/1956 00:00	187.160	185.460	37.6	149.56	35.9	N	624
06/19/1956 00:00	187.160	185.460	44.7	142.46	43	N	624
07/17/1956 00:00	187.160	185.460	48.1	139.06	46.4	N	624
08/23/1956 00:00	187.160	185.460	42.5	144.66	40.8	N	624
09/21/1956 00:00	187.160	185.460	46.4	140.76	44.7	N	624
01/15/1958 00:00	187.160	185.460	37.8	149.36	36.1	N	624
02/17/1958 00:00	187.160	185.460	36.1	151.06	34.4	N	624
03/19/1958 00:00	187.160	185.460	34.2	152.96	32.5	N	624
04/10/1958 00:00	187.160	185.460	32.9	154.26	31.2	N	624
05/15/1958 00:00	187.160	185.460	37	150.16	35.3	N	624
06/16/1958 00:00	187.160	185.460	42.6	144.56	40.9	N	624
07/15/1958 00:00	187.160	185.460	50.2	136.96	48.5	N	624
08/18/1958 00:00	187.160	185.460	44.1	143.06	42.4	N	624
09/16/1958 00:00	187.160	185.460	42.9	144.26	41.2	N	624
10/21/1958 00:00	187.160	185.460	41.4	145.76	39.7	N	624
11/17/1958 00:00	187.160	185.460	38.5	148.66	36.8	N	624
12/15/1958 00:00	187.160	185.460	38.5	148.66	36.8	N	624
01/15/1959 00:00	187.160	185.460	33.3	153.86	31.6	N	624
02/17/1959 00:00	187.160	185.460	31.5	155.66	29.8	N	624
03/18/1959 00:00	187.160	185.460	37.5	149.66	35.8	N	624
04/17/1959 00:00	187.160	185.460	45.7	141.46	44	N	624
05/15/1959 00:00	187.160	185.460	48.8	138.36	47.1	N	624
06/15/1959 00:00	187.160	185.460	54.8	132.36	53.1	N	624
07/16/1959 00:00	187.160	185.460	58	129.16	56.3	N	624
08/18/1959 00:00	187.160	185.460	54.5	132.66	52.8	N	624
09/16/1959 00:00	187.160	185.460	53.1	134.06	51.4	N	624
10/14/1959 00:00	187.160	185.460	51.7	135.46	50	N	624
11/17/1959 00:00	187.160	185.460	44.9	142.26	43.2	N	624
12/16/1959 00:00	187.160	185.460	42.2	144.96	40.5	N	624
01/19/1960 00:00	187.160	185.460	38.4	148.76	36.7	N	624
02/16/1960 00:00	187.160	185.460	36.7	150.46	35	N	624
03/15/1960 00:00	187.160	185.460	36.2	150.96	34.5	N	624
04/14/1960 00:00	187.160	185.460	49.2	137.96	47.5	N	624
05/12/1960 00:00	187.160	185.460	44.7	142.46	43	N	624
05/16/1960 00:00	187.160	185.460	44.7	142.46	43	N	624
06/09/1960 00:00	187.160	185.460	56.5	130.66	54.8	N	624
07/12/1960 00:00	187.160	185.460	62.9	124.26	61.2	N	624
08/18/1960 00:00	187.160	185.460	56.9	130.26	55.2	N	624

09/15/1960 00:00	187.160	185.460	64	123.16	62.3	N	624
10/15/1960 00:00	187.160	185.460	58.2	128.96	56.5	N	624
11/14/1960 00:00	187.160	185.460	49.6	137.56	47.9	N	624
12/20/1960 00:00	187.160	185.460	44	143.16	42.3	N	624
01/16/1961 00:00	187.160	185.460	42.4	144.76	40.7	N	624
02/20/1961 00:00	187.160	185.460	40.4	146.76	38.7	N	624
03/21/1961 00:00	187.160	185.460	39.7	147.46	38	N	624
04/24/1961 00:00	187.160	185.460	50.7	136.46	49	N	624
05/30/1961 00:00	187.160	185.460	59.3	127.86	57.6	N	624
06/30/1961 00:00	187.160	185.460	63	124.16	61.3	N	624
07/21/1961 00:00	187.160	185.460	63.6	123.56	61.9	N	624
08/24/1961 00:00	187.160	185.460	61.7	125.46	60	N	624
09/27/1961 00:00	187.160	185.460	57.9	129.26	56.2	N	624
10/31/1961 00:00	187.160	185.460	53.6	133.56	51.9	N	624
11/24/1961 00:00	187.160	185.460	51.7	135.46	50	N	624
12/20/1961 00:00	187.160	185.460	47	140.16	45.3	N	624
01/23/1962 00:00	187.160	185.460	45	142.16	43.3	N	624
02/20/1962 00:00	187.160	185.460	43.5	143.66	41.8	N	624
03/28/1962 00:00	187.160	185.460	42	145.16	40.3	N	624
05/07/1962 00:00	187.160	185.460	56.9	130.26	55.2	N	624
06/07/1962 00:00	187.160	185.460	66.9	120.26	65.2	N	624
07/09/1962 00:00	187.160	185.460	68.3	118.86	66.6	N	624
07/26/1962 00:00	187.160	185.460	72.7	114.46	71	N	624
08/30/1962 00:00	187.160	185.460	64.5	122.66	62.8	N	624
09/28/1962 00:00	187.160	185.460	67.6	119.56	65.9	N	624
11/13/1962 00:00	187.160	185.460	51.6	135.56	49.9	N	624
12/07/1962 00:00	187.160	185.460	48.1	139.06	46.4	N	624
01/09/1963 00:00	187.160	185.460	46.2	140.96	44.5	N	624
02/06/1963 00:00	187.160	185.460	45.1	142.06	43.4	N	624
03/05/1963 00:00	187.160	185.460	43.8	143.36	42.1	N	624
04/04/1963 00:00	187.160	185.460	44.4	142.76	42.7	N	624
05/02/1963 00:00	187.160	185.460	49.2	137.96	47.5	N	624
05/03/1963 00:00	187.160	185.460	49.2	137.96	47.5	N	624
06/07/1963 00:00	187.160	185.460	58.3	128.86	56.6	N	624
07/09/1963 00:00	187.160	185.460	71.2	115.96	69.5	N	624
08/12/1963 00:00	187.160	185.460	70.9	116.26	69.2	N	624
10/09/1963 00:00	187.160	185.460	62.6	124.56	60.9	N	624
11/12/1963 00:00	187.160	185.460	50.7	136.46	49	N	624
12/06/1963 00:00	187.160	185.460	48.7	138.46	47	N	624
01/07/1964 00:00	187.160	185.460	47	140.16	45.3	N	624
02/04/1964 00:00	187.160	185.460	46	141.16	44.3	N	624
03/09/1964 00:00	187.160	185.460	55.3	131.86	53.6	N	624
04/10/1964 00:00	187.160	185.460	68.7	118.46	67	N	624
05/07/1964 00:00	187.160	185.460	64.4	122.76	62.7	N	624

06/04/1964 00:00	187.160	185.460	76.2	110.96	74.5	N	624
07/02/1964 00:00	187.160	185.460	82.2	104.96	80.5	N	624
08/07/1964 00:00	187.160	185.460	81.1	106.06	79.4	N	624
09/08/1964 00:00	187.160	185.460	82.2	104.96	80.5	N	624
10/05/1964 00:00	187.160	185.460	77.7	109.46	76	N	624
11/09/1964 00:00	187.160	185.460	61.3	125.86	59.6	N	624
12/04/1964 00:00	187.160	185.460	57.5	129.66	55.8	N	624
01/06/1965 00:00	187.160	185.460	54.4	132.76	52.7	N	624
02/05/1965 00:00	187.160	185.460	52.3	134.86	50.6	N	624
03/05/1965 00:00	187.160	185.460	52.4	134.76	50.7	N	624
04/08/1965 00:00	187.160	185.460	54.3	132.86	52.6	N	624
05/07/1965 00:00	187.160	185.460	59.3	127.86	57.6	N	624
06/07/1965 00:00	187.160	185.460	69.6	117.56	67.9	N	624
07/06/1965 00:00	187.160	185.460	81.4	105.76	79.7	N	624
08/06/1965 00:00	187.160	185.460	84.2	102.96	82.5	N	624
09/03/1965 00:00	187.160	185.460	72	115.16	70.3	N	624
10/07/1965 00:00	187.160	185.460	77.9	109.26	76.2	N	624
11/05/1965 00:00	187.160	185.460	65.9	121.26	64.2	N	624
12/13/1965 00:00	187.160	185.460	59.6	127.56	57.9	N	624
01/05/1966 00:00	187.160	185.460	56.8	130.36	55.1	N	624
02/09/1966 00:00	187.160	185.460	54.5	132.66	52.8	N	624
03/08/1966 00:00	187.160	185.460	53.2	133.96	51.5	N	624
04/11/1966 00:00	187.160	185.460	58.4	128.76	56.7	N	624
04/27/1966 00:00	187.160	185.460	70.7	116.46	69	N	1
05/09/1966 00:00	187.160	185.460	73.8	113.36	72.1	N	624
05/16/1966 00:00	187.160	185.460	74.7	112.46	73	N	1
06/13/1966 00:00	187.160	185.460	80.8	106.36	79.1	N	624
06/21/1966 00:00	187.160	185.460	81.9	105.26	80.2	N	1
07/11/1966 00:00	187.160	185.460	87.7	99.46	86	N	624
07/19/1966 00:00	187.160	185.460	88.4	98.76	86.7	N	1
08/08/1966 00:00	187.160	185.460	86.5	100.66	84.8	N	624
08/17/1966 00:00	187.160	185.460	86.3	100.86	84.6	N	1
09/12/1966 00:00	187.160	185.460	83.8	103.36	82.1	N	624
09/20/1966 00:00	187.160	185.460	81.5	105.66	79.8	N	1
10/10/1966 00:00	187.160	185.460	83.2	103.96	81.5	N	624
10/17/1966 00:00	187.160	185.460	75.7	111.46	74	N	1
11/07/1966 00:00	187.160	185.460	68.3	118.86	66.6	N	624
11/16/1966 00:00	187.160	185.460	65.9	121.26	64.2	N	1
12/12/1966 00:00	187.160	185.460	62.1	125.06	60.4	N	624
12/19/1966 00:00	187.160	185.460	61.6	125.56	59.9	N	1
01/10/1967 00:00	187.160	185.460	58.8	128.36	57.1	N	624
01/18/1967 00:00	187.160	185.460	59.1	128.06	57.4	N	1
02/13/1967 00:00	187.160	185.460	56.8	130.36	55.1	N	624
02/23/1967 00:00	187.160	185.460	56.4	130.76	54.7	N	1

03/13/1967 00:00	187.160	185.460	56.8	130.36	55.1	N	624
03/21/1967 00:00	187.160	185.460	55.6	131.56	53.9	N	1
04/11/1967 00:00	187.160	185.460	54	133.16	52.3	N	624
04/20/1967 00:00	187.160	185.460	53.7	133.46	52	N	1
05/15/1967 00:00	187.160	185.460	59.9	127.26	58.2	N	624
05/22/1967 00:00	187.160	185.460	61.1	126.06	59.4	N	1
06/12/1967 00:00	187.160	185.460	71.5	115.66	69.8	N	624
06/19/1967 00:00	187.160	185.460	73.1	114.06	71.4	N	1
07/17/1967 00:00	187.160	185.460	86.5	100.66	84.8	N	624
07/25/1967 00:00	187.160	185.460	81.5	105.66	79.8	N	1
08/14/1967 00:00	187.160	185.460	84.8	102.36	83.1	N	624
08/24/1967 00:00	187.160	185.460	78.8	108.36	77.1	N	1
09/11/1967 00:00	187.160	185.460	78.3	108.86	76.6	N	624
09/18/1967 00:00	187.160	185.460	77.1	110.06	75.4	N	1
10/09/1967 00:00	187.160	185.460	68.4	118.76	66.7	N	624
10/23/1967 00:00	187.160	185.460	67	120.16	65.3	N	1
11/20/1967 00:00	187.160	185.460	64.5	122.66	62.8	N	624
11/27/1967 00:00	187.160	185.460	62.4	124.76	60.7	N	1
12/18/1967 00:00	187.160	185.460	59.7	127.46	58	N	624
12/19/1967 00:00	187.160	185.460	59.6	127.56	57.9	N	1
01/16/1968 00:00	187.160	185.460	58	129.16	56.3	N	624
01/24/1968 00:00	187.160	185.460	57.6	129.56	55.9	N	1
02/12/1968 00:00	187.160	185.460	56.2	130.96	54.5	N	624
02/21/1968 00:00	187.160	185.460	55.6	131.56	53.9	N	1
03/07/1968 00:00	187.160	185.460	54.5	132.66	52.8	N	624
03/19/1968 00:00	187.160	185.460	54	133.16	52.3	N	1
04/16/1968 00:00	187.160	185.460	72	115.16	70.3	N	624
04/17/1968 00:00	187.160	185.460	72.9	114.26	71.2	N	1
05/15/1968 00:00	187.160	185.460	68.1	119.06	66.4	N	624
05/21/1968 00:00	187.160	185.460	68.5	118.66	66.8	N	1
06/18/1968 00:00	187.160	185.460	78.9	108.26	77.2	N	1
06/19/1968 00:00	187.160	185.460	81.2	105.96	79.5	N	624
07/22/1968 00:00	187.160	185.460	83.7	103.46	82	N	1
07/24/1968 00:00	187.160	185.460	87.2	99.96	85.5	N	624
08/14/1968 00:00	187.160	185.460	86.6	100.56	84.9	N	624
08/20/1968 00:00	187.160	185.460	85.4	101.76	83.7	N	1
09/16/1968 00:00	187.160	185.460	82	105.16	80.3	N	624
09/23/1968 00:00	187.160	185.460	82.3	104.86	80.6	N	1
10/11/1968 00:00	187.160	185.460	74.1	113.06	72.4	N	624
10/21/1968 00:00	187.160	185.460	68.9	118.26	67.2	N	1
11/13/1968 00:00	187.160	185.460	64.9	122.26	63.2	N	624
11/22/1968 00:00	187.160	185.460	63.9	123.26	62.2	N	1
12/18/1968 00:00	187.160	185.460	61.5	125.66	59.8	N	1
12/23/1968 00:00	187.160	185.460	61.2	125.96	59.5	N	624

01/15/1969 00:00	187.160	185.460	59.1	128.06	57.4	N	624
01/27/1969 00:00	187.160	185.460	57.9	129.26	56.2	N	1
02/21/1969 00:00	187.160	185.460	55.6	131.56	53.9	N	624
02/24/1969 00:00	187.160	185.460	55.1	132.06	53.4	N	1
03/19/1969 00:00	187.160	185.460	53.4	133.76	51.7	N	1
03/20/1969 00:00	187.160	185.460	53.3	133.86	51.6	N	624
04/15/1969 00:00	187.160	185.460	55.6	131.56	53.9	N	624
04/22/1969 00:00	187.160	185.460	56.7	130.46	55	N	1
05/15/1969 00:00	187.160	185.460	63.1	124.06	61.4	N	624
05/27/1969 00:00	187.160	185.460	67.2	119.96	65.5	N	1
06/17/1969 00:00	187.160	185.460	79.5	107.66	77.8	N	624
06/25/1969 00:00	187.160	185.460	78.7	108.46	77	N	1
07/16/1969 00:00	187.160	185.460	84.1	103.06	82.4	N	624
07/22/1969 00:00	187.160	185.460	94.7	92.46	93	N	1
08/18/1969 00:00	187.160	185.460	86.1	101.06	84.4	N	624
08/20/1969 00:00	187.160	185.460	92.9	94.26	91.2	N	1
09/17/1969 00:00	187.160	185.460	81.7	105.46	80	N	624
09/22/1969 00:00	187.160	185.460	80	107.16	78.3	N	1
10/09/1969 00:00	187.160	185.460	72	115.16	70.3	N	624
10/23/1969 00:00	187.160	185.460	67.4	119.76	65.7	N	1
11/13/1969 00:00	187.160	185.460	63.5	123.66	61.8	N	624
11/19/1969 00:00	187.160	185.460	63.3	123.86	61.6	N	1
12/12/1969 00:00	187.160	185.460	62	125.16	60.3	N	624
12/17/1969 00:00	187.160	185.460	61.1	126.06	59.4	N	1
01/15/1970 00:00	187.160	185.460	57.4	129.76	55.7	N	624
02/17/1970 00:00	187.160	185.460	53.8	133.36	52.1	N	624
02/24/1970 00:00	187.160	185.460	53.3	133.86	51.6	N	1
03/19/1970 00:00	187.160	185.460	51.7	135.46	50	N	1
04/16/1970 00:00	187.160	185.460	63.2	123.96	61.5	N	624
04/23/1970 00:00	187.160	185.460	72.2	114.96	70.5	N	1
05/18/1970 00:00	187.160	185.460	64.2	122.96	62.5	N	624
05/20/1970 00:00	187.160	185.460	64.2	122.96	62.5	N	1
06/17/1970 00:00	187.160	185.460	72.7	114.46	71	N	624
06/23/1970 00:00	187.160	185.460	75.5	111.66	73.8	N	1
07/16/1970 00:00	187.160	185.460	81.9	105.26	80.2	N	624
07/22/1970 00:00	187.160	185.460	80.9	106.26	79.2	N	1
08/13/1970 00:00	187.160	185.460	86.2	100.96	84.5	N	624
08/25/1970 00:00	187.160	185.460	81.8	105.36	80.1	N	1
09/14/1970 00:00	187.160	185.460	82	105.16	80.3	N	624
09/24/1970 00:00	187.160	185.460	76.8	110.36	75.1	N	1
10/08/1970 00:00	187.160	185.460	73.8	113.36	72.1	N	624
10/26/1970 00:00	187.160	185.460	65.4	121.76	63.7	N	1
11/09/1970 00:00	187.160	185.460	62.8	124.36	61.1	N	624
11/23/1970 00:00	187.160	185.460	60.6	126.56	58.9	N	1

12/08/1970 00:00	187.160	185.460	58	129.16	56.3	N	624
12/22/1970 00:00	187.160	185.460	56.5	130.66	54.8	N	1
01/11/1971 00:00	187.160	185.460	54.8	132.36	53.1	N	624
01/21/1971 00:00	187.160	185.460	54.2	132.96	52.5	N	1
02/10/1971 00:00	187.160	185.460	52.8	134.36	51.1	N	624
02/23/1971 00:00	187.160	185.460	52	135.16	50.3	N	1
03/09/1971 00:00	187.160	185.460	62.2	124.96	60.5	N	624
03/24/1971 00:00	187.160	185.460	58.4	128.76	56.7	N	1
04/15/1971 00:00	187.160	185.460	63.7	123.46	62	N	624
04/27/1971 00:00	187.160	185.460	63.4	123.76	61.7	N	1
05/11/1971 00:00	187.160	185.460	64.1	123.06	62.4	N	624
05/27/1971 00:00	187.160	185.460	73.5	113.66	71.8	N	1
06/16/1971 00:00	187.160	185.460	67	120.16	65.3	N	624
06/24/1971 00:00	187.160	185.460	71	116.16	69.3	N	1
07/13/1971 00:00	187.160	185.460	84.4	102.76	82.7	N	624
07/27/1971 00:00	187.160	185.460	83	104.16	81.3	N	1
08/11/1971 00:00	187.160	185.460	92.2	94.96	90.5	N	624
08/26/1971 00:00	187.160	185.460	90.4	96.76	88.7	N	1
09/14/1971 00:00	187.160	185.460	86.4	100.76	84.7	N	624
09/28/1971 00:00	187.160	185.460	78.5	108.66	76.8	N	1
10/06/1971 00:00	187.160	185.460	76.4	110.76	74.7	N	624
10/19/1971 00:00	187.160	185.460	70	117.16	68.3	N	1
11/11/1971 00:00	187.160	185.460	66.1	121.06	64.4	N	624
11/23/1971 00:00	187.160	185.460	64	123.16	62.3	N	1
12/16/1971 00:00	187.160	185.460	61.1	126.06	59.4	N	624
12/27/1971 00:00	187.160	185.460	60.7	126.46	59	N	1
01/17/1972 00:00	187.160	185.460	59.3	127.86	57.6	N	1
01/18/1972 00:00	187.160	185.460	59.1	128.06	57.4	N	624
02/15/1972 00:00	187.160	185.460	57.5	129.66	55.8	N	624
02/22/1972 00:00	187.160	185.460	58	129.16	56.3	N	1
03/07/1972 00:00	187.160	185.460	74.6	112.56	72.9	N	624
03/27/1972 00:00	187.160	185.460	77	110.16	75.3	N	1
04/18/1972 00:00	187.160	185.460	73.8	113.36	72.1	N	624
04/25/1972 00:00	187.160	185.460	86.9	100.26	85.2	N	1
05/11/1972 00:00	187.160	185.460	83.3	103.86	81.6	N	624
05/23/1972 00:00	187.160	185.460	78.4	108.76	76.7	N	1
06/21/1972 00:00	187.160	185.460	84.3	102.86	82.6	N	624
07/18/1972 00:00	187.160	185.460	88	99.16	86.3	N	1
07/19/1972 00:00	187.160	185.460	91.1	96.06	89.4	N	624
07/23/1972 00:00	187.160	185.460	90.8	96.36	89.1	N	1
08/22/1972 00:00	187.160	185.460	88.5	98.66	86.8	N	624
08/27/1972 00:00	187.160	185.460	88.4	98.76	86.7	N	1
09/19/1972 00:00	187.160	185.460	90.8	96.36	89.1	N	624
09/20/1972 00:00	187.160	185.460	95.5	91.66	93.8	N	1

10/13/1972 00:00	187.160	185.460	82	105.16	80.3	N	624
10/19/1972 00:00	187.160	185.460	77.9	109.26	76.2	N	1
11/20/1972 00:00	187.160	185.460	71	116.16	69.3	N	1
11/22/1972 00:00	187.160	185.460	70.8	116.36	69.1	N	624
12/13/1972 00:00	187.160	185.460	68.5	118.66	66.8	N	624
12/19/1972 00:00	187.160	185.460	68	119.16	66.3	N	1
01/16/1973 00:00	187.160	185.460	64.8	122.36	63.1	N	624
01/17/1973 00:00	187.160	185.460	65	122.16	63.3	N	1
02/22/1973 00:00	187.160	185.460	61	126.16	59.3	N	1
02/26/1973 00:00	187.160	185.460	60.5	126.66	58.8	N	624
03/14/1973 00:00	187.160	185.460	59	128.16	57.3	N	1
03/29/1973 00:00	187.160	185.460	57.7	129.46	56	N	624
04/16/1973 00:00	187.160	185.460	67.8	119.36	66.1	N	624
04/17/1973 00:00	187.160	185.460	68	119.16	66.3	N	1
05/15/1973 00:00	187.160	185.460	78.4	108.76	76.7	N	624
05/22/1973 00:00	187.160	185.460	82.2	104.96	80.5	N	1
06/19/1973 00:00	187.160	185.460	83.2	103.96	81.5	N	1
06/21/1973 00:00	187.160	185.460	88.4	98.76	86.7	N	624
07/18/1973 00:00	187.160	185.460	96.8	90.36	95.1	N	624
08/21/1973 00:00	187.160	185.460	98.3	88.86	96.6	N	624
08/29/1973 00:00	187.160	185.460	97.8	89.36	96.1	N	1
09/17/1973 00:00	187.160	185.460	86.1	101.06	84.4	N	624
09/27/1973 00:00	187.160	185.460	85.5	101.66	83.8	N	1
10/09/1973 00:00	187.160	185.460	78.8	108.36	77.1	N	624
10/19/1973 00:00	187.160	185.460	74	113.16	72.3	N	1
11/12/1973 00:00	187.160	185.460	68.9	118.26	67.2	N	624
11/27/1973 00:00	187.160	185.460	67	120.16	65.3	N	1
12/18/1973 00:00	187.160	185.460	64.4	122.76	62.7	N	624
12/27/1973 00:00	187.160	185.460	63.3	123.86	61.6	N	1
01/15/1974 00:00	187.160	185.460	61.6	125.56	59.9	N	624
01/29/1974 00:00	187.160	185.460	60.2	126.96	58.5	N	1
02/12/1974 00:00	187.160	185.460	59	128.16	57.3	N	624
02/25/1974 00:00	187.160	185.460	58.4	128.76	56.7	N	1
03/13/1974 00:00	187.160	185.460	57.8	129.36	56.1	N	624
03/25/1974 00:00	187.160	185.460	57.2	129.96	55.5	N	1
04/16/1974 00:00	187.160	185.460	61.7	125.46	60	N	624
04/25/1974 00:00	187.160	185.460	68.5	118.66	66.8	N	1
05/14/1974 00:00	187.160	185.460	75.3	111.86	73.6	N	624
05/22/1974 00:00	187.160	185.460	72.2	114.96	70.5	N	1
06/18/1974 00:00	187.160	185.460	79.7	107.46	78	N	624
06/19/1974 00:00	187.160	185.460	80.1	107.06	78.4	N	1
07/16/1974 00:00	187.160	185.460	78.6	108.56	76.9	N	624
08/11/1974 00:00	187.160	185.460	90.4	96.76	88.7	N	1
08/13/1974 00:00	187.160	185.460	89.2	97.96	87.5	N	624

09/18/1974 00:00	187.160	185.460	84.2	102.96	82.5	N	624
10/16/1974 00:00	187.160	185.460	77.7	109.46	76	N	624
10/25/1974 00:00	187.160	185.460	75	112.16	73.3	N	1
11/13/1974 00:00	187.160	185.460	68.9	118.26	67.2	N	1
11/19/1974 00:00	187.160	185.460	67.8	119.36	66.1	N	624
12/10/1974 00:00	187.160	185.460	65.1	122.06	63.4	N	624
12/18/1974 00:00	187.160	185.460	64.3	122.86	62.6	N	1
01/14/1975 00:00	187.160	185.460	62.1	125.06	60.4	N	624
01/22/1975 00:00	187.160	185.460	61.6	125.56	59.9	N	1
02/11/1975 00:00	187.160	185.460	59.9	127.26	58.2	N	624
02/19/1975 00:00	187.160	185.460	66.2	120.96	64.5	N	1
03/17/1975 00:00	187.160	185.460	57.5	129.66	55.8	N	624
03/25/1975 00:00	187.160	185.460	57	130.16	55.3	N	1
04/15/1975 00:00	187.160	185.460	68.1	119.06	66.4	N	624
04/22/1975 00:00	187.160	185.460	78.2	108.96	76.5	N	1
05/13/1975 00:00	187.160	185.460	82.9	104.26	81.2	N	624
05/22/1975 00:00	187.160	185.460	76	111.16	74.3	N	1
06/17/1975 00:00	187.160	185.460	87	100.16	85.3	N	624
07/03/1975 00:00	187.160	185.460	87.6	99.56	85.9	N	1
07/15/1975 00:00	187.160	185.460	88.4	98.76	86.7	N	624
08/11/1975 00:00	187.160	185.460	96.3	90.86	94.6	N	1
08/19/1975 00:00	187.160	185.460	93.5	93.66	91.8	N	624
09/15/1975 00:00	187.160	185.460	94.9	92.26	93.2	N	1
09/16/1975 00:00	187.160	185.460	94.3	92.86	92.6	N	624
10/15/1975 00:00	187.160	185.460	79.3	107.86	77.6	N	624
10/22/1975 00:00	187.160	185.460	76	111.16	74.3	N	1
11/13/1975 00:00	187.160	185.460	71.2	115.96	69.5	N	624
11/18/1975 00:00	187.160	185.460	70.4	116.76	68.7	N	1
12/10/1975 00:00	187.160	185.460	67.7	119.46	66	N	624
12/12/1975 00:00	187.160	185.460	67.5	119.66	65.8	N	624
12/17/1975 00:00	187.160	185.460	67.1	120.06	65.4	N	1
01/20/1976 00:00	187.160	185.460	68.1	119.06	66.4	N	624
01/21/1976 00:00	187.160	185.460	70.8	116.36	69.1	N	1
02/18/1976 00:00	187.160	185.460	77.6	109.56	75.9	N	624
02/19/1976 00:00	187.160	185.460	76.5	110.66	74.8	N	1
03/08/1976 00:00	187.160	185.460	73.9	113.26	72.2	N	1
03/10/1976 00:00	187.160	185.460	76.6	110.56	74.9	N	624
04/12/1976 00:00	187.160	185.460	81.5	105.66	79.8	N	624
04/19/1976 00:00	187.160	185.460	77.6	<b>109.56</b>	<b>75.9</b>	N	1
05/17/1976 00:00	187.160	185.460	97.2	89.96	95.5	N	624
05/27/1976 00:00	187.160	185.460	97.4	89.76	95.7	N	1
06/14/1976 00:00	187.160	185.460	94.1	93.06	92.4	N	624
06/22/1976 00:00	187.160	185.460	98.4	88.76	96.7	N	1
07/12/1976 00:00	187.160	185.460	101.3	85.86	99.6	N	624

07/19/1976 00:00	187.160	185.460	110.5	76.66	108.8	N	1
08/09/1976 00:00	187.160	185.460	101.4	85.76	99.7	N	624
08/16/1976 00:00	187.160	185.460	103.8	83.36	102.1	N	1
09/13/1976 00:00	187.160	185.460	107.5	79.66	105.8	N	624
09/20/1976 00:00	187.160	185.460	113	74.16	111.3	N	1
10/12/1976 00:00	187.160	185.460	98.5	88.66	96.8	N	624
10/31/1976 00:00	187.160	185.460	91.8	95.36	90.1	N	1
11/16/1976 00:00	187.160	185.460	84.2	102.96	82.5	N	624
11/24/1976 00:00	187.160	185.460	82.2	104.96	80.5	N	1
12/13/1976 00:00	187.160	185.460	94.4	92.76	92.7	N	624
12/27/1976 00:00	187.160	185.460	89.2	97.96	87.5	N	1
01/17/1977 00:00	187.160	185.460	78.9	108.26	77.2	N	624
01/26/1977 00:00	187.160	185.460	77.5	109.66	75.8	N	1
02/14/1977 00:00	187.160	185.460	75.9	111.26	74.2	N	624
02/24/1977 00:00	187.160	185.460	76.7	110.46	75	N	1
03/11/1977 00:00	187.160	185.460	100.3	86.86	98.6	N	1
03/14/1977 00:00	187.160	185.460	103.1	84.06	101.4	N	624
03/28/1977 00:00	187.160	185.460	81.9	105.26	80.2	N	1
04/19/1977 00:00	187.160	185.460	107.9	79.26	106.2	N	624
04/20/1977 00:00	187.160	185.460	110.2	76.96	108.5	N	1
05/17/1977 00:00	187.160	185.460	96.1	91.06	94.4	N	624
05/18/1977 00:00	187.160	185.460	102.9	84.26	101.2	N	1
06/13/1977 00:00	187.160	185.460	108.6	78.56	106.9	N	624
06/21/1977 00:00	187.160	185.460	84.5	102.66	82.8	N	1
06/28/1977 00:00	187.160	185.460	113	74.16	111.3	N	1
07/11/1977 00:00	187.160	185.460	111	76.16	109.3	N	624
07/19/1977 00:00	187.160	185.460	118	69.16	116.3	N	1
08/16/1977 00:00	187.160	185.460	119	68.16	117.3	N	1
09/13/1977 00:00	187.160	185.460	112.7	74.46	111	N	624
09/20/1977 00:00	187.160	185.460	108.5	78.66	106.8	N	1
10/11/1977 00:00	187.160	185.460	104	83.16	102.3	N	624
10/19/1977 00:00	187.160	185.460	99.5	87.66	97.8	N	1
11/15/1977 00:00	187.160	185.460	93.4	93.76	91.7	N	1
12/13/1977 00:00	187.160	185.460	87.8	99.36	86.1	N	624
12/19/1977 00:00	187.160	185.460	83	104.16	81.3	N	1
01/18/1978 00:00	187.160	185.460	82.7	104.46	81	N	624
01/24/1978 00:00	187.160	185.460	82	105.16	80.3	N	1
02/13/1978 00:00	187.160	185.460	78.9	108.26	77.2	N	624
02/22/1978 00:00	187.160	185.460	78	109.16	76.3	N	1
03/13/1978 00:00	187.160	185.460	75.5	111.66	73.8	N	1
03/15/1978 00:00	187.160	185.460	75.3	111.86	73.6	N	624
04/18/1978 00:00	187.160	185.460	72	115.16	70.3	N	1
05/16/1978 00:00	187.160	185.460	88.9	98.26	87.2	N	624
05/23/1978 00:00	187.160	185.460	97.5	89.66	95.8	N	1

06/13/1978 00:00	187.160	185.460	100.7	86.46	99	N	624
06/19/1978 00:00	187.160	185.460	98.6	88.56	96.9	N	1
07/17/1978 00:00	187.160	185.460	110.3	76.86	108.6	N	624
07/18/1978 00:00	187.160	185.460	111.6	75.56	109.9	N	1
08/14/1978 00:00	187.160	185.460	111	76.16	109.3	N	624
08/22/1978 00:00	187.160	185.460	110.7	76.46	109	N	1
09/11/1978 00:00	187.160	185.460	106.6	80.56	104.9	N	624
09/19/1978 00:00	187.160	185.460	105.3	81.86	103.6	N	1
10/16/1978 00:00	187.160	185.460	101.9	85.26	100.2	N	624
10/23/1978 00:00	187.160	185.460	93.4	93.76	91.7	N	1
11/13/1978 00:00	187.160	185.460	87.2	99.96	85.5	N	624
11/15/1978 00:00	187.160	185.460	87	100.16	85.3	N	1
12/11/1978 00:00	187.160	185.460	82.6	104.56	80.9	N	624
12/19/1978 00:00	187.160	185.460	82.2	104.96	80.5	N	1
01/15/1979 00:00	187.160	185.460	78	109.16	76.3	N	624
01/16/1979 00:00	187.160	185.460	78	109.16	76.3	N	1
02/20/1979 00:00	187.160	185.460	74.5	112.66	72.8	N	624
02/21/1979 00:00	187.160	185.460	74.4	112.76	72.7	N	1
03/13/1979 00:00	187.160	185.460	74.7	112.46	73	N	624
03/14/1979 00:00	187.160	185.460	73.2	113.96	71.5	N	1
04/18/1979 00:00	187.160	185.460	88	99.16	86.3	N	1
04/24/1979 00:00	187.160	185.460	83.5	103.66	81.8	N	624
05/14/1979 00:00	187.160	185.460	82.4	104.76	80.7	N	624
06/18/1979 00:00	187.160	185.460	102.7	84.46	101	N	624
07/16/1979 00:00	187.160	185.460	104.5	82.66	102.8	N	624
08/13/1979 00:00	187.160	185.460	109.1	78.06	107.4	N	624
08/21/1979 00:00	187.160	185.460	106.8	80.36	105.1	N	1
09/17/1979 00:00	187.160	185.460	104	83.16	102.3	N	624
10/23/1979 00:00	187.160	185.460	89.2	97.96	87.5	N	1
10/26/1979 00:00	187.160	185.460	88.2	98.96	86.5	N	624
12/13/1979 00:00	187.160	185.460	78.4	108.76	76.7	N	624
02/14/1980 00:00	187.160	185.460	70.4	116.76	68.7	N	1
02/27/1980 00:00	187.160	185.460	68.6	118.56	66.9	N	624
03/17/1980 00:00	187.160	185.460	65.7	121.46	64	N	1
03/18/1980 00:00	187.160	185.460	66.3	120.86	64.6	N	624
04/10/1980 00:00	187.160	185.460	78.9	108.26	77.2	N	624
04/17/1980 00:00	187.160	185.460	89.1	98.06	87.4	N	1
05/16/1980 00:00	187.160	185.460	86.1	101.06	84.4	N	624
05/20/1980 00:00	187.160	185.460	84.9	102.26	83.2	N	1
06/17/1980 00:00	187.160	185.460	90.1	97.06	88.4	N	1
06/19/1980 00:00	187.160	185.460	94.3	92.86	92.6	N	624
07/16/1980 00:00	187.160	185.460	100	87.16	98.3	N	1
08/19/1980 00:00	187.160	185.460	103.4	83.76	101.7	N	1
09/17/1980 00:00	187.160	185.460	97.4	89.76	95.7	N	1

10/14/1980 00:00	187.160	185.460	84.7	102.46	83	N	1
10/15/1980 00:00	187.160	185.460	79.9	107.26	78.2	N	624
11/13/1980 00:00	187.160	185.460	73.4	113.76	71.7	N	624
11/18/1980 00:00	187.160	185.460	76.8	110.36	75.1	N	1
12/15/1980 00:00	187.160	185.460				N-7	624
12/17/1980 00:00	187.160	185.460	68.1	119.06	66.4	N	1
01/15/1981 00:00	187.160	185.460	65.1	122.06	63.4	N	624
01/20/1981 00:00	187.160	185.460	65	122.16	63.3	N	1
02/18/1981 00:00	187.160	185.460	61.8	125.36	60.1	N	1
03/09/1981 00:00	187.160	185.460	60.3	126.86	58.6	N	624
03/16/1981 00:00	187.160	185.460	59.9	127.26	58.2	N	1
04/16/1981 00:00	187.160	185.460	86.8	100.36	85.1	N	624
04/23/1981 00:00	187.160	185.460	75.6	111.56	73.9	N	1
05/14/1981 00:00	187.160	185.460	88.8	98.36	87.1	N	624
05/22/1981 00:00	187.160	185.460	83	104.16	81.3	N	1
06/19/1981 00:00	187.160	185.460	92.7	94.46	91	N	1
07/14/1981 00:00	187.160	185.460	103.4	83.76	101.7	N	624
07/22/1981 00:00	187.160	185.460	105.1	82.06	103.4	N	1
08/13/1981 00:00	187.160	185.460	102.6	84.56	100.9	N	624
09/10/1981 00:00	187.160	185.460	95.7	91.46	94	N	624
10/09/1981 00:00	187.160	185.460	78.2	108.96	76.5	N	624
11/18/1981 00:00	187.160	185.460	67.4	119.76	65.7	N	624
01/21/1982 00:00	187.160	185.460	58.4	128.76	56.7	N	624
02/18/1982 00:00	187.160	185.460	55.7	131.46	54	N	1
03/23/1982 00:00	187.160	185.460	53.1	134.06	51.4	N	624
04/22/1982 00:00	187.160	185.460	51.2	135.96	49.5	N	1
05/20/1982 00:00	187.160	185.460	66.4	120.76	64.7	N	624
06/24/1982 00:00	187.160	185.460	80.5	106.66	78.8	N	1
07/15/1982 00:00	187.160	185.460	82	105.16	80.3	N	624
08/19/1982 00:00	187.160	185.460	84.4	102.76	82.7	N	1
09/16/1982 00:00	187.160	185.460	67.6	119.56	65.9	N	624
10/07/1982 00:00	187.160	185.460	59.4	127.76	57.7	N	624
10/12/1982 00:00	187.160	185.460	58.5	128.66	56.8	N	1
12/15/1982 00:00	187.160	185.460	45.5	141.66	43.8	N	1
01/20/1983 00:00	187.160	185.460	46.2	140.96	44.5	N	1
02/15/1983 00:00	187.160	185.460	43.6	143.56	41.9	N	624
03/30/1983 00:00	187.160	185.460	39.4	147.76	37.7	N	624
04/27/1983 00:00	187.160	185.460	38	149.16	36.3	N	1
05/19/1983 00:00	187.160	185.460	37.6	149.56	35.9	N	624
07/21/1983 00:00	187.160	185.460	41.8	145.36	40.1	N	624
08/08/1983 00:00	187.160	185.460	45.2	141.96	43.5	N	1
09/13/1983 00:00	187.160	185.460	41.1	146.06	39.4	N	1
09/16/1983 00:00	187.160	185.460	38.1	149.06	36.4	N	624
10/12/1983 00:00	187.160	185.460	33.5	153.66	31.8	N	624

11/14/1983 00:00	187.160	185.460	31.4	155.76	29.7	N	1
12/21/1983 00:00	187.160	185.460	28.4	158.76	26.7	N	624
01/17/1984 00:00	187.160	185.460	26.4	160.76	24.7	N	1
02/16/1984 00:00	187.160	185.460	25.4	161.76	23.7	N	624
03/14/1984 00:00	187.160	185.460	24.5	162.66	22.8	N	624
04/25/1984 00:00	187.160	185.460	35.1	152.06	33.4	N	1
05/16/1984 00:00	187.160	185.460	33.2	153.96	31.5	N	624
07/17/1984 00:00	187.160	185.460	47.5	139.66	45.8	N	624
09/19/1984 00:00	187.160	185.460	35	152.16	33.3	N	624
10/10/1984 00:00	187.160	185.460	29.1	158.06	27.4	N	624
11/28/1984 00:00	187.160	185.460	25	162.16	23.3	N	1
12/12/1984 00:00	187.160	185.460	23.9	163.26	22.2	N	624
01/15/1985 00:00	187.160	185.460	23.9	163.26	22.2	N	1
02/20/1985 00:00	187.160	185.460	21.9	165.26	20.2	N	624
03/07/1985 00:00	187.160	185.460	27.5	159.66	25.8	N	624
04/16/1985 00:00	187.160	185.460	32.2	154.96	30.5	N	1
05/16/1985 00:00	187.160	185.460	43.8	143.36	42.1	N	624
06/05/1985 00:00	187.160	185.460	34.7	152.46	33	N	1
07/17/1985 00:00	187.160	185.460	48.9	138.26	47.2	N	624
08/27/1985 00:00	187.160	185.460	35.1	152.06	33.4	N	1
09/25/1985 00:00	187.160	185.460	30.8	156.36	29.1	N	624
10/08/1985 00:00	187.160	185.460	30.4	156.76	28.7	N	624
11/14/1985 00:00	187.160	185.460	27.5	159.66	25.8	N	1
12/19/1985 00:00	187.160	185.460	25.2	161.96	23.5	N	624
01/21/1986 00:00	187.160	185.460	24	163.16	22.3	N	1
02/13/1986 00:00	187.160	185.460	22.4	164.76	20.7	N	624
03/12/1986 00:00	187.160	185.460	21.1	166.06	19.4	N	624
04/21/1986 00:00	187.160	185.460	24.4	162.76	22.7	N	1
05/07/1986 00:00	187.160	185.460	25.2	161.96	23.5	N	624
06/16/1986 00:00	187.160	185.460	33.2	153.96	31.5	N	1
07/17/1986 00:00	187.160	185.460	43.5	143.66	41.8	N	624
08/21/1986 00:00	187.160	185.460	50.8	136.36	49.1	N	1
09/11/1986 00:00	187.160	185.460	33.3	153.86	31.6	N	624
10/07/1986 00:00	187.160	185.460	27.8	159.36	26.1	N	624
11/20/1986 00:00	187.160	185.460	26	161.16	24.3	N	624
12/15/1986 00:00	187.160	185.460	24.1	163.06	22.4	N	1
01/15/1987 00:00	187.160	185.460	23.5	163.66	21.8	N	1
02/13/1987 00:00	187.160	185.460	22.9	164.26	21.2	N	1
03/09/1987 00:00	187.160	185.460	22.6	164.56	20.9	N	624
04/15/1987 00:00	187.160	185.460	28.3	158.86	26.6	N	1
05/13/1987 00:00	187.160	185.460	42.8	144.36	41.1	N	624
06/16/1987 00:00	187.160	185.460	33	154.16	31.3	N	1
07/07/1987 00:00	187.160	185.460	35.5	151.66	33.8	N	624
08/14/1987 00:00	187.160	185.460	32.2	154.96	30.5	N	1

09/24/1987 00:00	187.160	185.460	33.5	153.66	31.8	N	624
11/05/1987 00:00	187.160	185.460	26.7	160.46	25	N	624
12/17/1987 00:00	187.160	185.460	24.7	162.46	23	N	1
01/12/1988 00:00	187.160	185.460	23.4	163.76	21.7	N	624
02/16/1988 00:00	187.160	185.460	22.3	164.86	20.6	N	1
03/07/1988 00:00	187.160	185.460	24.6	162.56	22.9	N	624
04/14/1988 00:00	187.160	185.460	29.5	157.66	27.8	N	1
05/12/1988 00:00	187.160	185.460	28.9	158.26	27.2	N	624
06/15/1988 00:00	187.160	185.460	43.6	143.56	41.9	N	1
07/08/1988 00:00	187.160	185.460	41.9	145.26	40.2	N	624
08/16/1988 00:00	187.160	185.460	37.7	149.46	36	N	1
09/28/1988 00:00	187.160	185.460	31.6	155.56	29.9	N	624
11/30/1988 00:00	187.160	185.460	26.2	160.96	24.5	N	624
12/15/1988 00:00	187.160	185.460	25.7	161.46	24	N	1
01/18/1989 00:00	187.160	185.460				N-7	624
02/15/1989 00:00	187.160	185.460	24.6	162.56	22.9	N	1
03/15/1989 00:00	187.160	185.460	25.7	161.46	24	N	624
04/14/1989 00:00	187.160	185.460	39.4	147.76	37.7	N	1
05/08/1989 00:00	187.160	185.460	33.6	153.56	31.9	N	624
06/14/1989 00:00	187.160	185.460	37.1	150.06	35.4	N	1
07/05/1989 00:00	187.160	185.460	49.8	137.36	48.1	N	624
08/16/1989 00:00	187.160	185.460	49.8	137.36	48.1	N	1
09/14/1989 00:00	187.160	185.460	37.7	149.46	36	N	624
10/16/1989 00:00	187.160	185.460	29.9	157.26	28.2	N	1
11/30/1989 00:00	187.160	185.460	27.6	159.56	25.9	N	624
12/18/1989 00:00	187.160	185.460	27.1	160.06	25.4	N	1
01/18/1990 00:00	187.160	185.460	26.6	160.56	24.9	N	624
02/15/1990 00:00	187.160	185.460	26.3	160.86	24.6	N	1
03/14/1990 00:00	187.160	185.460	26	161.16	24.3	N	624
04/12/1990 00:00	187.160	185.460	53.2	133.96	51.5	N	624
05/15/1990 00:00	187.160	185.460	72.4	114.76	70.7	N	624
06/11/1990 00:00	187.160	185.460	67.1	120.06	65.4	N	624
07/16/1990 00:00	187.160	185.460	78.2	108.96	76.5	N	624
08/14/1990 00:00	187.160	185.460	62	125.16	60.3	N	624
09/12/1990 00:00	187.160	185.460	51	136.16	49.3	N	624
10/17/1990 00:00	187.160	185.460	46.1	141.06	44.4	N	624
11/15/1990 00:00	187.160	185.460	41.4	145.76	39.7	N	624
12/13/1990 00:00	187.160	185.460	39.2	147.96	37.5	N	624
01/23/1991 00:00	187.160	185.460	37.5	149.66	35.8	N	624
02/14/1991 00:00	187.160	185.460	38.9	148.26	37.2	N	624
03/15/1991 00:00	187.160	185.460	37.8	149.36	36.1	N	624
04/12/1991 00:00	187.160	185.460	53.2	133.96	51.5	N	624
05/15/1991 00:00	187.160	185.460	57.8	129.36	56.1	N	624
06/17/1991 00:00	187.160	185.460	79.4	107.76	77.7	N	624

07/30/1991 00:00	187.160	185.460	93.8	93.36	92.1		N	624
08/15/1991 00:00	187.160	185.460	90.6	96.56	88.9		N	624
09/18/1991 00:00	187.160	185.460	73.4	113.76	71.7		N	624
10/01/1991 00:00	187.160	185.460	69.4	117.76	67.7		N	624
12/16/1991 00:00	187.160	185.460	52.6	134.56	50.9		N	624
02/14/1992 00:00	187.160	185.460	46.5	140.66	44.8		N	624
03/02/1992 00:00	187.160	185.460	45	142.16	43.3		N	624
03/19/1992 00:00	187.160	185.460	43.6	143.56	41.9		N	624
04/14/1992 00:00	187.160	185.460	44.5	142.66	42.8		N	1
05/12/1992 00:00	187.160	185.460	70.5	116.66	68.8		N	1
06/15/1992 00:00	187.160	185.460	83	104.16	81.3		N	1
09/15/1992 00:00	187.160	185.460	84.2	102.96	82.5		N	1
10/06/1992 00:00	187.160	185.460	73.2	113.96	71.5		N	1
11/16/1992 00:00	187.160	185.460	83.7	103.46	82		N	624
12/14/1992 00:00	187.160	185.460	56.3	130.86	54.6		N	624
01/19/1993 00:00	187.160	185.460	53.8	133.36	52.1		N	624
02/16/1993 00:00	187.160	185.460	50.7	136.46	49		N	624
03/16/1993 00:00	187.160	185.460	47.7	139.46	46		N	1
04/15/1993 00:00	187.160	185.460	55.5	131.66	53.8		N	1
05/20/1993 00:00	187.160	185.460	66.3	120.86	64.6		N	1
06/15/1993 00:00	187.160	185.460	66.4	120.76	64.7		N	1
07/15/1993 00:00	187.160	185.460	74.7	112.46	73		N	624
08/16/1993 00:00	187.160	185.460	61.9	125.26	60.2		N	1
09/14/1993 00:00	187.160	185.460	60.4	126.76	58.7		N	624
10/05/1993 00:00	187.160	185.460	53.9	133.26	52.2		N	1
11/19/1993 00:00	187.160	185.460	46.8	140.36	45.1		N	624
12/16/1993 00:00	187.160	185.460	44.6	142.56	42.9		N	624
01/13/1994 00:00	187.160	185.460	43.3	143.86	41.6		N	1
02/14/1994 00:00	187.160	185.460	41.8	145.36	40.1		N	624
03/15/1994 00:00	187.160	185.460	39.8	147.36	38.1		N	1
04/12/1994 00:00	187.160	185.460	51.6	135.56	49.9		N	624
05/19/1994 00:00	187.160	185.460	69.7	117.46	68		N	624
06/16/1994 00:00	187.160	185.460	101.9	85.26	100.2	Q-2	N	624
07/15/1994 00:00	187.160	185.460	108	79.16	106.3		N	1
08/15/1994 00:00	187.160	185.460	106.6	80.56	104.9	Q-2	N	1
09/15/1994 00:00	187.160	185.460	89.5	97.66	87.8		N	1
10/18/1994 00:00	187.160	185.460	70.3	116.86	68.6		N	1
03/07/1995 00:00	187.160	185.460	48.3	138.86	46.6		N	1
03/31/1995 00:00	187.160	185.460	45.8	141.36	44.1		N	1
04/18/1995 00:00	187.160	185.460	44.6	142.56	42.9		N	1
07/26/1995 00:00	187.160	185.460	74	113.16	72.3		N	1
10/03/1995 00:00	187.160	185.460	54.3	132.86	52.6		N	1
01/17/1996 00:00	187.160	185.460	40.8	146.36	39.1		N	1
03/27/1996 00:00	187.160	185.460	35.3	151.86	33.6		N	1

07/22/1996 00:00	187.160	185.460	73.6	113.56	71.9	N	1
10/08/1996 00:00	187.160	185.460	48.4	138.76	46.7	N	1
01/15/1997 00:00	187.160	185.460	35.5	151.66	33.8	N	1
03/04/1997 00:00	187.160	185.460	32.6	154.56	30.9	N	1
07/15/1997 00:00	187.160	185.460	68	119.16	66.3	N	1
10/07/1997 00:00	187.160	185.460	48.4	138.76	46.7	N	1
01/13/1998 00:00	187.160	185.460	38.8	148.36	37.1	N	1
03/11/1998 00:00	187.160	185.460	32.8	154.36	31.1	N	1
06/01/1998 00:00	187.160	185.460	31.8	155.36	30.1	N	1
10/08/1998 00:00	187.160	185.460	40.7	146.46	39	N	1
03/16/1999 00:00	187.160	185.460				N-2	1
08/05/1999 00:00	187.160	185.460	67.2	119.96	65.5	N	1
10/04/1999 00:00	187.160	185.460	53.1	134.06	51.4	N	1
03/23/2000 00:00	187.160	185.460	34.5	152.66	32.8	N	1
10/04/2000 00:00	187.160	185.460	54.9	132.26	53.2	N	1
03/20/2001 00:00	187.160	185.460	36.9	150.26	35.2	N	1
07/19/2001 00:00	187.160	185.460	93.9	93.26	92.2	N	1
08/01/2001 00:00	187.160	185.460	96.1	91.06	94.4	N	1
08/16/2001 00:00	187.160	185.460	87.5	99.66	85.8	N	1
09/04/2001 00:00	187.160	185.460	84.3	102.86	82.6	N	1
10/09/2001 00:00	187.160	185.460	65.9	121.26	64.2	N	1
11/09/2001 00:00	187.160	185.460	58.8	128.36	57.1	N	1
12/13/2001 00:00	187.160	185.460	56.1	131.06	54.4	N	1
02/05/2002 00:00	187.160	185.460	46.6	140.56	44.9	N	1
02/28/2002 00:00	187.160	185.460	45.3	141.86	43.6	N	1
03/19/2002 00:00	187.160	185.460	53.4	133.76	51.7	N	1
04/26/2002 00:00	187.160	185.460	71.3	115.86	69.6	N	1
05/14/2002 00:00	187.160	185.460	78.1	109.06	76.4	N	1
06/27/2002 00:00	187.160	185.460	90.9	96.26	89.2	N	1
08/19/2002 00:00	187.160	185.460	87	100.16	85.3	N	1
09/17/2002 00:00	187.160	185.460	77.8	109.36	76.1	N	1
10/16/2002 00:00	187.160	185.460	65.4	121.76	63.7	N	1
11/20/2002 00:00	187.160	185.460	57.3	129.86	55.6	N	1
02/18/2003 00:00	187.160	185.460	46.7	140.46	45	N	1
03/13/2003 00:00	187.160	185.460	44.9	142.26	43.2	N	1
04/09/2003 00:00	187.160	185.460	44.2	142.96	42.5	N	1
05/28/2003 00:00	187.160	185.460	68.4	118.76	66.7	N	1
06/19/2003 00:00	187.160	185.460	71.4	115.76	69.7	N	1
07/30/2003 00:00	187.160	185.460	83	104.16	81.3	N	1
09/22/2003 00:00	187.160	185.460	65.4	121.76	63.7	N	1
10/21/2003 00:00	187.160	185.460	60	127.16	58.3	N	1
11/25/2003 00:00	187.160	185.460	58.6	128.56	56.9	N	1
12/16/2003 00:00	187.160	185.460	54	133.16	52.3	N	1
02/10/2004 00:00	187.160	185.460	45.8	141.36	44.1	N	1

04/01/2004 00:00	187.160	185.460	43.3	143.86	41.6	N	1	
04/26/2004 00:00	187.160	185.460	66.1	121.06	64.4	N	1	
05/21/2004 00:00	187.160	185.460	83.3	103.86	81.6	N	1	
06/21/2004 00:00	187.160	185.460	84.2	102.96	82.5	N	1	
07/27/2004 00:00	187.160	185.460	85	102.16	83.3	N	1	
08/24/2004 00:00	187.160	185.460	81.3	105.86	79.6	N	1	
09/21/2004 00:00	187.160	185.460	67.2	119.96	65.5	N	1	
10/19/2004 00:00	187.160	185.460	59.7	127.46	58	N	1	
11/22/2004 00:00	187.160	185.460	53.6	133.56	51.9	N	1	
03/31/2005 00:00	187.160	185.460	42.3	144.86	40.6	N	1	
04/29/2005 00:00	187.160	185.460	42.9	144.26	41.2	N	1	
05/26/2005 00:00	187.160	185.460	61.4	125.76	59.7	N	1	
06/24/2005 00:00	187.160	185.460	58.7	128.46	57	N	1	
07/27/2005 00:00	187.160	185.460	69.1	118.06	67.4	N	1	
08/24/2005 00:00	187.160	185.460	68	119.16	66.3	N	1	
09/30/2005 00:00	187.160	185.460	55.6	131.56	53.9	N	1	
10/19/2005 00:00	187.160	185.460	51.7	135.46	50	N	1	
03/28/2006 00:00	187.160	185.460	39.6	147.56	37.9	N	1	
05/18/2006 00:00	187.160	185.460	50.8	136.36	49.1	N	1	
08/02/2006 00:00	187.160	185.460	64	123.16	62.3	N	1	
10/10/2006 00:00	187.160	185.460	48.7	138.46	47	N	1	
03/19/2007 00:00	187.160	185.460	44.66	142.5	42.96	N	1	
08/06/2007 00:00	187.160	185.460	89	98.16	87.3	N	1	
10/16/2007 00:00	187.160	185.460	61.17	125.99	59.47	N	1	
01/16/2008 00:00	187.160	185.460	52.25	134.91	50.55	N	1	
03/10/2008 00:00	187.160	185.460	47.4	139.76	45.7	N	1	
08/04/2008 00:00	187.160	185.460				N-0	N	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

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## Groundwater Levels for Station 396252N1222351W002

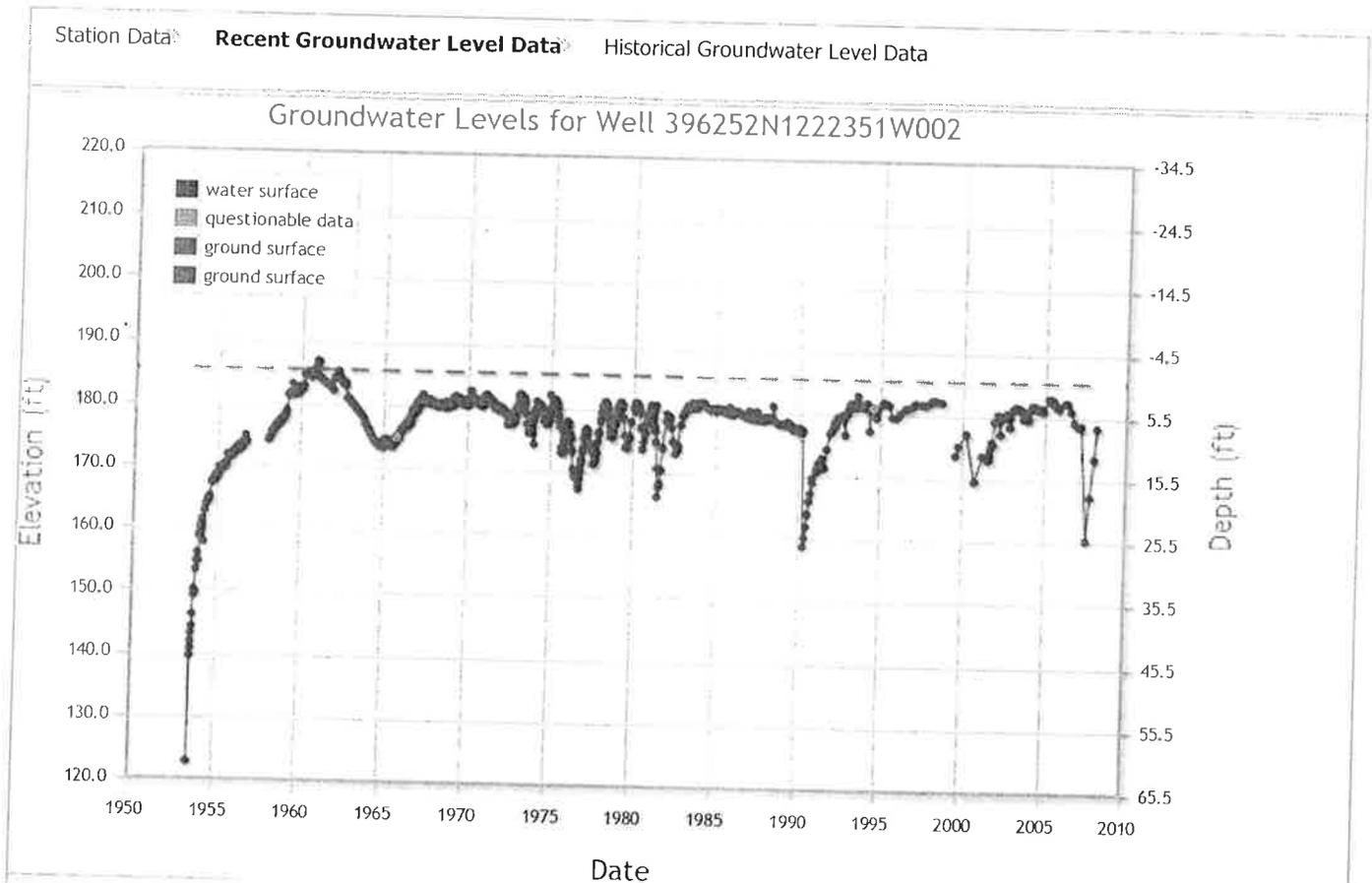
Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

<span style="border: 1px solid black; padding: 2px;">Station Data</span> <span style="border: 1px solid black; padding: 2px; margin-left: 10px;">Recent Groundwater Level Data</span> <span style="border: 1px solid black; padding: 2px; margin-left: 10px;">Historical Groundwater Level Data</span>	
<p><b>State Well Number:</b> 21N03W31R003M  <b>Local Well ID:</b>  <b>Site Code:</b> 396252N1222351W002  <b>Latitude (NAD83):</b> 39.625200  <b>Longitude (NAD83):</b> -122.2351  <b>Groundwater Basin (code):</b> ()</p>	<p><b>Well Use:</b>  <b>Well Status:</b> Inactive  <b>Well Completion Report Number:</b>  <b>Reference Point Elevation (NAVD88 ft):</b> 187.260  <b>Ground Surface Elevation (NAVD88 ft):</b> 185.460  <b>Total Depth (ft):</b> 565  <b>Perforated Interval Depths (ft):</b> 440.000 565.000</p>

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W002

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



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Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
06/18/1953 00:00	187.260	185.460	64.5	122.76	62.7		N	624
07/03/1953 00:00	187.260	185.460	47.7	139.56	45.9		N	624
07/10/1953 00:00	187.260	185.460	46.5	140.76	44.7		N	624
07/15/1953 00:00	187.260	185.460	45.5	141.76	43.7		N	624
07/22/1953 00:00	187.260	185.460	44.1	143.16	42.3		N	624
08/10/1953 00:00	187.260	185.460	43	144.26	41.2		N	624
08/16/1953 00:00	187.260	185.460	41.1	146.16	39.3		N	624
09/03/1953 00:00	187.260	185.460	38	149.26	36.2		N	624
09/10/1953 00:00	187.260	185.460	37	150.26	35.2		N	624

09/20/1953 00:00	187.260	185.460	37.4	149.86	35.6	N	624
10/10/1953 00:00	187.260	185.460	34	153.26	32.2	N	624
10/27/1953 00:00	187.260	185.460	32.5	154.76	30.7	N	624
11/13/1953 00:00	187.260	185.460	31.2	156.06	29.4	N	624
11/26/1953 00:00	187.260	185.460	32.5	154.76	30.7	N	624
12/12/1953 00:00	187.260	185.460	28.6	158.66	26.8	N	624
01/04/1954 00:00	187.260	185.460	27.9	159.36	26.1	N	624
01/21/1954 00:00	187.260	185.460	27.3	159.96	25.5	N	624
01/27/1954 00:00	187.260	185.460	26.7	160.56	24.9	N	624
02/15/1954 00:00	187.260	185.460	25.9	161.36	24.1	N	624
03/21/1954 00:00	187.260	185.460	29.5	157.76	27.7	N	624
03/30/1954 00:00	187.260	185.460	24.5	162.76	22.7	N	624
04/21/1954 00:00	187.260	185.460	23.5	163.76	21.7	N	624
05/26/1954 00:00	187.260	185.460	22.9	164.36	21.1	N	624
06/23/1954 00:00	187.260	185.460	22.5	164.76	20.7	N	624
07/18/1954 00:00	187.260	185.460	22.1	165.16	20.3	N	624
08/19/1954 00:00	187.260	185.460	20	167.26	18.2	N	624
09/21/1954 00:00	187.260	185.460	19.7	167.56	17.9	N	624
10/29/1954 00:00	187.260	185.460	19.1	168.16	17.3	N	624
11/22/1954 00:00	187.260	185.460	18.8	168.46	17	N	624
11/24/1954 00:00	187.260	185.460	18.8	168.46	17	N	624
12/16/1954 00:00	187.260	185.460	18.6	168.66	16.8	N	624
01/25/1955 00:00	187.260	185.460	17.6	169.66	15.8	N	624
02/17/1955 00:00	187.260	185.460	17.8	169.46	16	N	624
03/21/1955 00:00	187.260	185.460	17.6	169.66	15.8	N	624
04/19/1955 00:00	187.260	185.460	17.3	169.96	15.5	N	624
05/19/1955 00:00	187.260	185.460	17	170.26	15.2	N	624
06/15/1955 00:00	187.260	185.460	16.9	170.36	15.1	N	624
07/19/1955 00:00	187.260	185.460	15.5	171.76	13.7	N	624
08/16/1955 00:00	187.260	185.460	16.1	171.16	14.3	N	624
09/20/1955 00:00	187.260	185.460	15.6	171.66	13.8	N	624
10/20/1955 00:00	187.260	185.460	15.3	171.96	13.5	N	624
11/17/1955 00:00	187.260	185.460	15.2	172.06	13.4	N	624
12/14/1955 00:00	187.260	185.460	15	172.26	13.2	N	624
01/18/1956 00:00	187.260	185.460	14.6	172.66	12.8	N	624
02/14/1956 00:00	187.260	185.460	14.4	172.86	12.6	N	624
03/15/1956 00:00	187.260	185.460	14.2	173.06	12.4	N	624
03/22/1956 00:00	187.260	185.460	14.2	173.06	12.4	N	624
04/17/1956 00:00	187.260	185.460	14	173.26	12.2	N	624
05/15/1956 00:00	187.260	185.460	14.3	172.96	12.5	N	624
06/19/1956 00:00	187.260	185.460	13.6	173.66	11.8	N	624
07/17/1956 00:00	187.260	185.460	13.4	173.86	11.6	N	624
08/23/1956 00:00	187.260	185.460	12.4	174.86	10.6	N	624
09/21/1956 00:00	187.260	185.460	13.4	173.86	11.6	N	624

01/15/1958 00:00	187.260	185.460	13.1	174.16	11.3	N	624
02/17/1958 00:00	187.260	185.460	12.5	174.76	10.7	N	624
03/19/1958 00:00	187.260	185.460	11.9	175.36	10.1	N	624
04/10/1958 00:00	187.260	185.460	11.5	175.76	9.7	N	624
05/15/1958 00:00	187.260	185.460	11.1	176.16	9.3	N	624
06/16/1958 00:00	187.260	185.460	10.8	176.46	9	N	624
07/15/1958 00:00	187.260	185.460	10.5	176.76	8.7	N	624
08/18/1958 00:00	187.260	185.460	10.2	177.06	8.4	N	624
09/16/1958 00:00	187.260	185.460	10	177.26	8.2	N	624
10/21/1958 00:00	187.260	185.460	9.6	177.66	7.8	N	624
11/17/1958 00:00	187.260	185.460	9.5	177.76	7.7	N	624
12/15/1958 00:00	187.260	185.460	9.2	178.06	7.4	N	624
01/15/1959 00:00	187.260	185.460	8.8	178.46	7	N	624
02/17/1959 00:00	187.260	185.460	8.3	178.96	6.5	N	624
03/18/1959 00:00	187.260	185.460	5.9	181.36	4.1	N	624
04/17/1959 00:00	187.260	185.460	5.6	181.66	3.8	N	624
05/15/1959 00:00	187.260	185.460	5.6	181.66	3.8	N	624
06/15/1959 00:00	187.260	185.460	4.1	183.16	2.3	N	624
07/16/1959 00:00	187.260	185.460	5.5	181.76	3.7	N	624
08/18/1959 00:00	187.260	185.460	5.4	181.86	3.6	N	624
09/16/1959 00:00	187.260	185.460	5.3	181.96	3.5	N	624
10/14/1959 00:00	187.260	185.460	5.4	181.86	3.6	N	624
11/17/1959 00:00	187.260	185.460	4.8	182.46	3	N	624
12/16/1959 00:00	187.260	185.460	4.5	182.76	2.7	N	624
01/19/1960 00:00	187.260	185.460	4.5	182.76	2.7	N	624
02/16/1960 00:00	187.260	185.460	4.3	182.96	2.5	N	624
03/15/1960 00:00	187.260	185.460	2.7	184.56	0.9	N	624
04/14/1960 00:00	187.260	185.460	2.5	184.76	0.7	N	624
05/16/1960 00:00	187.260	185.460	2.3	184.96	0.5	N	624
06/09/1960 00:00	187.260	185.460	2.1	185.16	0.3	N	624
07/12/1960 00:00	187.260	185.460	2.2	185.06	0.4	N	624
08/18/1960 00:00	187.260	185.460	3.1	184.16	1.3	N	624
09/15/1960 00:00	187.260	185.460	2.4	184.86	0.6	N	624
10/15/1960 00:00	187.260	185.460	2.2	185.06	0.4	N	624
11/14/1960 00:00	187.260	185.460	1.4	185.86	-0.4	N	624
12/20/1960 00:00	187.260	185.460	0.4	186.86	-1.4	N	624
01/16/1961 00:00	187.260	185.460	0.5	186.76	-1.3	N	624
02/20/1961 00:00	187.260	185.460	3.2	184.06	1.4	N	624
03/21/1961 00:00	187.260	185.460	3.2	184.06	1.4	N	624
04/24/1961 00:00	187.260	185.460	3.5	183.76	1.7	N	624
05/30/1961 00:00	187.260	185.460	3.7	183.56	1.9	N	624
06/30/1961 00:00	187.260	185.460	4	183.26	2.2	N	624
07/21/1961 00:00	187.260	185.460	4.1	183.16	2.3	N	624
08/24/1961 00:00	187.260	185.460	4.3	182.96	2.5	N	624

09/27/1961 00:00	187.260	185.460	4.5	182.76	2.7	N	624
10/31/1961 00:00	187.260	185.460	4.8	182.46	3	N	624
11/24/1961 00:00	187.260	185.460	5	182.26	3.2	N	624
12/20/1961 00:00	187.260	185.460	3.2	184.06	1.4	N	624
01/23/1962 00:00	187.260	185.460	2.9	184.36	1.1	N	624
02/20/1962 00:00	187.260	185.460	2.8	184.46	1	N	624
03/28/1962 00:00	187.260	185.460	2	185.26	0.2	N	624
05/07/1962 00:00	187.260	185.460	3	184.26	1.2	N	624
06/07/1962 00:00	187.260	185.460	3.7	183.56	1.9	N	624
07/09/1962 00:00	187.260	185.460	4	183.26	2.2	N	624
07/26/1962 00:00	187.260	185.460	4.2	183.06	2.4	N	624
08/30/1962 00:00	187.260	185.460	3.8	183.46	2	N	624
09/28/1962 00:00	187.260	185.460	6.3	180.96	4.5	N	624
11/13/1962 00:00	187.260	185.460	6.2	181.06	4.4	N	624
12/07/1962 00:00	187.260	185.460	6.6	180.66	4.8	N	624
01/09/1963 00:00	187.260	185.460	7.1	180.16	5.3	N	624
02/06/1963 00:00	187.260	185.460	7.2	180.06	5.4	N	624
03/05/1963 00:00	187.260	185.460	7.4	179.86	5.6	N	624
04/04/1963 00:00	187.260	185.460	7.7	179.56	5.9	N	624
05/03/1963 00:00	187.260	185.460	8	179.26	6.2	N	624
06/07/1963 00:00	187.260	185.460	8.3	178.96	6.5	N	624
07/09/1963 00:00	187.260	185.460	8.6	178.66	6.8	N	624
08/12/1963 00:00	187.260	185.460	8.9	178.36	7.1	N	624
10/09/1963 00:00	187.260	185.460	9.4	177.86	7.6	N	624
11/02/1963 00:00	187.260	185.460	10.3	176.96	8.5	N	624
12/06/1963 00:00	187.260	185.460	10.6	176.66	8.8	N	624
01/07/1964 00:00	187.260	185.460	11.1	176.16	9.3	N	624
02/04/1964 00:00	187.260	185.460	11.2	176.06	9.4	N	624
03/09/1964 00:00	187.260	185.460	12	175.26	10.2	N	624
04/10/1964 00:00	187.260	185.460	12.3	174.96	10.5	N	624
05/07/1964 00:00	187.260	185.460	12.6	174.66	10.8	N	624
06/04/1964 00:00	187.260	185.460	13.1	174.16	11.3	N	624
07/02/1964 00:00	187.260	185.460	13.1	174.16	11.3	N	624
08/07/1964 00:00	187.260	185.460	13.6	173.66	11.8	N	624
09/08/1964 00:00	187.260	185.460	13.6	173.66	11.8	N	624
10/05/1964 00:00	187.260	185.460	13.8	173.46	12	N	624
11/09/1964 00:00	187.260	185.460	13.6	173.66	11.8	N	624
12/04/1964 00:00	187.260	185.460	13.6	173.66	11.8	N	624
01/06/1965 00:00	187.260	185.460	12.7	174.56	10.9	N	624
02/05/1965 00:00	187.260	185.460	12.7	174.56	10.9	N	624
03/05/1965 00:00	187.260	185.460	12.6	174.66	10.8	N	624
04/08/1965 00:00	187.260	185.460	13.6	173.66	11.8	N	624
05/07/1965 00:00	187.260	185.460	13.5	173.76	11.7	N	624
06/07/1965 00:00	187.260	185.460	13.5	173.76	11.7	N	624

07/06/1965 00:00	187.260	185.460	13.5	173.76	11.7		N	624
08/06/1965 00:00	187.260	185.460	13.2	174.06	11.4		N	624
09/03/1965 00:00	187.260	185.460	12.5	174.76	10.7		N	624
10/07/1965 00:00	187.260	185.460	12.4	174.86	10.6	Q-2	N	624
11/05/1965 00:00	187.260	185.460	12	175.26	10.2		N	624
12/03/1965 00:00	187.260	185.460	11.7	175.56	9.9		N	624
01/05/1966 00:00	187.260	185.460	11.1	176.16	9.3		N	624
02/09/1966 00:00	187.260	185.460	10.9	176.36	9.1		N	624
03/08/1966 00:00	187.260	185.460	10.6	176.66	8.8		N	624
04/11/1966 00:00	187.260	185.460	10.5	176.76	8.7		N	624
05/09/1966 00:00	187.260	185.460	10.1	177.16	8.3		N	624
05/17/1966 00:00	187.260	185.460	10	177.26	8.2		N	1
06/13/1966 00:00	187.260	185.460	9.8	177.46	8		N	624
06/21/1966 00:00	187.260	185.460	9.7	177.56	7.9		N	1
07/11/1966 00:00	187.260	185.460				N-7	N	624
07/19/1966 00:00	187.260	185.460	9.3	177.96	7.5		N	1
08/08/1966 00:00	187.260	185.460	8.9	178.36	7.1		N	624
08/17/1966 00:00	187.260	185.460	8.8	178.46	7		N	1
09/12/1966 00:00	187.260	185.460	8.1	179.16	6.3		N	624
09/20/1966 00:00	187.260	185.460	8	179.26	6.2		N	1
10/10/1966 00:00	187.260	185.460	7.8	179.46	6		N	624
10/17/1966 00:00	187.260	185.460	7.7	179.56	5.9		N	1
11/07/1966 00:00	187.260	185.460	7.6	179.66	5.8		N	624
11/16/1966 00:00	187.260	185.460	7.5	179.76	5.7		N	1
12/12/1966 00:00	187.260	185.460	6.9	180.36	5.1		N	624
12/19/1966 00:00	187.260	185.460	6.9	180.36	5.1		N	1
01/10/1967 00:00	187.260	185.460	6.7	180.56	4.9		N	624
01/18/1967 00:00	187.260	185.460	6.5	180.76	4.7		N	1
02/13/1967 00:00	187.260	185.460	6.2	181.06	4.4		N	624
02/23/1967 00:00	187.260	185.460	6.2	181.06	4.4		N	1
03/13/1967 00:00	187.260	185.460	6.2	181.06	4.4		N	624
03/21/1967 00:00	187.260	185.460	6.2	181.06	4.4		N	1
04/11/1967 00:00	187.260	185.460	6.2	181.06	4.4		N	624
04/20/1967 00:00	187.260	185.460	5.4	181.86	3.6		N	1
05/15/1967 00:00	187.260	185.460	6.3	180.96	4.5		N	624
05/22/1967 00:00	187.260	185.460	6.4	180.86	4.6		N	1
06/12/1967 00:00	187.260	185.460	6.4	180.86	4.6		N	624
06/19/1967 00:00	187.260	185.460	6.4	180.86	4.6		N	1
07/17/1967 00:00	187.260	185.460	6.5	180.76	4.7		N	624
07/25/1967 00:00	187.260	185.460	6.5	180.76	4.7		N	1
08/14/1967 00:00	187.260	185.460	6.5	180.76	4.7		N	624
08/24/1967 00:00	187.260	185.460	6.7	180.56	4.9		N	1
09/11/1967 00:00	187.260	185.460	6.5	180.76	4.7		N	624
09/18/1967 00:00	187.260	185.460	6.2	181.06	4.4		N	1

10/09/1967 00:00	187.260	185.460	6.3	180.96	4.5	N	624
10/23/1967 00:00	187.260	185.460	6.4	180.86	4.6	N	1
11/20/1967 00:00	187.260	185.460	6.7	180.56	4.9	N	624
11/27/1967 00:00	187.260	185.460	6.7	180.56	4.9	N	1
12/18/1967 00:00	187.260	185.460	6.9	180.36	5.1	N	624
12/19/1967 00:00	187.260	185.460	6.9	180.36	5.1	N	1
01/16/1968 00:00	187.260	185.460	7	180.26	5.2	N	624
01/24/1968 00:00	187.260	185.460	7.1	180.16	5.3	N	1
02/12/1968 00:00	187.260	185.460	6.9	180.36	5.1	N	624
02/21/1968 00:00	187.260	185.460	6.7	180.56	4.9	N	1
03/07/1968 00:00	187.260	185.460	6.8	180.46	5	N	624
03/19/1968 00:00	187.260	185.460	6.8	180.46	5	N	1
04/16/1968 00:00	187.260	185.460	6.8	180.46	5	N	624
04/17/1968 00:00	187.260	185.460	6.8	180.46	5	N	1
05/15/1968 00:00	187.260	185.460	6.9	180.36	5.1	N	624
05/21/1968 00:00	187.260	185.460	6.9	180.36	5.1	N	1
06/18/1968 00:00	187.260	185.460	6.7	180.56	4.9	N	1
06/19/1968 00:00	187.260	185.460	6.9	180.36	5.1	N	624
07/22/1968 00:00	187.260	185.460	7	180.26	5.2	N	1
07/24/1968 00:00	187.260	185.460	7.3	179.96	5.5	N	624
08/14/1968 00:00	187.260	185.460	7.2	180.06	5.4	N	624
08/20/1968 00:00	187.260	185.460	7	180.26	5.2	N	1
09/16/1968 00:00	187.260	185.460	6.8	180.46	5	N	624
09/23/1968 00:00	187.260	185.460	6.5	180.76	4.7	N	1
10/11/1968 00:00	187.260	185.460	6.8	180.46	5	N	624
10/21/1968 00:00	187.260	185.460	6.8	180.46	5	N	1
11/13/1968 00:00	187.260	185.460	6.7	180.56	4.9	N	624
11/22/1968 00:00	187.260	185.460	6.9	180.36	5.1	N	1
12/18/1968 00:00	187.260	185.460	6.7	180.56	4.9	N	1
12/23/1968 00:00	187.260	185.460	6.9	180.36	5.1	N	624
01/15/1969 00:00	187.260	185.460	6.5	180.76	4.7	N	624
01/27/1969 00:00	187.260	185.460	6.4	180.86	4.6	N	1
02/21/1969 00:00	187.260	185.460	5.9	181.36	4.1	N	624
02/24/1969 00:00	187.260	185.460	5.8	181.46	4	N	1
03/19/1969 00:00	187.260	185.460	5.8	181.46	4	N	1
03/20/1969 00:00	187.260	185.460	5.8	181.46	4	N	624
04/15/1969 00:00	187.260	185.460	5.7	181.56	3.9	N	624
04/22/1969 00:00	187.260	185.460	5.8	181.46	4	N	1
05/15/1969 00:00	187.260	185.460	5.9	181.36	4.1	N	624
05/27/1969 00:00	187.260	185.460	5.8	181.46	4	N	1
06/17/1969 00:00	187.260	185.460	5.8	181.46	4	N	624
06/25/1969 00:00	187.260	185.460	6	181.26	4.2	N	1
07/16/1969 00:00	187.260	185.460	6.4	180.86	4.6	N	624
07/22/1969 00:00	187.260	185.460	6.6	180.66	4.8	N	1

08/18/1969 00:00	187.260	185.460	6.7	180.56	4.9	N	624
08/20/1969 00:00	187.260	185.460	6.8	180.46	5	N	1
09/17/1969 00:00	187.260	185.460	6.5	180.76	4.7	N	624
09/22/1969 00:00	187.260	185.460	6.5	180.76	4.7	N	1
10/09/1969 00:00	187.260	185.460	6.5	180.76	4.7	N	624
10/23/1969 00:00	187.260	185.460	6.5	180.76	4.7	N	1
11/13/1969 00:00	187.260	185.460	6.6	180.66	4.8	N	624
11/19/1969 00:00	187.260	185.460	6.6	180.66	4.8	N	1
12/12/1969 00:00	187.260	185.460	6	181.26	4.2	N	624
12/17/1969 00:00	187.260	185.460	6.7	180.56	4.9	N	1
01/15/1970 00:00	187.260	185.460	6.1	181.16	4.3	N	624
02/17/1970 00:00	187.260	185.460	5.7	181.56	3.9	N	624
02/24/1970 00:00	187.260	185.460	4.7	182.56	2.9	N	1
03/19/1970 00:00	187.260	185.460	5.6	181.66	3.8	N	1
04/16/1970 00:00	187.260	185.460	6	181.26	4.2	N	624
04/23/1970 00:00	187.260	185.460	6	181.26	4.2	N	1
05/18/1970 00:00	187.260	185.460	6	181.26	4.2	N	624
05/20/1970 00:00	187.260	185.460	6.1	181.16	4.3	N	1
06/17/1970 00:00	187.260	185.460	6.1	181.16	4.3	N	624
06/23/1970 00:00	187.260	185.460	6.1	181.16	4.3	N	1
07/16/1970 00:00	187.260	185.460	6.6	180.66	4.8	N	624
07/22/1970 00:00	187.260	185.460	6.6	180.66	4.8	N	1
08/13/1970 00:00	187.260	185.460	6.8	180.46	5	N	624
08/25/1970 00:00	187.260	185.460	6.7	180.56	4.9	N	1
09/14/1970 00:00	187.260	185.460	6.9	180.36	5.1	N	624
09/24/1970 00:00	187.260	185.460	6.8	180.46	5	N	1
10/08/1970 00:00	187.260	185.460	6.6	180.66	4.8	N	624
10/26/1970 00:00	187.260	185.460	6.3	180.96	4.5	N	1
11/09/1970 00:00	187.260	185.460	6.3	180.96	4.5	N	624
11/23/1970 00:00	187.260	185.460	6.1	181.16	4.3	N	1
12/08/1970 00:00	187.260	185.460	6	181.26	4.2	N	624
12/22/1970 00:00	187.260	185.460	5.7	181.56	3.9	N	1
01/11/1971 00:00	187.260	185.460	5.4	181.86	3.6	N	624
01/21/1971 00:00	187.260	185.460	5.5	181.76	3.7	N	1
02/10/1971 00:00	187.260	185.460	5.3	181.96	3.5	N	624
02/23/1971 00:00	187.260	185.460	5.4	181.86	3.6	N	1
03/09/1971 00:00	187.260	185.460	5.6	181.66	3.8	N	624
03/24/1971 00:00	187.260	185.460	6	181.26	4.2	N	1
04/15/1971 00:00	187.260	185.460	6.2	181.06	4.4	N	624
04/27/1971 00:00	187.260	185.460	6.1	181.16	4.3	N	1
05/11/1971 00:00	187.260	185.460	6	181.26	4.2	N	624
05/27/1971 00:00	187.260	185.460	6.5	180.76	4.7	N	1
06/16/1971 00:00	187.260	185.460	6.5	180.76	4.7	N	624
06/24/1971 00:00	187.260	185.460	6.4	180.86	4.6	N	1

07/13/1971 00:00	187.260	185.460	6.9	180.36	5.1	N	624
07/27/1971 00:00	187.260	185.460	7.2	180.06	5.4	N	1
08/11/1971 00:00	187.260	185.460	7.5	179.76	5.7	N	624
08/26/1971 00:00	187.260	185.460	7.3	179.96	5.5	N	1
09/14/1971 00:00	187.260	185.460	7.5	179.76	5.7	N	624
09/28/1971 00:00	187.260	185.460	7.3	179.96	5.5	N	1
10/06/1971 00:00	187.260	185.460				N-7	624
10/19/1971 00:00	187.260	185.460	7.4	179.86	5.6	N	1
11/11/1971 00:00	187.260	185.460	7	180.26	5.2	N	624
11/23/1971 00:00	187.260	185.460	7.2	180.06	5.4	N	1
12/16/1971 00:00	187.260	185.460	7.3	179.96	5.5	N	624
12/27/1971 00:00	187.260	185.460	7.4	179.86	5.6	N	1
01/17/1972 00:00	187.260	185.460	7.4	179.86	5.6	N	1
01/18/1972 00:00	187.260	185.460	7.5	179.76	5.7	N	624
02/15/1972 00:00	187.260	185.460	7.7	179.56	5.9	N	624
02/22/1972 00:00	187.260	185.460	7.8	179.46	6	N	1
03/07/1972 00:00	187.260	185.460	8.1	179.16	6.3	N	624
03/27/1972 00:00	187.260	185.460	8.1	179.16	6.3	N	1
04/18/1972 00:00	187.260	185.460	8	179.26	6.2	N	624
04/25/1972 00:00	187.260	185.460	8.6	178.66	6.8	N	1
05/11/1972 00:00	187.260	185.460	10	177.26	8.2	N	624
05/23/1972 00:00	187.260	185.460	9.8	177.46	8	N	1
06/21/1972 00:00	187.260	185.460	9.4	177.86	7.6	N	1
07/18/1972 00:00	187.260	185.460	9.3	177.96	7.5	N	1
07/19/1972 00:00	187.260	185.460	9.5	177.76	7.7	N	624
08/22/1972 00:00	187.260	185.460	9.3	177.96	7.5	N	1
09/19/1972 00:00	187.260	185.460	8.9	178.36	7.1	N	624
09/20/1972 00:00	187.260	185.460	9	178.26	7.2	N	1
10/13/1972 00:00	187.260	185.460	8.5	178.76	6.7	N	624
10/19/1972 00:00	187.260	185.460	8.6	178.66	6.8	N	1
11/20/1972 00:00	187.260	185.460	7.7	179.56	5.9	N	1
11/22/1972 00:00	187.260	185.460	7.5	179.76	5.7	N	624
12/13/1972 00:00	187.260	185.460	7.2	180.06	5.4	N	624
12/19/1972 00:00	187.260	185.460	7	180.26	5.2	N	1
01/16/1973 00:00	187.260	185.460	6.5	180.76	4.7	N	624
01/17/1973 00:00	187.260	185.460	5.4	181.86	3.6	N	1
02/22/1973 00:00	187.260	185.460	5	182.26	3.2	N	1
02/26/1973 00:00	187.260	185.460	5.9	181.36	4.1	N	624
03/14/1973 00:00	187.260	185.460	5.6	181.66	3.8	N	1
03/29/1973 00:00	187.260	185.460	5.5	181.76	3.7	N	624
04/16/1973 00:00	187.260	185.460	5.5	181.76	3.7	N	624
04/17/1973 00:00	187.260	185.460	5.4	181.86	3.6	N	1
05/15/1973 00:00	187.260	185.460	6.2	181.06	4.4	N	624
05/22/1973 00:00	187.260	185.460	6.8	180.46	5	N	1

06/19/1973 00:00	187.260	185.460	8	179.26	6.2	N	1
06/21/1973 00:00	187.260	185.460	8.2	179.06	6.4	N	624
07/18/1973 00:00	187.260	185.460	9.8	177.46	8	N	624
07/23/1973 00:00	187.260	185.460	10	177.26	8.2	N	1
08/21/1973 00:00	187.260	185.460	11.2	176.06	9.4	N	624
08/29/1973 00:00	187.260	185.460	11.2	176.06	9.4	N	1
09/17/1973 00:00	187.260	185.460	11	176.26	9.2	N	624
09/27/1973 00:00	187.260	185.460	10.9	176.36	9.1	N	1
10/09/1973 00:00	187.260	185.460	10.5	176.76	8.7	N	624
10/19/1973 00:00	187.260	185.460	10.2	177.06	8.4	N	1
11/12/1973 00:00	187.260	185.460	9.5	177.76	7.7	N	624
11/27/1973 00:00	187.260	185.460	9.1	178.16	7.3	N	1
12/18/1973 00:00	187.260	185.460	13	174.26	11.2	N	624
12/27/1973 00:00	187.260	185.460	8.5	178.76	6.7	N	1
01/15/1974 00:00	187.260	185.460	8	179.26	6.2	N	624
01/29/1974 00:00	187.260	185.460	7.6	179.66	5.8	N	1
02/12/1974 00:00	187.260	185.460	7.3	179.96	5.5	N	624
02/25/1974 00:00	187.260	185.460	6.2	181.06	4.4	N	1
03/13/1974 00:00	187.260	185.460	7.1	180.16	5.3	N	624
03/25/1974 00:00	187.260	185.460	7	180.26	5.2	N	1
04/16/1974 00:00	187.260	185.460	6.8	180.46	5	N	624
04/25/1974 00:00	187.260	185.460	7	180.26	5.2	N	1
05/14/1974 00:00	187.260	185.460	6.7	180.56	4.9	N	624
05/22/1974 00:00	187.260	185.460	7	180.26	5.2	N	1
06/18/1974 00:00	187.260	185.460	7.6	179.66	5.8	N	624
06/20/1974 00:00	187.260	185.460	7.7	179.56	5.9	N	1
07/16/1974 00:00	187.260	185.460	8.5	178.76	6.7	N	624
08/11/1974 00:00	187.260	185.460	9.2	178.06	7.4	N	1
08/13/1974 00:00	187.260	185.460	9.3	177.96	7.5	N	624
09/18/1974 00:00	187.260	185.460	9.8	177.46	8	N	624
10/16/1974 00:00	187.260	185.460	9.3	177.96	7.5	N	624
10/25/1974 00:00	187.260	185.460	9	178.26	7.2	N	1
11/13/1974 00:00	187.260	185.460	8.5	178.76	6.7	N	1
11/19/1974 00:00	187.260	185.460	8.3	178.96	6.5	N	624
12/10/1974 00:00	187.260	185.460	5.1	182.16	3.3	N	624
12/18/1974 00:00	187.260	185.460	7.5	179.76	5.7	N	1
01/14/1975 00:00	187.260	185.460	7.2	180.06	5.4	N	624
01/22/1975 00:00	187.260	185.460	7.1	180.16	5.3	N	1
02/11/1975 00:00	187.260	185.460	6.8	180.46	5	N	624
02/19/1975 00:00	187.260	185.460	6.7	180.56	4.9	N	1
03/17/1975 00:00	187.260	185.460	6.2	181.06	4.4	N	624
03/25/1975 00:00	187.260	185.460	6	181.26	4.2	N	1
04/15/1975 00:00	187.260	185.460	5.9	181.36	4.1	N	624
04/22/1975 00:00	187.260	185.460	6	181.26	4.2	N	1

05/13/1975 00:00	187.260	185.460	7	180.26	5.2	N	624
05/22/1975 00:00	187.260	185.460	7.2	180.06	5.4	N	1
06/17/1975 00:00	187.260	185.460	8.5	178.76	6.7	N	624
07/03/1975 00:00	187.260	185.460	9.4	177.86	7.6	N	1
07/15/1975 00:00	187.260	185.460	10.2	177.06	8.4	N	624
08/11/1975 00:00	187.260	185.460	13.4	173.86	11.6	N	1
08/19/1975 00:00	187.260	185.460	14.3	172.96	12.5	N	624
09/15/1975 00:00	187.260	185.460	14	173.26	12.2	N	1
09/16/1975 00:00	187.260	185.460	14.1	173.16	12.3	N	624
10/15/1975 00:00	187.260	185.460	12.9	174.36	11.1	N	624
10/22/1975 00:00	187.260	185.460	12.4	174.86	10.6	N	1
11/13/1975 00:00	187.260	185.460	11.1	176.16	9.3	N	624
11/18/1975 00:00	187.260	185.460	10.9	176.36	9.1	N	1
12/10/1975 00:00	187.260	185.460	10.1	177.16	8.3	N	624
12/17/1975 00:00	187.260	185.460	10	177.26	8.2	N	1
01/20/1976 00:00	187.260	185.460	9.4	177.86	7.6	N	624
01/21/1976 00:00	187.260	185.460	9.3	177.96	7.5	N	1
02/18/1976 00:00	187.260	185.460	11.9	175.36	10.1	N	624
02/19/1976 00:00	187.260	185.460	11.9	175.36	10.1	N	1
03/08/1976 00:00	187.260	185.460	11.4	175.86	9.6	N	1
03/10/1976 00:00	187.260	185.460	11.4	175.86	9.6	N	624
04/12/1976 00:00	187.260	185.460	14	173.26	12.2	N	624
04/19/1976 00:00	187.260	185.460	13.7	173.56	11.9	N	1
05/17/1976 00:00	187.260	185.460	16.8	170.46	15	N	1
06/14/1976 00:00	187.260	185.460	18.1	169.16	16.3	N	624
06/22/1976 00:00	187.260	185.460	17.8	169.46	16	N	1
07/12/1976 00:00	187.260	185.460	17.4	169.86	15.6	N	624
07/19/1976 00:00	187.260	185.460	17.5	169.76	15.7	N	1
08/09/1976 00:00	187.260	185.460	17.2	170.06	15.4	N	624
08/16/1976 00:00	187.260	185.460	17	170.26	15.2	N	1
09/13/1976 00:00	187.260	185.460	19.4	167.86	17.6	N	624
09/20/1976 00:00	187.260	185.460	20	167.26	18.2	N	1
10/12/1976 00:00	187.260	185.460	18.5	168.76	16.7	N	624
10/31/1976 00:00	187.260	185.460	17	170.26	15.2	N	1
11/16/1976 00:00	187.260	185.460	15.8	171.46	14	N	624
11/24/1976 00:00	187.260	185.460	15.3	171.96	13.5	N	1
12/13/1976 00:00	187.260	185.460	14	173.26	12.2	N	624
12/22/1976 00:00	187.260	185.460	13.5	173.76	11.7	N	1
01/17/1977 00:00	187.260	185.460	12.1	175.16	10.3	N	624
01/26/1977 00:00	187.260	185.460	11.7	175.56	9.9	N	1
02/14/1977 00:00	187.260	185.460	10.9	176.36	9.1	N	624
02/24/1977 00:00	187.260	185.460	11.6	175.66	9.8	N	1
03/11/1977 00:00	187.260	185.460	10.4	176.86	8.6	N	1
03/14/1977 00:00	187.260	185.460	10.5	176.76	8.7	N	624

03/28/1977 00:00	187.260	185.460	10.5	176.76	8.7	N	1
04/19/1977 00:00	187.260	185.460	12.5	174.76	10.7	N	624
04/20/1977 00:00	187.260	185.460	12.5	174.76	10.7	N	1
05/17/1977 00:00	187.260	185.460	13	174.26	11.2	N	624
05/18/1977 00:00	187.260	185.460	13	174.26	11.2	N	1
06/13/1977 00:00	187.260	185.460	12.7	174.56	10.9	N	624
06/28/1977 00:00	187.260	185.460	13.1	174.16	11.3	N	1
07/11/1977 00:00	187.260	185.460	13.3	173.96	11.5	N	624
07/19/1977 00:00	187.260	185.460	14	173.26	12.2	N	1
08/16/1977 00:00	187.260	185.460	16	171.26	14.2	N	1
09/13/1977 00:00	187.260	185.460	15.5	171.76	13.7	N	624
09/20/1977 00:00	187.260	185.460	15.2	172.06	13.4	N	1
10/11/1977 00:00	187.260	185.460	14.4	172.86	12.6	N	624
10/19/1977 00:00	187.260	185.460	13.9	173.36	12.1	N	1
11/15/1977 00:00	187.260	185.460	12.5	174.76	10.7	N	1
12/13/1977 00:00	187.260	185.460	11.2	176.06	9.4	N	624
12/19/1977 00:00	187.260	185.460	10.8	176.46	9	N	1
01/18/1978 00:00	187.260	185.460	9.2	178.06	7.4	N	624
01/24/1978 00:00	187.260	185.460	8.8	178.46	7	N	1
02/13/1978 00:00	187.260	185.460	7.9	179.36	6.1	N	624
02/22/1978 00:00	187.260	185.460	7.6	179.66	5.8	N	1
03/13/1978 00:00	187.260	185.460	6.8	180.46	5	N	1
03/15/1978 00:00	187.260	185.460	6.7	180.56	4.9	N	624
04/18/1978 00:00	187.260	185.460	6.1	181.16	4.3	N	1
05/16/1978 00:00	187.260	185.460	6	181.26	4.2	N	624
05/23/1978 00:00	187.260	185.460	6.4	180.86	4.6	N	1
06/13/1978 00:00	187.260	185.460	6.9	180.36	5.1	N	624
06/19/1978 00:00	187.260	185.460	7.2	180.06	5.4	N	1
07/17/1978 00:00	187.260	185.460	8.6	178.66	6.8	N	624
07/18/1978 00:00	187.260	185.460	8.7	178.56	6.9	N	1
08/14/1978 00:00	187.260	185.460	10.1	177.16	8.3	N	624
08/22/1978 00:00	187.260	185.460	10.7	176.56	8.9	N	1
09/11/1978 00:00	187.260	185.460	11.6	175.66	9.8	N	624
09/19/1978 00:00	187.260	185.460	11.7	175.56	9.9	N	1
10/16/1978 00:00	187.260	185.460	11	176.26	9.2	N	624
10/23/1978 00:00	187.260	185.460	10.7	176.56	8.9	N	1
11/13/1978 00:00	187.260	185.460	9.7	177.56	7.9	N	624
11/15/1978 00:00	187.260	185.460	9.7	177.56	7.9	N	1
12/11/1978 00:00	187.260	185.460	8.9	178.36	7.1	N	624
12/19/1978 00:00	187.260	185.460	8.7	178.56	6.9	N	1
01/15/1979 00:00	187.260	185.460	8.2	179.06	6.4	N	624
01/16/1979 00:00	187.260	185.460	8.2	179.06	6.4	N	1
02/20/1979 00:00	187.260	185.460	7.1	180.16	5.3	N	624
02/21/1979 00:00	187.260	185.460	7.1	180.16	5.3	N	1

03/13/1979 00:00	187.260	185.460	6.4	180.86	4.6	N	624
03/14/1979 00:00	187.260	185.460	6.4	180.86	4.6	N	1
04/18/1979 00:00	187.260	185.460	6	181.26	4.2	N	1
04/24/1979 00:00	187.260	185.460	6.2	181.06	4.4	N	624
05/14/1979 00:00	187.260	185.460	6.3	180.96	4.5	N	624
06/18/1979 00:00	187.260	185.460	8.5	178.76	6.7	N	624
07/16/1979 00:00	187.260	185.460	11.4	175.86	9.6	N	624
08/13/1979 00:00	187.260	185.460	13.2	174.06	11.4	N	624
08/21/1979 00:00	187.260	185.460	13.3	173.96	11.5	N	1
09/17/1979 00:00	187.260	185.460	12.9	174.36	11.1	N	624
10/23/1979 00:00	187.260	185.460	11.7	175.56	9.9	N	1
10/26/1979 00:00	187.260	185.460	11.4	175.86	9.6	N	624
12/13/1979 00:00	187.260	185.460	9.2	178.06	7.4	N	624
02/14/1980 00:00	187.260	185.460	7.2	180.06	5.4	N	1
02/27/1980 00:00	187.260	185.460	6.6	180.66	4.8	N	624
03/17/1980 00:00	187.260	185.460	6.1	181.16	4.3	N	1
03/18/1980 00:00	187.260	185.460	7.5	179.76	5.7	N	624
04/10/1980 00:00	187.260	185.460	6.1	181.16	4.3	N	624
04/17/1980 00:00	187.260	185.460	6.1	181.16	4.3	N	1
05/16/1980 00:00	187.260	185.460	6.8	180.46	5	N	624
05/20/1980 00:00	187.260	185.460	7	180.26	5.2	N	1
06/17/1980 00:00	187.260	185.460	7.3	179.96	5.5	N	1
06/19/1980 00:00	187.260	185.460	7.3	179.96	5.5	N	624
07/16/1980 00:00	187.260	185.460	10.1	177.16	8.3	N	1
08/19/1980 00:00	187.260	185.460	13.5	173.76	11.7	N	1
09/17/1980 00:00	187.260	185.460	12.3	174.96	10.5	N	1
10/14/1980 00:00	187.260	185.460	11	176.26	9.2	N	1
10/15/1980 00:00	187.260	185.460	10.9	176.36	9.1	N	624
11/13/1980 00:00	187.260	185.460	9.6	177.66	7.8	N	624
11/18/1980 00:00	187.260	185.460	9.5	177.76	7.7	N	1
12/17/1980 00:00	187.260	185.460	8.5	178.76	6.7	N	1
01/15/1981 00:00	187.260	185.460	8.1	179.16	6.3	N	624
01/20/1981 00:00	187.260	185.460	8	179.26	6.2	N	1
02/18/1981 00:00	187.260	185.460	6.9	180.36	5.1	N	1
03/09/1981 00:00	187.260	185.460	6.4	180.86	4.6	N	624
04/16/1981 00:00	187.260	185.460	6.6	180.66	4.8	N	624
04/23/1981 00:00	187.260	185.460	8	179.26	6.2	N	1
05/14/1981 00:00	187.260	185.460	9.8	177.46	8	N	624
05/22/1981 00:00	187.260	185.460	10.5	176.76	8.7	N	1
06/16/1981 00:00	187.260	185.460	6.4	180.86	4.6	N	1
06/19/1981 00:00	187.260	185.460	12.3	174.96	10.5	N	1
07/14/1981 00:00	187.260	185.460	16.5	170.76	14.7	N	624
07/22/1981 00:00	187.260	185.460	21	166.26	19.2	N	1
08/13/1981 00:00	187.260	185.460	19.4	167.86	17.6	N	624

09/10/1981 00:00	187.260	185.460	18.8	168.46	17	N	624
10/09/1981 00:00	187.260	185.460	16.7	170.56	14.9	N	624
11/18/1981 00:00	187.260	185.460	13.2	174.06	11.4	N	624
01/21/1982 00:00	187.260	185.460	8.9	178.36	7.1	N	624
02/18/1982 00:00	187.260	185.460	7.8	179.46	6	N	1
03/23/1982 00:00	187.260	185.460	8.7	178.56	6.9	N	624
04/22/1982 00:00	187.260	185.460	8.2	179.06	6.4	N	1
05/20/1982 00:00	187.260	185.460	10	177.26	8.2	N	624
06/24/1982 00:00	187.260	185.460	12.1	175.16	10.3	N	1
07/15/1982 00:00	187.260	185.460	12.4	174.86	10.6	N	624
08/19/1982 00:00	187.260	185.460	14.1	173.16	12.3	N	1
09/16/1982 00:00	187.260	185.460	13.5	173.76	11.7	N	624
10/07/1982 00:00	187.260	185.460	12.8	174.46	11	N	624
10/12/1982 00:00	187.260	185.460	12.8	174.46	11	N	1
12/15/1982 00:00	187.260	185.460	9.5	177.76	7.7	N	1
01/20/1983 00:00	187.260	185.460	8.1	179.16	6.3	N	1
02/15/1983 00:00	187.260	185.460	7.7	179.56	5.9	N	624
03/30/1983 00:00	187.260	185.460	7	180.26	5.2	N	624
04/27/1983 00:00	187.260	185.460	6.8	180.46	5	N	1
05/19/1983 00:00	187.260	185.460	6.4	180.86	4.6	N	624
07/21/1983 00:00	187.260	185.460	6.2	181.06	4.4	N	624
08/08/1983 00:00	187.260	185.460	6.7	180.56	4.9	N	1
09/13/1983 00:00	187.260	185.460	5.9	181.36	4.1	N	1
09/16/1983 00:00	187.260	185.460	6.3	180.96	4.5	N	624
10/12/1983 00:00	187.260	185.460	6.4	180.86	4.6	N	624
11/14/1983 00:00	187.260	185.460	6.6	180.66	4.8	N	1
12/21/1983 00:00	187.260	185.460	6.1	181.16	4.3	N	624
01/17/1984 00:00	187.260	185.460	6	181.26	4.2	N	1
02/16/1984 00:00	187.260	185.460	5.9	181.36	4.1	N	624
03/14/1984 00:00	187.260	185.460	5.9	181.36	4.1	N	624
04/25/1984 00:00	187.260	185.460	6	181.26	4.2	N	1
05/16/1984 00:00	187.260	185.460	5.9	181.36	4.1	N	624
07/17/1984 00:00	187.260	185.460	6.7	180.56	4.9	N	624
09/19/1984 00:00	187.260	185.460	7	180.26	5.2	N	624
10/10/1984 00:00	187.260	185.460	7	180.26	5.2	N	624
11/28/1984 00:00	187.260	185.460	6.8	180.46	5	N	1
12/12/1984 00:00	187.260	185.460	6.8	180.46	5	N	624
01/15/1985 00:00	187.260	185.460	6.9	180.36	5.1	N	1
02/20/1985 00:00	187.260	185.460	6.7	180.56	4.9	N	624
03/07/1985 00:00	187.260	185.460	6.7	180.56	4.9	N	624
04/16/1985 00:00	187.260	185.460	6.8	180.46	5	N	1
05/16/1985 00:00	187.260	185.460	6.7	180.56	4.9	N	624
06/05/1985 00:00	187.260	185.460	7	180.26	5.2	N	1
07/17/1985 00:00	187.260	185.460	7.1	180.16	5.3	N	624

08/27/1985 00:00	187.260	185.460	7.4	179.86	5.6	N	1
09/25/1985 00:00	187.260	185.460	7.4	179.86	5.6	N	624
11/14/1985 00:00	187.260	185.460	6.5	180.76	4.7	N	1
12/19/1985 00:00	187.260	185.460	7.3	179.96	5.5	N	624
01/21/1986 00:00	187.260	185.460	7.8	179.46	6	N	1
02/13/1986 00:00	187.260	185.460	7.2	180.06	5.4	N	624
03/12/1986 00:00	187.260	185.460	7.1	180.16	5.3	N	624
04/21/1986 00:00	187.260	185.460	7	180.26	5.2	N	1
05/07/1986 00:00	187.260	185.460	7.1	180.16	5.3	N	624
06/16/1986 00:00	187.260	185.460	7.3	179.96	5.5	N	1
07/17/1986 00:00	187.260	185.460	7.5	179.76	5.7	N	624
08/21/1986 00:00	187.260	185.460	7.7	179.56	5.9	N	1
09/11/1986 00:00	187.260	185.460	7.8	179.46	6	N	624
10/07/1986 00:00	187.260	185.460	7.8	179.46	6	N	624
10/16/1986 00:00	187.260	185.460	7.8	179.46	6	N	624
11/20/1986 00:00	187.260	185.460	7.9	179.36	6.1	N	624
12/16/1986 00:00	187.260	185.460	7.9	179.36	6.1	N	1
01/15/1987 00:00	187.260	185.460	7	180.26	5.2	N	1
02/13/1987 00:00	187.260	185.460	8.2	179.06	6.4	N	1
03/09/1987 00:00	187.260	185.460	8.2	179.06	6.4	N	624
04/15/1987 00:00	187.260	185.460	8.1	179.16	6.3	N	1
05/13/1987 00:00	187.260	185.460	8.1	179.16	6.3	N	624
06/16/1987 00:00	187.260	185.460	8.2	179.06	6.4	N	1
07/07/1987 00:00	187.260	185.460	7.1	180.16	5.3	N	624
08/14/1987 00:00	187.260	185.460	8.4	178.86	6.6	N	1
09/24/1987 00:00	187.260	185.460	8.4	178.86	6.6	N	624
11/05/1987 00:00	187.260	185.460	8.4	178.86	6.6	N	624
12/17/1987 00:00	187.260	185.460	8.1	179.16	6.3	N	1
01/12/1988 00:00	187.260	185.460	8.3	178.96	6.5	N	624
02/16/1988 00:00	187.260	185.460	8	179.26	6.2	N	1
03/07/1988 00:00	187.260	185.460	8.1	179.16	6.3	N	624
04/14/1988 00:00	187.260	185.460	8.1	179.16	6.3	N	1
05/12/1988 00:00	187.260	185.460	8.1	179.16	6.3	N	624
06/15/1988 00:00	187.260	185.460	6.2	181.06	4.4	N	1
07/08/1988 00:00	187.260	185.460	8.4	178.86	6.6	N	624
08/16/1988 00:00	187.260	185.460	8.7	178.56	6.9	N	1
09/28/1988 00:00	187.260	185.460	9.1	178.16	7.3	N	624
11/30/1988 00:00	187.260	185.460	9	178.26	7.2	N	624
12/15/1988 00:00	187.260	185.460	9	178.26	7.2	N	1
01/18/1989 00:00	187.260	185.460				N-7	624
02/15/1989 00:00	187.260	185.460	9	178.26	7.2	N	1
03/15/1989 00:00	187.260	185.460	8.9	178.36	7.1	N	624
04/14/1989 00:00	187.260	185.460	8.8	178.46	7	N	1
05/08/1989 00:00	187.260	185.460	8.7	178.56	6.9	N	624

06/14/1989 00:00	187.260	185.460	9.3	177.96	7.5	N	1
07/05/1989 00:00	187.260	185.460	9	178.26	7.2	N	624
08/16/1989 00:00	187.260	185.460	9.8	177.46	8	N	1
09/14/1989 00:00	187.260	185.460	10	177.26	8.2	N	624
10/16/1989 00:00	187.260	185.460	9.6	177.66	7.8	N	1
11/30/1989 00:00	187.260	185.460	9.8	177.46	8	N	624
12/18/1989 00:00	187.260	185.460	9.9	177.36	8.1	N	1
01/18/1990 00:00	187.260	185.460	9.8	177.46	8	N	624
02/15/1990 00:00	187.260	185.460	9.8	177.46	8	N	1
03/14/1990 00:00	187.260	185.460	9.7	177.56	7.9	N	1
04/12/1990 00:00	187.260	185.460	9.9	177.36	8.1	N	624
05/15/1990 00:00	187.260	185.460	28.5	158.76	26.7	N	624
06/11/1990 00:00	187.260	185.460	27.1	160.16	25.3	N	624
07/16/1990 00:00	187.260	185.460	25.3	161.96	23.5	N	624
08/14/1990 00:00	187.260	185.460	23.3	163.96	21.5	N	624
09/12/1990 00:00	187.260	185.460	21.3	165.96	19.5	N	624
10/17/1990 00:00	187.260	185.460	20	167.26	18.2	N	624
11/13/1990 00:00	187.260	185.460	17.6	169.66	15.8	N	624
11/15/1990 00:00	187.260	185.460	18.3	168.96	16.5	N	624
02/14/1991 00:00	187.260	185.460	16.5	170.76	14.7	N	624
03/11/1991 00:00	187.260	185.460	16	171.26	14.2	N	624
03/15/1991 00:00	187.260	185.460	15.8	171.46	14	N	624
04/01/1991 00:00	187.260	185.460	15.4	171.86	13.6	N	624
04/15/1991 00:00	187.260	185.460	15.1	172.16	13.3	N	624
06/17/1991 00:00	187.260	185.460	14.4	172.86	12.6	N	624
08/15/1991 00:00	187.260	185.460	15.9	171.36	14.1	N	624
10/01/1991 00:00	187.260	185.460	12.9	174.36	11.1	N	624
12/16/1991 00:00	187.260	185.460	10.4	176.86	8.6	N	624
02/14/1992 00:00	187.260	185.460	9.7	177.56	7.9	N	624
03/02/1992 00:00	187.260	185.460	9.2	178.06	7.4	N	624
03/19/1992 00:00	187.260	185.460	8.7	178.56	6.9	N	624
04/14/1992 00:00	187.260	185.460	8.3	178.96	6.5	N	1
05/12/1992 00:00	187.260	185.460	8.4	178.86	6.6	N	1
06/15/1992 00:00	187.260	185.460	7.7	179.56	5.9	N	1
09/15/1992 00:00	187.260	185.460	7.6	179.66	5.8	N	1
10/06/1992 00:00	187.260	185.460	7.4	179.86	5.6	N	1
11/16/1992 00:00	187.260	185.460	10.6	176.66	8.8	N	624
12/14/1992 00:00	187.260	185.460	7.2	180.06	5.4	N	624
01/19/1993 00:00	187.260	185.460	6.7	180.56	4.9	N	624
02/16/1993 00:00	187.260	185.460	6.1	181.16	4.3	N	624
03/16/1993 00:00	187.260	185.460	5.6	181.66	3.8	N	1
04/15/1993 00:00	187.260	185.460	5.6	181.66	3.8	N	1
05/20/1993 00:00	187.260	185.460	5.6	181.66	3.8	N	1
06/15/1993 00:00	187.260	185.460	5.5	181.76	3.7	N	1

07/09/1993 00:00	187.260	185.460	6.2	181.06	4.4	N	624
08/16/1993 00:00	187.260	185.460	4.3	182.96	2.5	N	1
09/14/1993 00:00	187.260	185.460	5.9	181.36	4.1	N	624
10/05/1993 00:00	187.260	185.460	5.6	181.66	3.8	N	1
11/19/1993 00:00	187.260	185.460	5.9	181.36	4.1	N	624
12/16/1993 00:00	187.260	185.460	6	181.26	4.2	N	624
01/13/1994 00:00	187.260	185.460	6.2	181.06	4.4	N	1
02/14/1994 00:00	187.260	185.460	6.2	181.06	4.4	N	624
03/15/1994 00:00	187.260	185.460	5.5	181.76	3.7	N	1
04/12/1994 00:00	187.260	185.460	5.7	181.56	3.9	N	624
05/19/1994 00:00	187.260	185.460	9.9	177.36	8.1	N	624
06/16/1994 00:00	187.260	185.460	6.1	181.16	4.3	N	624
07/15/1994 00:00	187.260	185.460	6.2	181.06	4.4	N	1
08/15/1994 00:00	187.260	185.460	6.2	181.06	4.4	Q-2	1
09/15/1994 00:00	187.260	185.460	6.3	180.96	4.5	N	1
10/18/1994 00:00	187.260	185.460	7.8	179.46	6	N	1
03/07/1995 00:00	187.260	185.460	5.6	181.66	3.8	N	1
03/31/1995 00:00	187.260	185.460	5.3	181.96	3.5	N	1
04/18/1995 00:00	187.260	185.460	5.4	181.86	3.6	N	1
07/26/1995 00:00	187.260	185.460	5.7	181.56	3.9	N	1
10/03/1995 00:00	187.260	185.460	7.7	179.56	5.9	N	1
01/17/1996 00:00	187.260	185.460	7.7	179.56	5.9	N	1
03/27/1996 00:00	187.260	185.460	7	180.26	5.2	N	1
07/22/1996 00:00	187.260	185.460	6.3	180.96	4.5	N	1
10/08/1996 00:00	187.260	185.460	6.2	181.06	4.4	N	1
01/15/1997 00:00	187.260	185.460	5.8	181.46	4	N	1
03/04/1997 00:00	187.260	185.460	5.4	181.86	3.6	N	1
07/15/1997 00:00	187.260	185.460	5.6	181.66	3.8	N	1
10/07/1997 00:00	187.260	185.460	5.7	181.56	3.9	N	1
01/13/1998 00:00	187.260	185.460	5.3	181.96	3.5	N	1
03/11/1998 00:00	187.260	185.460	4.9	182.36	3.1	N	1
06/01/1998 00:00	187.260	185.460	4.9	182.36	3.1	N	1
10/08/1998 00:00	187.260	185.460	5.2	182.06	3.4	N	1
03/16/1999 00:00	187.260	185.460				N-2	1
08/05/1999 00:00	187.260	185.460	13.6	173.66	11.8	N	1
10/04/1999 00:00	187.260	185.460	12.1	175.16	10.3	N	1
03/23/2000 00:00	187.260	185.460	10.1	177.16	8.3	N	1
10/04/2000 00:00	187.260	185.460	17.7	169.56	15.9	N	1
03/20/2001 00:00	187.260	185.460	13.6	173.66	11.8	N	1
07/19/2001 00:00	187.260	185.460	14.2	173.06	12.4	N	1
08/01/2001 00:00	187.260	185.460	13.8	173.46	12	N	1
08/16/2001 00:00	187.260	185.460	13.3	173.96	11.5	N	1
09/04/2001 00:00	187.260	185.460	12.5	174.76	10.7	N	1
10/09/2001 00:00	187.260	185.460	11.4	175.86	9.6	N	1

11/09/2001 00:00	187.260	185.460	11.6	175.66	9.8	N	1
12/13/2001 00:00	187.260	185.460	8.1	179.16	6.3	N	1
02/05/2002 00:00	187.260	185.460	7.8	179.46	6	N	1
02/28/2002 00:00	187.260	185.460	7	180.26	5.2	N	1
03/19/2002 00:00	187.260	185.460	7	180.26	5.2	N	1
04/26/2002 00:00	187.260	185.460	10.1	177.16	8.3	N	1
05/15/2002 00:00	187.260	185.460	7.4	179.86	5.6	N	1
06/27/2002 00:00	187.260	185.460	7.2	180.06	5.4	N	1
08/19/2002 00:00	187.260	185.460	7	180.26	5.2	N	1
09/17/2002 00:00	187.260	185.460	6.9	180.36	5.1	N	1
10/16/2002 00:00	187.260	185.460	6.7	180.56	4.9	N	1
11/20/2002 00:00	187.260	185.460	8.9	178.36	7.1	N	1
02/18/2003 00:00	187.260	185.460	6	181.26	4.2	N	1
03/13/2003 00:00	187.260	185.460	5.9	181.36	4.1	N	1
04/09/2003 00:00	187.260	185.460	5.7	181.56	3.9	N	1
05/28/2003 00:00	187.260	185.460	5.9	181.36	4.1	N	1
06/19/2003 00:00	187.260	185.460	5.9	181.36	4.1	N	1
07/30/2003 00:00	187.260	185.460	6.1	181.16	4.3	N	1
09/22/2003 00:00	187.260	185.460	7.6	179.66	5.8	N	1
10/21/2003 00:00	187.260	185.460	7.4	179.86	5.6	N	1
11/25/2003 00:00	187.260	185.460	7.3	179.96	5.5	N	1
12/16/2003 00:00	187.260	185.460	7.4	179.86	5.6	N	1
02/10/2004 00:00	187.260	185.460	6.1	181.16	4.3	N	1
04/01/2004 00:00	187.260	185.460	5.5	181.76	3.7	N	1
04/26/2004 00:00	187.260	185.460	5.5	181.76	3.7	N	1
05/21/2004 00:00	187.260	185.460	5.5	181.76	3.7	N	1
06/21/2004 00:00	187.260	185.460	5.7	181.56	3.9	N	1
07/27/2004 00:00	187.260	185.460	5.9	181.36	4.1	N	1
08/24/2004 00:00	187.260	185.460	6	181.26	4.2	N	1
09/21/2004 00:00	187.260	185.460	5.9	181.36	4.1	N	1
10/19/2004 00:00	187.260	185.460	6	181.26	4.2	N	1
11/22/2004 00:00	187.260	185.460	5.9	181.36	4.1	N	1
03/31/2005 00:00	187.260	185.460	4.3	182.96	2.5	N	1
04/29/2005 00:00	187.260	185.460	4.8	182.46	3	N	1
05/25/2005 00:00	187.260	185.460	4.4	182.86	2.6	N	1
06/24/2005 00:00	187.260	185.460	4.5	182.76	2.7	N	1
07/27/2005 00:00	187.260	185.460	4.9	182.36	3.1	N	1
08/24/2005 00:00	187.260	185.460	5.3	181.96	3.5	N	1
09/30/2005 00:00	187.260	185.460	5.6	181.66	3.8	N	1
10/19/2005 00:00	187.260	185.460	5.8	181.46	4	N	1
03/28/2006 00:00	187.260	185.460	5	182.26	3.2	N	1
05/18/2006 00:00	187.260	185.460	5	182.26	3.2	N	1
08/02/2006 00:00	187.260	185.460	6.3	180.96	4.5	N	1
10/10/2006 00:00	187.260	185.460	8.1	179.16	6.3	N	1

01/23/2007 00:00	187.260	185.460	8.79	178.47	6.99	N	1
03/19/2007 00:00	187.260	185.460	8.57	178.69	6.77	N	1
08/06/2007 00:00	187.260	185.460	26.87	160.39	25.07	N	1
10/16/2007 00:00	187.260	185.460	19.89	167.37	18.09	N	1
01/16/2008 00:00	187.260	185.460	13.85	173.41	12.05	N	1
03/10/2008 00:00	187.260	185.460	9	178.26	7.2	N	1
08/04/2008 00:00	187.260	185.460			N-0	N	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data**
Recent Groundwater Level Data
Historical Groundwater Level Data

**State Well Number:** 21N03W31R004M  
**Local Well ID:**  
**Site Code:** 396252N1222351W003  
**Latitude (NAD83):** 39.625200  
**Longitude (NAD83):** -122.2351  
**Groundwater Basin (code):** ()

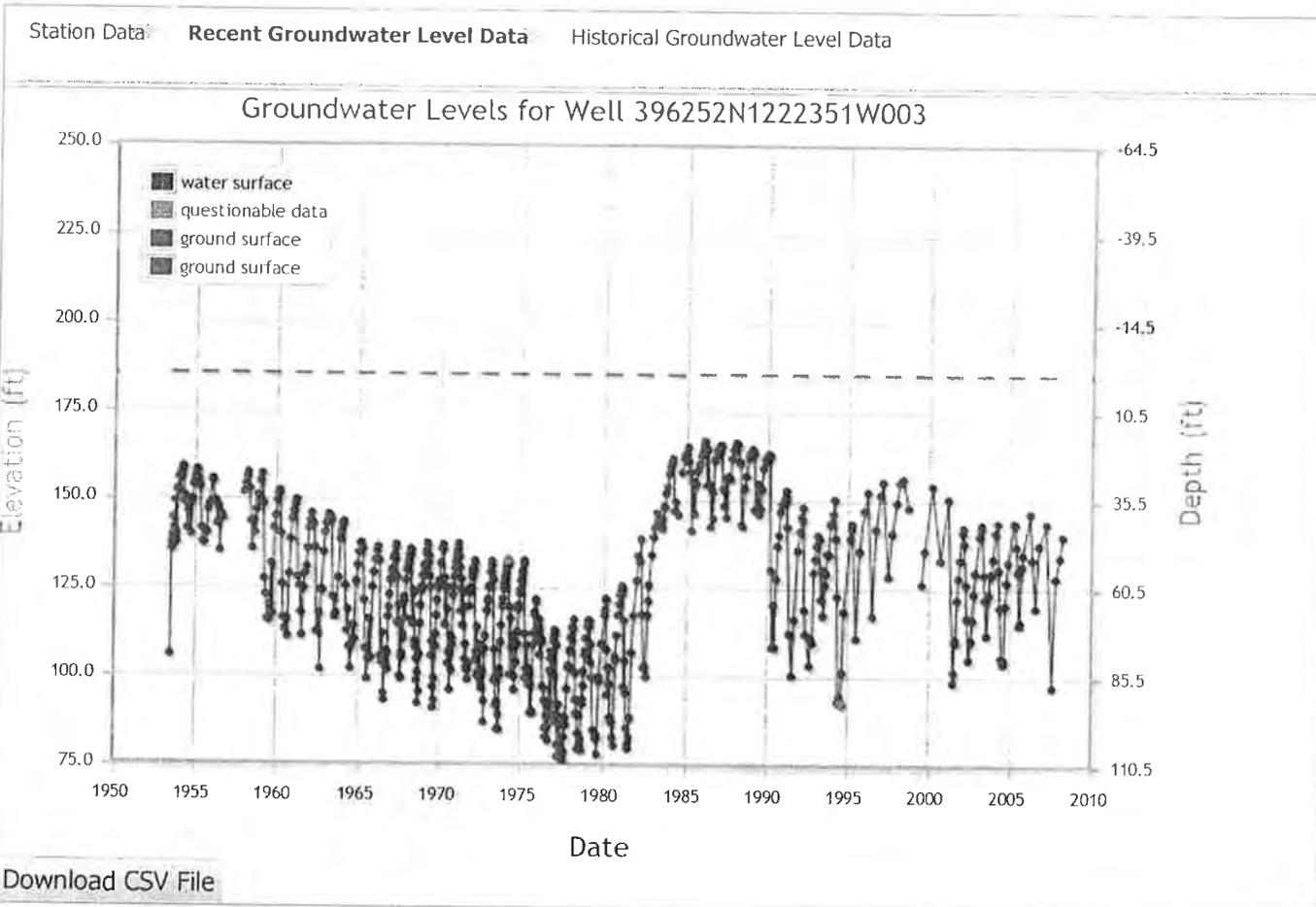
**Well Use:**  
**Well Status:** Inactive  
**Well Completion Report Number:**  
**Reference Point Elevation (NAVD88 ft):** 187.260  
**Ground Surface Elevation (NAVD88 ft):** 185.460  
**Total Depth (ft):** 240  
**Perforated Interval Depths (ft):** 150.000 240.000

Bureau of Land Management, Esri, HERE, ...

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W003

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
06/18/1953 00:00	187.260	185.460	81.6	105.66	79.8		N	624
07/03/1953 00:00	187.260	185.460	51.7	135.56	49.9		N	624
07/10/1953 00:00	187.260	185.460	49.8	137.46	48		N	624
07/18/1953 00:00	187.260	185.460	51.4	135.86	49.6		N	624
07/24/1953 00:00	187.260	185.460	47.8	139.46	46		N	624
08/10/1953 00:00	187.260	185.460	43	144.26	41.2		N	624
08/16/1953 00:00	187.260	185.460	47.7	139.56	45.9		N	624
09/03/1953 00:00	187.260	185.460	45.8	141.46	44		N	624
09/10/1953 00:00	187.260	185.460	47.2	140.06	45.4		N	624

09/20/1953 00:00	187.260	185.460	38.2	149.06	36.4	N	624
10/10/1953 00:00	187.260	185.460	47.1	140.16	45.3	N	624
10/27/1953 00:00	187.260	185.460	49.9	137.36	48.1	N	624
11/13/1953 00:00	187.260	185.460	35.3	151.96	33.5	N	624
11/26/1953 00:00	187.260	185.460	34.6	152.66	32.8	N	624
12/12/1953 00:00	187.260	185.460	31.5	155.76	29.7	N	624
01/04/1954 00:00	187.260	185.460	35.8	151.46	34	N	624
01/21/1954 00:00	187.260	185.460	31	156.26	29.2	N	624
01/27/1954 00:00	187.260	185.460	30.6	156.66	28.8	N	624
02/15/1954 00:00	187.260	185.460	29.5	157.76	27.7	N	624
03/21/1954 00:00	187.260	185.460	28.4	158.86	26.6	N	624
03/30/1954 00:00	187.260	185.460	28.4	158.86	26.6	N	624
04/21/1954 00:00	187.260	185.460	38.5	148.76	36.7	N	624
05/26/1954 00:00	187.260	185.460	36.9	150.36	35.1	N	624
06/23/1954 00:00	187.260	185.460	45.9	141.36	44.1	N	624
07/18/1954 00:00	187.260	185.460	41.1	146.16	39.3	N	624
08/19/1954 00:00	187.260	185.460	39	148.26	37.2	N	624
09/21/1954 00:00	187.260	185.460	47.5	139.76	45.7	N	624
10/29/1954 00:00	187.260	185.460	37.8	149.46	36	N	624
11/24/1954 00:00	187.260	185.460	33.4	153.86	31.6	N	624
12/16/1954 00:00	187.260	185.460	31.4	155.86	29.6	N	624
01/25/1955 00:00	187.260	185.460	29.5	157.76	27.7	N	624
02/17/1955 00:00	187.260	185.460	29.2	158.06	27.4	N	624
03/21/1955 00:00	187.260	185.460	32.1	155.16	30.3	N	624
04/19/1955 00:00	187.260	185.460	34.1	153.16	32.3	N	624
05/19/1955 00:00	187.260	185.460	45.8	141.46	44	N	624
06/15/1955 00:00	187.260	185.460	49.8	137.46	48	N	624
07/19/1955 00:00	187.260	185.460	49.9	137.36	48.1	N	624
08/16/1955 00:00	187.260	185.460	46.4	140.86	44.6	N	624
09/20/1955 00:00	187.260	185.460	47.1	140.16	45.3	N	624
10/20/1955 00:00	187.260	185.460	40.4	146.86	38.6	N	624
11/17/1955 00:00	187.260	185.460	39	148.26	37.2	N	624
01/18/1956 00:00	187.260	185.460	32.3	154.96	30.5	N	624
02/14/1956 00:00	187.260	185.460	31.8	155.46	30	N	624
03/15/1956 00:00	187.260	185.460	38.4	148.86	36.6	N	624
03/22/1956 00:00	187.260	185.460	38.2	149.06	36.4	N	624
04/17/1956 00:00	187.260	185.460	38.2	149.06	36.4	N	624
05/15/1956 00:00	187.260	185.460	44.5	142.76	42.7	N	624
06/19/1956 00:00	187.260	185.460	40	147.26	38.2	N	624
07/17/1956 00:00	187.260	185.460	52.1	135.16	50.3	N	624
08/23/1956 00:00	187.260	185.460	42	145.26	40.2	N	624
09/21/1956 00:00	187.260	185.460	42.9	144.36	41.1	N	624
01/15/1958 00:00	187.260	185.460	35.5	151.76	33.7	N	624
02/17/1958 00:00	187.260	185.460	33.2	154.06	31.4	N	624

03/19/1958 00:00	187.260	185.460	31.2	156.06	29.4	N	624
04/10/1958 00:00	187.260	185.460	29.9	157.36	28.1	N	624
05/15/1958 00:00	187.260	185.460	34.6	152.66	32.8	N	624
06/16/1958 00:00	187.260	185.460	43.9	143.36	42.1	N	624
07/15/1958 00:00	187.260	185.460	51.5	135.76	49.7	N	624
08/18/1958 00:00	187.260	185.460	43.5	143.76	41.7	N	624
09/16/1958 00:00	187.260	185.460	47	140.26	45.2	N	624
10/21/1958 00:00	187.260	185.460	40.6	146.66	38.8	N	624
11/17/1958 00:00	187.260	185.460	36.5	150.76	34.7	N	624
12/15/1958 00:00	187.260	185.460	38.5	148.76	36.7	N	624
01/15/1959 00:00	187.260	185.460	32.4	154.86	30.6	N	624
02/17/1959 00:00	187.260	185.460	30.2	157.06	28.4	N	624
03/18/1959 00:00	187.260	185.460	38.7	148.56	36.9	N	624
04/17/1959 00:00	187.260	185.460	60.2	127.06	58.4	N	624
05/15/1959 00:00	187.260	185.460	64.5	122.76	62.7	N	624
06/15/1959 00:00	187.260	185.460	71.4	115.86	69.6	N	624
07/16/1959 00:00	187.260	185.460	71.7	115.56	69.9	N	624
08/18/1959 00:00	187.260	185.460	67.4	119.86	65.6	N	624
09/16/1959 00:00	187.260	185.460	55.8	131.46	54	N	624
10/14/1959 00:00	187.260	185.460	70.1	117.16	68.3	N	624
11/17/1959 00:00	187.260	185.460	45.6	141.66	43.8	N	624
12/16/1959 00:00	187.260	185.460	42.3	144.96	40.5	N	624
01/19/1960 00:00	187.260	185.460	38	149.26	36.2	N	624
02/16/1960 00:00	187.260	185.460	36	151.26	34.2	N	624
03/15/1960 00:00	187.260	185.460	35	152.26	33.2	N	624
04/14/1960 00:00	187.260	185.460	47.3	139.96	45.5	N	624
05/16/1960 00:00	187.260	185.460	61.6	125.66	59.8	N	624
06/09/1960 00:00	187.260	185.460	71.2	116.06	69.4	N	624
07/12/1960 00:00	187.260	185.460	74.2	113.06	72.4	N	624
08/18/1960 00:00	187.260	185.460	71.3	115.96	69.5	N	624
09/15/1960 00:00	187.260	185.460	76.3	110.96	74.5	N	624
10/15/1960 00:00	187.260	185.460	58.7	128.56	56.9	N	624
11/14/1960 00:00	187.260	185.460	48.9	138.36	47.1	N	624
12/20/1960 00:00	187.260	185.460	43.1	144.16	41.3	N	624
01/16/1961 00:00	187.260	185.460	40.9	146.36	39.1	N	624
02/20/1961 00:00	187.260	185.460	38.8	148.46	37	N	624
03/21/1961 00:00	187.260	185.460	37.6	149.66	35.8	N	624
04/24/1961 00:00	187.260	185.460	59.6	127.66	57.8	N	624
05/30/1961 00:00	187.260	185.460	62.1	125.16	60.3	N	624
06/30/1961 00:00	187.260	185.460	69.6	117.66	67.8	N	624
07/21/1961 00:00	187.260	185.460	76	111.26	74.2	N	624
08/24/1961 00:00	187.260	185.460	62.6	124.66	60.8	N	624
09/27/1961 00:00	187.260	185.460	58.5	128.76	56.7	N	624
10/31/1961 00:00	187.260	185.460	56.6	130.66	54.8	N	624

11/24/1961 00:00	187.260	185.460	51.4	135.86	49.6	N	624
12/20/1961 00:00	187.260	185.460	45.7	141.56	43.9	N	624
01/23/1962 00:00	187.260	185.460	43.4	143.86	41.6	N	624
02/20/1962 00:00	187.260	185.460	41.4	145.86	39.6	N	624
03/28/1962 00:00	187.260	185.460	44.5	142.76	42.7	N	624
05/07/1962 00:00	187.260	185.460	51.2	136.06	49.4	N	624
06/07/1962 00:00	187.260	185.460	74.9	112.36	73.1	N	624
07/09/1962 00:00	187.260	185.460	75.1	112.16	73.3	N	624
07/26/1962 00:00	187.260	185.460	69.7	117.56	67.9	N	624
08/30/1962 00:00	187.260	185.460	85.6	101.66	83.8	N	624
09/18/1962 00:00	187.260	185.460	63.1	124.16	61.3	N	624
09/28/1962 00:00	187.260	185.460	63.1	124.16	61.3	N	624
11/13/1962 00:00	187.260	185.460	52.4	134.86	50.6	N	624
12/07/1962 00:00	187.260	185.460	46.9	140.36	45.1	N	624
01/09/1963 00:00	187.260	185.460	44.5	142.76	42.7	N	624
02/06/1963 00:00	187.260	185.460	43.2	144.06	41.4	N	624
03/05/1963 00:00	187.260	185.460	41.7	145.56	39.9	N	624
04/04/1963 00:00	187.260	185.460	42.2	145.06	40.4	N	624
05/03/1963 00:00	187.260	185.460	43.5	143.76	41.7	N	624
06/07/1963 00:00	187.260	185.460	65.2	122.06	63.4	N	624
07/09/1963 00:00	187.260	185.460	70.8	116.46	69	N	624
08/12/1963 00:00	187.260	185.460	69.7	117.56	67.9	N	624
10/09/1963 00:00	187.260	185.460	59.7	127.56	57.9	N	624
11/12/1963 00:00	187.260	185.460	48.7	138.56	46.9	N	624
12/06/1963 00:00	187.260	185.460	46.6	140.66	44.8	N	624
01/07/1964 00:00	187.260	185.460	44.7	142.56	42.9	N	624
02/04/1964 00:00	187.260	185.460	43.6	143.66	41.8	N	624
03/09/1964 00:00	187.260	185.460	62	125.26	60.2	N	624
04/10/1964 00:00	187.260	185.460	74.7	112.56	72.9	N	624
05/07/1964 00:00	187.260	185.460	68.6	118.66	66.8	N	624
06/04/1964 00:00	187.260	185.460	79.3	107.96	77.5	N	624
07/02/1964 00:00	187.260	185.460	85.3	101.96	83.5	N	624
08/07/1964 00:00	187.260	185.460	78.8	108.46	77	N	624
09/08/1964 00:00	187.260	185.460	73.1	114.16	71.3	N	624
10/05/1964 00:00	187.260	185.460	77.1	110.16	75.3	N	624
11/09/1964 00:00	187.260	185.460	60.7	126.56	58.9	N	624
12/04/1964 00:00	187.260	185.460	56.2	131.06	54.4	N	624
01/06/1965 00:00	187.260	185.460	52.5	134.76	50.7	N	624
02/05/1965 00:00	187.260	185.460	50	137.26	48.2	N	624
03/05/1965 00:00	187.260	185.460	49.7	137.56	47.9	N	624
04/08/1965 00:00	187.260	185.460	51.7	135.56	49.9	N	624
05/07/1965 00:00	187.260	185.460	66	121.26	64.2	N	624
06/07/1965 00:00	187.260	185.460	79.7	107.56	77.9	N	624
07/06/1965 00:00	187.260	185.460	88.3	98.96	86.5	N	624

08/06/1965 00:00	187.260	185.460	82.6	104.66	80.8	N	624
09/03/1965 00:00	187.260	185.460	71.3	115.96	69.5	N	624
10/07/1965 00:00	187.260	185.460	82.3	104.96	80.5	N	624
11/05/1965 00:00	187.260	185.460	62.4	124.86	60.6	N	624
12/03/1965 00:00	187.260	185.460	58.1	129.16	56.3	N	624
01/05/1966 00:00	187.260	185.460	54.6	132.66	52.8	N	624
02/09/1966 00:00	187.260	185.460	52	135.26	50.2	N	624
03/08/1966 00:00	187.260	185.460	50.8	136.46	49	N	624
04/11/1966 00:00	187.260	185.460	54.8	132.46	53	N	624
05/09/1966 00:00	187.260	185.460	82.1	105.16	80.3	N	624
05/17/1966 00:00	187.260	185.460	81.7	105.56	79.9	N	1
06/13/1966 00:00	187.260	185.460	83.9	103.36	82.1	N	624
06/21/1966 00:00	187.260	185.460	75.3	111.96	73.5	N	1
07/11/1966 00:00	187.260	185.460	92.3	94.96	90.5	N	624
07/19/1966 00:00	187.260	185.460	94.3	92.96	92.5	N	1
08/08/1966 00:00	187.260	185.460	83.4	103.86	81.6	N	624
08/17/1966 00:00	187.260	185.460	83.3	103.96	81.5	N	1
09/12/1966 00:00	187.260	185.460	80.9	106.36	79.1	N	624
09/20/1966 00:00	187.260	185.460	80.4	106.86	78.6	N	1
10/10/1966 00:00	187.260	185.460	85.7	101.56	83.9	N	624
10/17/1966 00:00	187.260	185.460	70.7	116.56	68.9	N	1
11/07/1966 00:00	187.260	185.460	68.1	119.16	66.3	N	624
11/16/1966 00:00	187.260	185.460	64.4	122.86	62.6	N	1
12/12/1966 00:00	187.260	185.460	60.5	126.76	58.7	N	624
12/19/1966 00:00	187.260	185.460	59.8	127.46	58	N	1
01/10/1967 00:00	187.260	185.460	57.8	129.46	56	N	624
01/18/1967 00:00	187.260	185.460	57.1	130.16	55.3	N	1
02/13/1967 00:00	187.260	185.460	54.2	133.06	52.4	N	624
02/23/1967 00:00	187.260	185.460	53.9	133.36	52.1	N	1
03/13/1967 00:00	187.260	185.460	54.2	133.06	52.4	N	624
03/21/1967 00:00	187.260	185.460	53	134.26	51.2	N	1
04/11/1967 00:00	187.260	185.460	51.2	136.06	49.4	N	624
04/20/1967 00:00	187.260	185.460	50.1	137.16	48.3	N	1
05/15/1967 00:00	187.260	185.460	59.4	127.86	57.6	N	624
05/22/1967 00:00	187.260	185.460	72.2	115.06	70.4	N	1
06/12/1967 00:00	187.260	185.460	72.8	114.46	71	N	624
06/19/1967 00:00	187.260	185.460	67.5	119.76	65.7	N	1
07/13/1967 00:00	187.260	185.460	87.5	99.76	85.7	N	624
07/25/1967 00:00	187.260	185.460	88.1	99.16	86.3	N	1
08/14/1967 00:00	187.260	185.460	82.3	104.96	80.5	N	624
08/24/1967 00:00	187.260	185.460	81	106.26	79.2	N	1
09/11/1967 00:00	187.260	185.460	75.6	111.66	73.8	N	624
09/18/1967 00:00	187.260	185.460	76.9	110.36	75.1	N	1
10/09/1967 00:00	187.260	185.460	66.1	121.16	64.3	N	624

10/23/1967 00:00	187.260	185.460	65	122.26	63.2	N	1
11/20/1967 00:00	187.260	185.460	71	116.26	69.2	N	624
11/27/1967 00:00	187.260	185.460	60.4	126.86	58.6	N	1
12/18/1967 00:00	187.260	185.460	57.2	130.06	55.4	N	624
12/19/1967 00:00	187.260	185.460	57.4	129.86	55.6	N	1
01/16/1968 00:00	187.260	185.460	55.5	131.76	53.7	N	624
01/24/1968 00:00	187.260	185.460	55	132.26	53.2	N	1
02/12/1968 00:00	187.260	185.460	53.5	133.76	51.7	N	624
02/21/1968 00:00	187.260	185.460	52.9	134.36	51.1	N	1
03/07/1968 00:00	187.260	185.460	51.8	135.46	50	N	624
03/19/1968 00:00	187.260	185.460	51.3	135.96	49.5	N	1
04/16/1968 00:00	187.260	185.460	71.7	115.56	69.9	N	624
04/17/1968 00:00	187.260	185.460	72.7	114.56	70.9	N	1
05/15/1968 00:00	187.260	185.460	63.1	124.16	61.3	N	624
05/21/1968 00:00	187.260	185.460	64	123.26	62.2	N	1
06/18/1968 00:00	187.260	185.460	77.6	109.66	75.8	N	1
06/19/1968 00:00	187.260	185.460	79.3	107.96	77.5	N	624
07/22/1968 00:00	187.260	185.460	82.7	104.56	80.9	N	1
07/24/1968 00:00	187.260	185.460	88.7	98.56	86.9	N	624
08/14/1968 00:00	187.260	185.460	86.4	100.86	84.6	N	624
08/20/1968 00:00	187.260	185.460	95.1	92.16	93.3	N	1
09/16/1968 00:00	187.260	185.460	91.8	95.46	90	N	624
09/23/1968 00:00	187.260	185.460	81.3	105.96	79.5	N	1
10/11/1968 00:00	187.260	185.460	72.5	114.76	70.7	N	624
10/21/1968 00:00	187.260	185.460	67.5	119.76	65.7	N	1
11/13/1968 00:00	187.260	185.460	63.1	124.16	61.3	N	624
11/22/1968 00:00	187.260	185.460	62	125.26	60.2	N	1
12/18/1968 00:00	187.260	185.460	59.3	127.96	57.5	N	1
12/23/1968 00:00	187.260	185.460	58.8	128.46	57	N	624
01/15/1969 00:00	187.260	185.460	56.5	130.76	54.7	N	624
01/27/1969 00:00	187.260	185.460	55.8	131.46	54	N	1
02/21/1969 00:00	187.260	185.460	52.7	134.56	50.9	N	624
02/24/1969 00:00	187.260	185.460	52.1	135.16	50.3	N	1
03/19/1969 00:00	187.260	185.460	49.7	137.56	47.9	N	1
03/20/1969 00:00	187.260	185.460	50.4	136.86	48.6	N	624
04/15/1969 00:00	187.260	185.460	55.4	131.86	53.6	N	624
04/22/1969 00:00	187.260	185.460	53.4	133.86	51.6	N	1
05/15/1969 00:00	187.260	185.460	59.2	128.06	57.4	N	624
05/27/1969 00:00	187.260	185.460	62.3	124.96	60.5	N	1
06/17/1969 00:00	187.260	185.460	81.7	105.56	79.9	N	624
06/25/1969 00:00	187.260	185.460	77.7	109.56	75.9	N	1
07/16/1969 00:00	187.260	185.460	90.5	96.76	88.7	N	624
07/22/1969 00:00	187.260	185.460	96.4	90.86	94.6	N	1
08/18/1969 00:00	187.260	185.460	88.2	99.06	86.4	N	624

08/20/1969 00:00	187.260	185.460	94.2	93.06	92.4	N	1
09/17/1969 00:00	187.260	185.460	79	108.26	77.2	N	624
09/22/1969 00:00	187.260	185.460	75.6	111.66	73.8	N	1
10/09/1969 00:00	187.260	185.460	70.3	116.96	68.5	N	624
10/23/1969 00:00	187.260	185.460	66	121.26	64.2	N	1
11/13/1969 00:00	187.260	185.460	62.1	125.16	60.3	N	624
11/19/1969 00:00	187.260	185.460	62.1	125.16	60.3	N	1
12/12/1969 00:00	187.260	185.460	60.6	126.66	58.8	N	624
12/17/1969 00:00	187.260	185.460	60.5	126.76	58.7	N	1
01/15/1970 00:00	187.260	185.460	55.6	131.66	53.8	N	624
02/17/1970 00:00	187.260	185.460	51.4	135.86	49.6	N	624
02/24/1970 00:00	187.260	185.460	51.2	136.06	49.4	N	1
03/19/1970 00:00	187.260	185.460	50.1	137.16	48.3	N	1
04/16/1970 00:00	187.260	185.460	59.7	127.56	57.9	N	624
04/23/1970 00:00	187.260	185.460	72.9	114.36	71.1	N	1
05/18/1970 00:00	187.260	185.460	62.3	124.96	60.5	N	624
05/20/1970 00:00	187.260	185.460	62.5	124.76	60.7	N	1
06/17/1970 00:00	187.260	185.460	68.5	118.76	66.7	N	624
06/23/1970 00:00	187.260	185.460	83.8	103.46	82	N	1
07/16/1970 00:00	187.260	185.460	80.3	106.96	78.5	N	624
07/22/1970 00:00	187.260	185.460	81.1	106.16	79.3	N	1
08/13/1970 00:00	187.260	185.460	91.3	95.96	89.5	N	624
08/25/1970 00:00	187.260	185.460	76	111.26	74.2	N	1
09/14/1970 00:00	187.260	185.460	76.3	110.96	74.5	N	624
09/24/1970 00:00	187.260	185.460	85.8	101.46	84	N	1
10/08/1970 00:00	187.260	185.460	78.5	108.76	76.7	N	624
10/26/1970 00:00	187.260	185.460	64.6	122.66	62.8	N	1
11/09/1970 00:00	187.260	185.460	62.2	125.06	60.4	N	624
11/23/1970 00:00	187.260	185.460	59.4	127.86	57.6	N	1
12/08/1970 00:00	187.260	185.460	56.9	130.36	55.1	N	624
12/22/1970 00:00	187.260	185.460	55	132.26	53.2	N	1
01/11/1971 00:00	187.260	185.460	53.2	134.06	51.4	N	624
01/21/1971 00:00	187.260	185.460	52.2	135.06	50.4	N	1
02/10/1971 00:00	187.260	185.460	50.9	136.36	49.1	N	624
02/23/1971 00:00	187.260	185.460	49.8	137.46	48	N	1
03/09/1971 00:00	187.260	185.460	53.6	133.66	51.8	N	624
03/24/1971 00:00	187.260	185.460	56.6	130.66	54.8	N	1
04/15/1971 00:00	187.260	185.460	69.1	118.16	67.3	N	624
04/27/1971 00:00	187.260	185.460	60	127.26	58.2	N	1
05/11/1971 00:00	187.260	185.460	63	124.26	61.2	N	624
05/27/1971 00:00	187.260	185.460	73	114.26	71.2	N	1
06/16/1971 00:00	187.260	185.460	63.3	123.96	61.5	N	624
06/24/1971 00:00	187.260	185.460	67.8	119.46	66	N	1
07/13/1971 00:00	187.260	185.460	82.6	104.66	80.8	N	624

07/27/1971 00:00	187.260	185.460	78.4	108.86	76.6	N	1
08/11/1971 00:00	187.260	185.460	85.1	102.16	83.3	N	624
08/26/1971 00:00	187.260	185.460	85.8	101.46	84	N	1
09/14/1971 00:00	187.260	185.460	88.4	98.86	86.6	N	624
09/28/1971 00:00	187.260	185.460	84.2	103.06	82.4	N	1
10/06/1971 00:00	187.260	185.460				N-7	624
10/19/1971 00:00	187.260	185.460	67.7	119.56	65.9	N	1
11/11/1971 00:00	187.260	185.460	63.8	123.46	62	N	624
11/23/1971 00:00	187.260	185.460	62.4	124.86	60.6	N	1
12/16/1971 00:00	187.260	185.460	59.3	127.96	57.5	N	624
12/27/1971 00:00	187.260	185.460	58	129.26	56.2	N	1
01/17/1972 00:00	187.260	185.460	57	130.26	55.2	N	1
01/18/1972 00:00	187.260	185.460	56.8	130.46	55	N	624
02/15/1972 00:00	187.260	185.460	55.4	131.86	53.6	N	624
02/22/1972 00:00	187.260	185.460	54.6	132.66	52.8	N	1
03/07/1972 00:00	187.260	185.460	82.8	104.46	81	N	624
03/27/1972 00:00	187.260	185.460	80.6	106.66	78.8	N	1
04/18/1972 00:00	187.260	185.460	73.5	113.76	71.7	N	624
04/25/1972 00:00	187.260	185.460	87.4	99.86	85.6	N	1
05/11/1972 00:00	187.260	185.460	86.3	100.96	84.5	N	624
05/23/1972 00:00	187.260	185.460	80.5	106.76	78.7	N	1
06/21/1972 00:00	187.260	185.460	78.4	108.86	76.6	N	1
07/18/1972 00:00	187.260	185.460	89.4	97.86	87.6	N	1
07/19/1972 00:00	187.260	185.460	90.8	96.46	89	N	624
08/22/1972 00:00	187.260	185.460	85.7	101.56	83.9	N	1
09/19/1972 00:00	187.260	185.460	94.4	92.86	92.6	N	624
09/20/1972 00:00	187.260	185.460	100.4	86.86	98.6	N	1
10/13/1972 00:00	187.260	185.460	79.7	107.56	77.9	N	624
10/19/1972 00:00	187.260	185.460	76	111.26	74.2	N	1
11/20/1972 00:00	187.260	185.460	68.8	118.46	67	N	1
11/22/1972 00:00	187.260	185.460	68.8	118.46	67	N	624
12/13/1972 00:00	187.260	185.460	66.3	120.96	64.5	N	624
12/19/1972 00:00	187.260	185.460	65.5	121.76	63.7	N	1
01/16/1973 00:00	187.260	185.460	62.2	125.06	60.4	N	624
01/17/1973 00:00	187.260	185.460	62	125.26	60.2	N	1
02/22/1973 00:00	187.260	185.460	58	129.26	56.2	N	1
02/26/1973 00:00	187.260	185.460	57.7	129.56	55.9	N	624
03/14/1973 00:00	187.260	185.460	56	131.26	54.2	N	1
03/29/1973 00:00	187.260	185.460	54.8	132.46	53	N	624
04/16/1973 00:00	187.260	185.460	60.1	127.16	58.3	N	624
04/17/1973 00:00	187.260	185.460	59.9	127.36	58.1	N	1
05/15/1973 00:00	187.260	185.460	88.6	98.66	86.8	N	624
05/22/1973 00:00	187.260	185.460	79.8	107.46	78	N	1
06/19/1973 00:00	187.260	185.460	87.5	99.76	85.7	N	1

06/21/1973 00:00	187.260	185.460	95.6	91.66	93.8	N	624
07/18/1973 00:00	187.260	185.460	94.5	92.76	92.7	N	624
07/23/1973 00:00	187.260	185.460	102.4	84.86	100.6	N	1
08/21/1973 00:00	187.260	185.460	98.2	89.06	96.4	N	624
08/29/1973 00:00	187.260	185.460	102.2	85.06	100.4	N	1
09/17/1973 00:00	187.260	185.460	85.3	101.96	83.5	N	624
09/27/1973 00:00	187.260	185.460	87	100.26	85.2	N	1
10/09/1973 00:00	187.260	185.460	77.7	109.56	75.9	N	624
10/19/1973 00:00	187.260	185.460	73	114.26	71.2	N	1
11/12/1973 00:00	187.260	185.460	67.6	119.66	65.8	N	624
11/27/1973 00:00	187.260	185.460	65.4	121.86	63.6	N	1
12/18/1973 00:00	187.260	185.460	62.7	124.56	60.9	N	624
12/27/1973 00:00	187.260	185.460	61.5	125.76	59.7	N	1
01/15/1974 00:00	187.260	185.460	59.7	127.56	57.9	N	624
01/29/1974 00:00	187.260	185.460	58.2	129.06	56.4	N	1
02/12/1974 00:00	187.260	185.460	56.7	130.56	54.9	N	624
02/25/1974 00:00	187.260	185.460	56	131.26	54.2	N	1
03/13/1974 00:00	187.260	185.460	54.9	132.36	53.1	N	624
03/25/1974 00:00	187.260	185.460	54.4	132.86	52.6	N	1
04/16/1974 00:00	187.260	185.460	67.7	119.56	65.9	N	624
04/25/1974 00:00	187.260	185.460	67.8	119.46	66	N	1
05/14/1974 00:00	187.260	185.460	86.9	100.36	85.1	N	624
05/22/1974 00:00	187.260	185.460	71	116.26	69.2	N	1
06/18/1974 00:00	187.260	185.460	79.4	107.86	77.6	N	624
06/20/1974 00:00	187.260	185.460	76	111.26	74.2	N	1
07/16/1974 00:00	187.260	185.460	77.7	109.56	75.9	N	624
08/11/1974 00:00	187.260	185.460	91.2	96.06	89.4	N	1
08/13/1974 00:00	187.260	185.460	87.4	99.86	85.6	N	624
09/18/1974 00:00	187.260	185.460	83.3	103.96	81.5	N	624
10/16/1974 00:00	187.260	185.460	78.2	109.06	76.4	N	624
10/25/1974 00:00	187.260	185.460	74.8	112.46	73	N	1
11/13/1974 00:00	187.260	185.460	68.3	118.96	66.5	N	1
11/19/1974 00:00	187.260	185.460	67.1	120.16	65.3	N	624
12/10/1974 00:00	187.260	185.460	64	123.26	62.2	N	624
12/18/1974 00:00	187.260	185.460	63	124.26	61.2	N	1
01/14/1975 00:00	187.260	185.460	60.5	126.76	58.7	N	624
01/22/1975 00:00	187.260	185.460	59.8	127.46	58	N	1
02/11/1975 00:00	187.260	185.460	58	129.26	56.2	N	624
02/19/1975 00:00	187.260	185.460	57.4	129.86	55.6	N	1
03/17/1975 00:00	187.260	185.460	55.4	131.86	53.6	N	624
03/25/1975 00:00	187.260	185.460	54.5	132.76	52.7	N	1
04/15/1975 00:00	187.260	185.460	75.4	111.86	73.6	N	624
04/22/1975 00:00	187.260	185.460	88	99.26	86.2	N	1
05/13/1975 00:00	187.260	185.460	85.3	101.96	83.5	N	624

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05/22/1975 00:00	187.260	185.460	78.6	108.66	76.8	N	1
06/17/1975 00:00	187.260	185.460	85.1	102.16	83.3	N	624
07/03/1975 00:00	187.260	185.460	89.8	97.46	88	N	1
07/15/1975 00:00	187.260	185.460	86.6	100.66	84.8	N	624
08/11/1975 00:00	187.260	185.460	97.8	89.46	96	N	1
08/19/1975 00:00	187.260	185.460	89.6	97.66	87.8	N	624
09/15/1975 00:00	187.260	185.460	97.2	90.06	95.4	N	1
09/16/1975 00:00	187.260	185.460	97.3	89.96	95.5	N	624
10/15/1975 00:00	187.260	185.460	78.4	108.86	76.6	N	624
10/22/1975 00:00	187.260	185.460	75.2	112.06	73.4	N	1
11/13/1975 00:00	187.260	185.460	70.1	117.16	68.3	N	624
11/18/1975 00:00	187.260	185.460	69.1	118.16	67.3	N	1
12/10/1975 00:00	187.260	185.460	66.2	121.06	64.4	N	624
12/17/1975 00:00	187.260	185.460	65.5	121.76	63.7	N	1
01/20/1976 00:00	187.260	185.460	73.8	113.46	72	N	624
01/21/1976 00:00	187.260	185.460	76.5	110.76	74.7	N	1
02/18/1976 00:00	187.260	185.460	74.1	113.16	72.3	N	624
02/19/1976 00:00	187.260	185.460	73.2	114.06	71.4	N	1
03/08/1976 00:00	187.260	185.460	71.3	115.96	69.5	N	1
03/10/1976 00:00	187.260	185.460	81.3	105.96	79.5	N	624
04/12/1976 00:00	187.260	185.460	77.7	109.56	75.9	N	624
04/19/1976 00:00	187.260	185.460	76.6	110.66	74.8	N	1
05/17/1976 00:00	187.260	185.460	90.2	97.06	88.4	N	1
06/14/1976 00:00	187.260	185.460	90.8	96.46	89	N	624
06/22/1976 00:00	187.260	185.460	94.1	93.16	92.3	N	1
07/12/1976 00:00	187.260	185.460	102	85.26	100.2	N	624
07/19/1976 00:00	187.260	185.460	104.5	82.76	102.7	N	1
08/09/1976 00:00	187.260	185.460	95.1	92.16	93.3	N	624
08/16/1976 00:00	187.260	185.460	98.7	88.56	96.9	N	1
09/13/1976 00:00	187.260	185.460	101.5	85.76	99.7	N	624
09/20/1976 00:00	187.260	185.460	105.5	81.76	103.7	N	1
10/12/1976 00:00	187.260	185.460	94.7	92.56	92.9	N	624
10/31/1976 00:00	187.260	185.460	85.8	101.46	84	N	1
11/16/1976 00:00	187.260	185.460	82.4	104.86	80.6	N	624
11/24/1976 00:00	187.260	185.460	80.3	106.96	78.5	N	1
12/13/1976 00:00	187.260	185.460	98.2	89.06	96.4	N	624
12/22/1976 00:00	187.260	185.460	87	100.26	85.2	N	1
01/17/1977 00:00	187.260	185.460	77.4	109.86	75.6	N	624
01/26/1977 00:00	187.260	185.460	76	111.26	74.2	N	1
02/14/1977 00:00	187.260	185.460	74.2	113.06	72.4	N	624
02/24/1977 00:00	187.260	185.460	75	112.26	73.2	N	1
03/11/1977 00:00	187.260	185.460	100.2	87.06	98.4	N	1
03/14/1977 00:00	187.260	185.460	100	87.26	98.2	N	624
03/28/1977 00:00	187.260	185.460	78.6	108.66	76.8	N	1

04/19/1977 00:00	187.260	185.460	106.8	80.46	105	N	624
04/20/1977 00:00	187.260	185.460	110.1	77.16	108.3	N	1
05/17/1977 00:00	187.260	185.460	95.3	91.96	93.5	N	624
05/18/1977 00:00	187.260	185.460	98.5	88.76	96.7	N	1
06/13/1977 00:00	187.260	185.460	101.4	85.86	99.6	N	624
06/28/1977 00:00	187.260	185.460	107	80.26	105.2	N	1
07/11/1977 00:00	187.260	185.460	108.9	78.36	107.1	N	624
07/19/1977 00:00	187.260	185.460	109.9	77.36	108.1	N	1
08/16/1977 00:00	187.260	185.460	111	76.26	109.2	N	1
09/13/1977 00:00	187.260	185.460	108.6	78.66	106.8	N	624
09/20/1977 00:00	187.260	185.460	104.5	82.76	102.7	N	1
10/11/1977 00:00	187.260	185.460	98.9	88.36	97.1	N	624
10/19/1977 00:00	187.260	185.460	101.1	86.16	99.3	N	1
11/15/1977 00:00	187.260	185.460	90.9	96.36	89.1	N	1
12/13/1977 00:00	187.260	185.460	85	102.26	83.2	N	624
12/19/1977 00:00	187.260	185.460	84.2	103.06	82.4	N	1
01/18/1978 00:00	187.260	185.460	80.3	106.96	78.5	N	624
01/24/1978 00:00	187.260	185.460	79.8	107.46	78	N	1
02/13/1978 00:00	187.260	185.460	76.7	110.56	74.9	N	624
02/22/1978 00:00	187.260	185.460	76	111.26	74.2	N	1
03/13/1978 00:00	187.260	185.460	73.5	113.76	71.7	N	1
03/15/1978 00:00	187.260	185.460	73.5	113.76	71.7	N	624
04/18/1978 00:00	187.260	185.460	71.2	116.06	69.4	N	1
05/16/1978 00:00	187.260	185.460	86.4	100.86	84.6	N	624
05/23/1978 00:00	187.260	185.460	94	93.26	92.2	N	1
06/13/1978 00:00	187.260	185.460	98	89.26	96.2	N	624
06/19/1978 00:00	187.260	185.460	97.6	89.66	95.8	N	1
07/17/1978 00:00	187.260	185.460	103.5	83.76	101.7	N	624
07/18/1978 00:00	187.260	185.460	107.9	79.36	106.1	N	1
08/14/1978 00:00	187.260	185.460	107.9	79.36	106.1	N	624
08/22/1978 00:00	187.260	185.460	106.7	80.56	104.9	N	1
09/11/1978 00:00	187.260	185.460	105.2	82.06	103.4	N	624
09/19/1978 00:00	187.260	185.460	107.9	79.36	106.1	N	1
10/16/1978 00:00	187.260	185.460	95.1	92.16	93.3	N	624
10/23/1978 00:00	187.260	185.460	93.7	93.56	91.9	N	1
11/13/1978 00:00	187.260	185.460	85.9	101.36	84.1	N	624
11/15/1978 00:00	187.260	185.460	90	97.26	88.2	N	1
12/11/1978 00:00	187.260	185.460	81.4	105.86	79.6	N	624
12/19/1978 00:00	187.260	185.460	80.2	107.06	78.4	N	1
01/15/1979 00:00	187.260	185.460	76.6	110.66	74.8	N	624
01/16/1979 00:00	187.260	185.460	76.6	110.66	74.8	N	1
02/20/1979 00:00	187.260	185.460	73.2	114.06	71.4	N	624
02/21/1979 00:00	187.260	185.460	73	114.26	71.2	N	1
03/13/1979 00:00	187.260	185.460	71.3	115.96	69.5	N	624

03/14/1979 00:00	187.260	185.460	71.6	115.66	69.8	N	1
04/18/1979 00:00	187.260	185.460	83.4	103.86	81.6	N	1
04/24/1979 00:00	187.260	185.460	78.4	108.86	76.6	N	624
05/14/1979 00:00	187.260	185.460	87.7	99.56	85.9	N	624
06/18/1979 00:00	187.260	185.460	102.6	84.66	100.8	N	624
07/16/1979 00:00	187.260	185.460	103	84.26	101.2	N	624
08/13/1979 00:00	187.260	185.460	105	82.26	103.2	N	624
08/21/1979 00:00	187.260	185.460	104	83.26	102.2	N	1
09/17/1979 00:00	187.260	185.460	109.4	77.86	107.6	N	624
10/23/1979 00:00	187.260	185.460	88.8	98.46	87	N	1
10/26/1979 00:00	187.260	185.460	87.5	99.76	85.7	N	624
12/13/1979 00:00	187.260	185.460	78.1	109.16	76.3	N	624
02/14/1980 00:00	187.260	185.460	70	117.26	68.2	N	1
02/27/1980 00:00	187.260	185.460	68.4	118.86	66.6	N	624
03/17/1980 00:00	187.260	185.460	65.7	121.56	63.9	N	1
03/18/1980 00:00	187.260	185.460	65.2	122.06	63.4	N	624
04/10/1980 00:00	187.260	185.460	79.7	107.56	77.9	N	624
04/17/1980 00:00	187.260	185.460	92.6	94.66	90.8	N	1
05/16/1980 00:00	187.260	185.460	84.7	102.56	82.9	N	624
05/20/1980 00:00	187.260	185.460	85	102.26	83.2	N	1
06/17/1980 00:00	187.260	185.460	89.5	97.76	87.7	N	1
06/19/1980 00:00	187.260	185.460	98.9	88.36	97.1	N	624
07/16/1980 00:00	187.260	185.460	100.2	87.06	98.4	N	1
08/19/1980 00:00	187.260	185.460	104.6	82.66	102.8	N	1
09/17/1980 00:00	187.260	185.460	106.9	80.36	105.1	N	1
10/14/1980 00:00	187.260	185.460	82.7	104.56	80.9	N	1
10/15/1980 00:00	187.260	185.460	81.8	105.46	80	N	624
11/13/1980 00:00	187.260	185.460	75.7	111.56	73.9	N	624
11/18/1980 00:00	187.260	185.460				N	624
12/17/1980 00:00	187.260	185.460	70	117.26	68.2	N	1
01/15/1981 00:00	187.260	185.460	66.8	120.46	65	N	624
01/20/1981 00:00	187.260	185.460	64.2	123.06	62.4	N	1
02/18/1981 00:00	187.260	185.460	63.3	123.96	61.5	N	1
03/09/1981 00:00	187.260	185.460	61.7	125.56	59.9	N	624
03/16/1981 00:00	187.260	185.460	62.8	124.46	61	N	1
04/16/1981 00:00	187.260	185.460	90.3	96.96	88.5	N	624
04/23/1981 00:00	187.260	185.460	71.5	115.76	69.7	N	1
05/14/1981 00:00	187.260	185.460	82.9	104.36	81.1	N	624
05/22/1981 00:00	187.260	185.460	92	95.26	90.2	N	1
06/19/1981 00:00	187.260	185.460	102	85.26	100.2	N	1
07/14/1981 00:00	187.260	185.460	107.8	79.46	106	N	624
07/22/1981 00:00	187.260	185.460	106.4	80.86	104.6	N	1
08/13/1981 00:00	187.260	185.460	104.6	82.66	102.8	N	624
09/10/1981 00:00	187.260	185.460	99	88.26	97.2	N	624

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10/09/1981 00:00	187.260	185.460	80.6	106.66	78.8	N	624
11/18/1981 00:00	187.260	185.460	70.2	117.06	68.4	N	624
01/21/1982 00:00	187.260	185.460	60.2	127.06	58.4	N	624
02/18/1982 00:00	187.260	185.460	53.2	134.06	51.4	N	1
03/23/1982 00:00	187.260	185.460	54.8	132.46	53	N	624
04/22/1982 00:00	187.260	185.460	48.4	138.86	46.6	N	1
05/20/1982 00:00	187.260	185.460	69.7	117.56	67.9	N	624
06/24/1982 00:00	187.260	185.460	85	102.26	83.2	N	1
07/15/1982 00:00	187.260	185.460	84.3	102.96	82.5	N	624
08/19/1982 00:00	187.260	185.460	87.4	99.86	85.6	N	1
09/16/1982 00:00	187.260	185.460	70	117.26	68.2	N	624
10/07/1982 00:00	187.260	185.460	65.9	121.36	64.1	N	624
10/12/1982 00:00	187.260	185.460	61.4	125.86	59.6	N	1
12/15/1982 00:00	187.260	185.460	52.9	134.36	51.1	N	1
01/20/1983 00:00	187.260	185.460	47.8	139.46	46	N	1
02/15/1983 00:00	187.260	185.460	45.1	142.16	43.3	N	624
03/30/1983 00:00	187.260	185.460	40.9	146.36	39.1	N	624
04/27/1983 00:00	187.260	185.460	43.3	143.96	41.5	N	1
05/19/1983 00:00	187.260	185.460	42.7	144.56	40.9	N	624
07/21/1983 00:00	187.260	185.460	42.4	144.86	40.6	N	624
08/08/1983 00:00	187.260	185.460	45.4	141.86	43.6	N	1
09/13/1983 00:00	187.260	185.460	39.1	148.16	37.3	N	1
09/16/1983 00:00	187.260	185.460	39.2	148.06	37.4	N	624
10/12/1983 00:00	187.260	185.460	35.4	151.86	33.6	N	624
11/14/1983 00:00	187.260	185.460	33.5	153.76	31.7	N	1
12/21/1983 00:00	187.260	185.460	29.9	157.36	28.1	N	624
01/17/1984 00:00	187.260	185.460	27.8	159.46	26	N	1
02/16/1984 00:00	187.260	185.460	26.5	160.76	24.7	N	624
03/14/1984 00:00	187.260	185.460	25.5	161.76	23.7	N	624
04/25/1984 00:00	187.260	185.460	40.4	146.86	38.6	N	1
05/16/1984 00:00	187.260	185.460	37.8	149.46	36	N	624
07/17/1984 00:00	187.260	185.460	41.5	145.76	39.7	N	624
09/19/1984 00:00	187.260	185.460				N	624
10/10/1984 00:00	187.260	185.460	29.4	157.86	27.6	N	624
11/28/1984 00:00	187.260	185.460	25.6	161.66	23.8	N	1
12/12/1984 00:00	187.260	185.460	24.4	162.86	22.6	N	624
01/15/1985 00:00	187.260	185.460	23.9	163.36	22.1	N	1
02/20/1985 00:00	187.260	185.460	22.2	165.06	20.4	N	624
03/07/1985 00:00	187.260	185.460	26.4	160.86	24.6	N	624
04/15/1985 00:00	187.260	185.460	29.3	157.96	27.5	N	1
05/16/1985 00:00	187.260	185.460	46	141.26	44.2	N	624
06/05/1985 00:00	187.260	185.460	31.8	155.46	30	N	1
07/17/1985 00:00	187.260	185.460	41.1	146.16	39.3	N	624
08/27/1985 00:00	187.260	185.460	32.6	154.66	30.8	N	1

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09/25/1985 00:00	187.260	185.460	28.8	158.46	27	N	624
11/14/1985 00:00	187.260	185.460	27	160.26	25.2	N	1
12/19/1985 00:00	187.260	185.460	24.6	162.66	22.8	N	624
01/21/1986 00:00	187.260	185.460	23.2	164.06	21.4	N	1
02/13/1986 00:00	187.260	185.460	21.7	165.56	19.9	N	624
03/12/1986 00:00	187.260	185.460	20.4	166.86	18.6	N	624
04/21/1986 00:00	187.260	185.460	33	154.26	31.2	N	1
05/07/1986 00:00	187.260	185.460	22.8	164.46	21	N	624
06/16/1986 00:00	187.260	185.460	32.8	154.46	31	N	1
07/17/1986 00:00	187.260	185.460	44.9	142.36	43.1	N	624
08/21/1986 00:00	187.260	185.460	34.9	152.36	33.1	N	1
09/11/1986 00:00	187.260	185.460	42.5	144.76	40.7	N	624
10/07/1986 00:00	187.260	185.460	26.1	161.16	24.3	N	624
11/20/1986 00:00	187.260	185.460	25	162.26	23.2	N	624
12/15/1986 00:00	187.260	185.460	23.3	163.96	21.5	N	624
12/16/1986 00:00	187.260	185.460	23.3	163.96	21.5	N	1
01/15/1987 00:00	187.260	185.460	22.6	164.66	20.8	N	1
02/13/1987 00:00	187.260	185.460	21.8	165.46	20	N	1
03/09/1987 00:00	187.260	185.460	21.5	165.76	19.7	N	624
04/15/1987 00:00	187.260	185.460	34	153.26	32.2	N	1
05/13/1987 00:00	187.260	185.460	38.9	148.36	37.1	N	624
06/16/1987 00:00	187.260	185.460	31	156.26	29.2	N	1
07/07/1987 00:00	187.260	185.460	42.1	145.16	40.3	N	624
08/14/1987 00:00	187.260	185.460	30.5	156.76	28.7	N	1
09/24/1987 00:00	187.260	185.460	30.9	156.36	29.1	N	624
11/05/1987 00:00	187.260	185.460	25.4	161.86	23.6	N	624
12/17/1987 00:00	187.260	185.460	23	164.26	21.2	N	1
01/12/1988 00:00	187.260	185.460	22.2	165.06	20.4	N	624
02/16/1988 00:00	187.260	185.460	20.8	166.46	19	N	1
03/07/1988 00:00	187.260	185.460	21.4	165.86	19.6	N	624
04/14/1988 00:00	187.260	185.460	26.3	160.96	24.5	N	1
05/12/1988 00:00	187.260	185.460	26.4	160.86	24.6	N	624
06/15/1988 00:00	187.260	185.460	44.2	143.06	42.4	N	1
07/08/1988 00:00	187.260	185.460	44.7	142.56	42.9	N	624
08/18/1988 00:00	187.260	185.460	33.7	153.56	31.9	N	1
09/28/1988 00:00	187.260	185.460	30.4	156.86	28.6	N	624
11/30/1988 00:00	187.260	185.460	25.2	162.06	23.4	N	624
12/15/1988 00:00	187.260	185.460	23.9	163.36	22.1	N	1
01/18/1989 00:00	187.260	185.460				N-7	624
02/15/1989 00:00	187.260	185.460	22.7	164.56	20.9	N	1
03/15/1989 00:00	187.260	185.460	23.8	163.46	22	N	624
04/14/1989 00:00	187.260	185.460	39.8	147.46	38	N	1
05/04/1989 00:00	187.260	185.460	40.1	147.16	38.3	N	624
05/08/1989 00:00	187.260	185.460	40.1	147.16	38.3	N	624

06/14/1989 00:00	187.260	185.460	32.5	154.76	30.7	N	1
07/05/1989 00:00	187.260	185.460	41.1	146.16	39.3	N	624
08/16/1989 00:00	187.260	185.460	39.5	147.76	37.7	N	1
09/14/1989 00:00	187.260	185.460	34	153.26	32.2	N	624
10/16/1989 00:00	187.260	185.460	28.1	159.16	26.3	N	1
11/30/1989 00:00	187.260	185.460	25.8	161.46	24	N	624
12/18/1989 00:00	187.260	185.460	25.5	161.76	23.7	N	1
01/18/1990 00:00	187.260	185.460	24.7	162.56	22.9	N	624
02/15/1990 00:00	187.260	185.460	24.3	162.96	22.5	N	1
03/14/1990 00:00	187.260	185.460	24.1	163.16	22.3	N	624
04/12/1990 00:00	187.260	185.460	57.1	130.16	55.3	N	624
05/15/1990 00:00	187.260	185.460	79	108.26	77.2	N	624
06/11/1990 00:00	187.260	185.460	66.9	120.36	65.1	N	624
07/16/1990 00:00	187.260	185.460	78.8	108.46	77	N	624
08/14/1990 00:00	187.260	185.460	59.4	127.86	57.6	N	624
09/12/1990 00:00	187.260	185.460	50.2	137.06	48.4	N	624
10/17/1990 00:00	187.260	185.460	47	140.26	45.2	N	624
11/15/1990 00:00	187.260	185.460	40.5	146.76	38.7	N	624
12/13/1990 00:00	187.260	185.460	38.4	148.86	36.6	N	624
02/14/1991 00:00	187.260	185.460	37.3	149.96	35.5	N	624
03/11/1991 00:00	187.260	185.460	37	150.26	35.2	N	624
03/15/1991 00:00	187.260	185.460	36	151.26	34.2	N	624
04/01/1991 00:00	187.260	185.460	34.4	152.86	32.6	N	624
04/15/1991 00:00	187.260	185.460	44.7	142.56	42.9	N	624
06/17/1991 00:00	187.260	185.460	75.1	112.16	73.3	N	624
08/15/1991 00:00	187.260	185.460	86.9	100.36	85.1	N	624
10/01/1991 00:00	187.260	185.460	71	116.26	69.2	N	624
12/16/1991 00:00	187.260	185.460	51.4	135.86	49.6	N	624
02/14/1992 00:00	187.260	185.460	46	141.26	44.2	N	624
03/02/1992 00:00	187.260	185.460	41.9	145.36	40.1	N	624
03/19/1992 00:00	187.260	185.460	42.5	144.76	40.7	N	624
04/14/1992 00:00	187.260	185.460	39.2	148.06	37.4	N	1
05/12/1992 00:00	187.260	185.460	68.3	118.96	66.5	N	1
06/15/1992 00:00	187.260	185.460	75.1	112.16	73.3	N	1
09/15/1992 00:00	187.260	185.460	84	103.26	82.2	N	1
10/06/1992 00:00	187.260	185.460	76.2	111.06	74.4	N	1
11/16/1992 00:00	187.260	185.460	77.7	109.56	75.9	N	624
12/14/1992 00:00	187.260	185.460	57.7	129.56	55.9	N	624
01/19/1993 00:00	187.260	185.460	53.8	133.46	52	N	624
02/16/1993 00:00	187.260	185.460	50.1	137.16	48.3	N	624
03/16/1993 00:00	187.260	185.460	47.1	140.16	45.3	N	1
04/15/1993 00:00	187.260	185.460	48.2	139.06	46.4	N	1
05/20/1993 00:00	187.260	185.460	65.3	121.96	63.5	N	1
06/15/1993 00:00	187.260	185.460	56.7	130.56	54.9	N	1

07/09/1993 00:00	187.260	185.460	69.8	117.46	68		N	624
08/16/1993 00:00	187.260	185.460	61.1	126.16	59.3		N	1
09/14/1993 00:00	187.260	185.460	57.9	129.36	56.1		N	624
10/05/1993 00:00	187.260	185.460	52.4	134.86	50.6		N	1
11/19/1993 00:00	187.260	185.460	52.5	134.76	50.7		N	624
12/16/1993 00:00	187.260	185.460	43.9	143.36	42.1		N	624
01/13/1994 00:00	187.260	185.460	43.5	143.76	41.7		N	1
02/14/1994 00:00	187.260	185.460	40.9	146.36	39.1		N	624
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04/12/1994 00:00	187.260	185.460	47.9	139.36	46.1		N	624
05/19/1994 00:00	187.260	185.460	64.4	122.86	62.6		N	624
06/16/1994 00:00	187.260	185.460	94.2	93.06	92.4		N	624
07/15/1994 00:00	187.260	185.460	92.8	94.46	91		N	1
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09/15/1994 00:00	187.260	185.460	85.9	101.36	84.1		N	1
10/18/1994 00:00	187.260	185.460	68.8	118.46	67		N	1
03/07/1995 00:00	187.260	185.460	47.9	139.36	46.1		N	1
03/31/1995 00:00	187.260	185.460	45.2	142.06	43.4		N	1
04/18/1995 00:00	187.260	185.460	43.8	143.46	42		N	1
07/26/1995 00:00	187.260	185.460	76.3	110.96	74.5		N	1
10/03/1995 00:00	187.260	185.460	51.6	135.66	49.8		N	1
01/17/1996 00:00	187.260	185.460	40.1	147.16	38.3		N	1
03/27/1996 00:00	187.260	185.460	34.8	152.46	33		N	1
07/22/1996 00:00	187.260	185.460	70.1	117.16	68.3		N	1
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03/04/1997 00:00	187.260	185.460	31.9	155.36	30.1		N	1
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10/08/1998 00:00	187.260	185.460	39.3	147.96	37.5		N	1
03/16/1999 00:00	187.260	185.460				N-2	N	1
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10/04/1999 00:00	187.260	185.460	51.5	135.76	49.7		N	1
03/23/2000 00:00	187.260	185.460	33.1	154.16	31.3		N	1
10/04/2000 00:00	187.260	185.460	54.2	133.06	52.4		N	1
03/20/2001 00:00	187.260	185.460	36.7	150.56	34.9		N	1
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08/16/2001 00:00	187.260	185.460	77.4	109.86	75.6		N	1
09/04/2001 00:00	187.260	185.460	76.5	110.76	74.7		N	1
10/09/2001 00:00	187.260	185.460	65.3	121.96	63.5		N	1

11/09/2001 00:00	187.260	185.460	59.1	128.16	57.3	N	1
12/13/2001 00:00	187.260	185.460	54	133.26	52.2	N	1
02/05/2002 00:00	187.260	185.460	46.2	141.06	44.4	N	1
02/28/2002 00:00	187.260	185.460	44.9	142.36	43.1	N	1
03/19/2002 00:00	187.260	185.460	49.3	137.96	47.5	N	1
04/26/2002 00:00	187.260	185.460	61	126.26	59.2	N	1
05/15/2002 00:00	187.260	185.460	70.4	116.86	68.6	N	1
06/27/2002 00:00	187.260	185.460	82.3	104.96	80.5	N	1
08/19/2002 00:00	187.260	185.460	76.9	110.36	75.1	N	1
09/17/2002 00:00	187.260	185.460	70.9	116.36	69.1	N	1
10/16/2002 00:00	187.260	185.460	63.6	123.66	61.8	N	1
11/20/2002 00:00	187.260	185.460	57.6	129.66	55.8	N	1
02/18/2003 00:00	187.260	185.460	47.2	140.06	45.4	N	1
03/13/2003 00:00	187.260	185.460	45.2	142.06	43.4	N	1
04/09/2003 00:00	187.260	185.460	44	143.26	42.2	N	1
05/28/2003 00:00	187.260	185.460	58.2	129.06	56.4	N	1
06/19/2003 00:00	187.260	185.460	65.2	122.06	63.4	N	1
07/30/2003 00:00	187.260	185.460	75.4	111.86	73.6	N	1
09/22/2003 00:00	187.260	185.460	63.7	123.56	61.9	N	1
10/21/2003 00:00	187.260	185.460	58	129.26	56.2	N	1
11/25/2003 00:00	187.260	185.460	58.1	129.16	56.3	N	1
12/16/2003 00:00	187.260	185.460	53.7	133.56	51.9	N	1
02/10/2004 00:00	187.260	185.460	46.1	141.16	44.3	N	1
04/01/2004 00:00	187.260	185.460	43.5	143.76	41.7	N	1
04/26/2004 00:00	187.260	185.460	56.7	130.56	54.9	N	1
05/21/2004 00:00	187.260	185.460	67.5	119.76	65.7	N	1
06/21/2004 00:00	187.260	185.460	81.8	105.46	80	N	1
07/27/2004 00:00	187.260	185.460	83.4	103.86	81.6	N	1
08/24/2004 00:00	187.260	185.460	82.3	104.96	80.5	N	1
09/21/2004 00:00	187.260	185.460	66.8	120.46	65	N	1
10/19/2004 00:00	187.260	185.460	60.3	126.96	58.5	N	1
11/22/2004 00:00	187.260	185.460	54.6	132.66	52.8	N	1
03/31/2005 00:00	187.260	185.460	43.5	143.76	41.7	N	1
04/29/2005 00:00	187.260	185.460	43.6	143.66	41.8	N	1
05/25/2005 00:00	187.260	185.460	50.2	137.06	48.4	N	1
06/24/2005 00:00	187.260	185.460	57.4	129.86	55.6	N	1
07/27/2005 00:00	187.260	185.460	72.4	114.86	70.6	N	1
08/24/2005 00:00	187.260	185.460	71.6	115.66	69.8	N	1
09/30/2005 00:00	187.260	185.460	55.7	131.56	53.9	N	1
10/19/2005 00:00	187.260	185.460	52.6	134.66	50.8	N	1
03/28/2006 00:00	187.260	185.460	40.7	146.56	38.9	N	1
05/18/2006 00:00	187.260	185.460	53.9	133.36	52.1	N	1
08/02/2006 00:00	187.260	185.460	67.6	119.66	65.8	N	1
10/10/2006 00:00	187.260	185.460	49.9	137.36	48.1	N	1

03/19/2007 00:00	187.260	185.460	43.68	143.58	41.88	N	1
08/06/2007 00:00	187.260	185.460	90.1	97.16	88.3	N	1
10/16/2007 00:00	187.260	185.460	59.22	128.04	57.42	N	1
01/16/2008 00:00	187.260	185.460	53.33	133.93	51.53	N	1
03/10/2008 00:00	187.260	185.460	47.3	139.96	45.5	N	1
08/04/2008 00:00	187.260	185.460			N-0	N	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396277N1222344W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data:**
Recent Groundwater Level Data
Historical Groundwater Level Data

**State Well Number:** 21N03W32N001M  
**Local Well ID:**  
**Site Code:** 396277N1222344W001  
**Latitude (NAD83):** 39.627700  
**Longitude (NAD83):** -122.2344  
**Groundwater Basin (code):** Colusa (5-21.52)

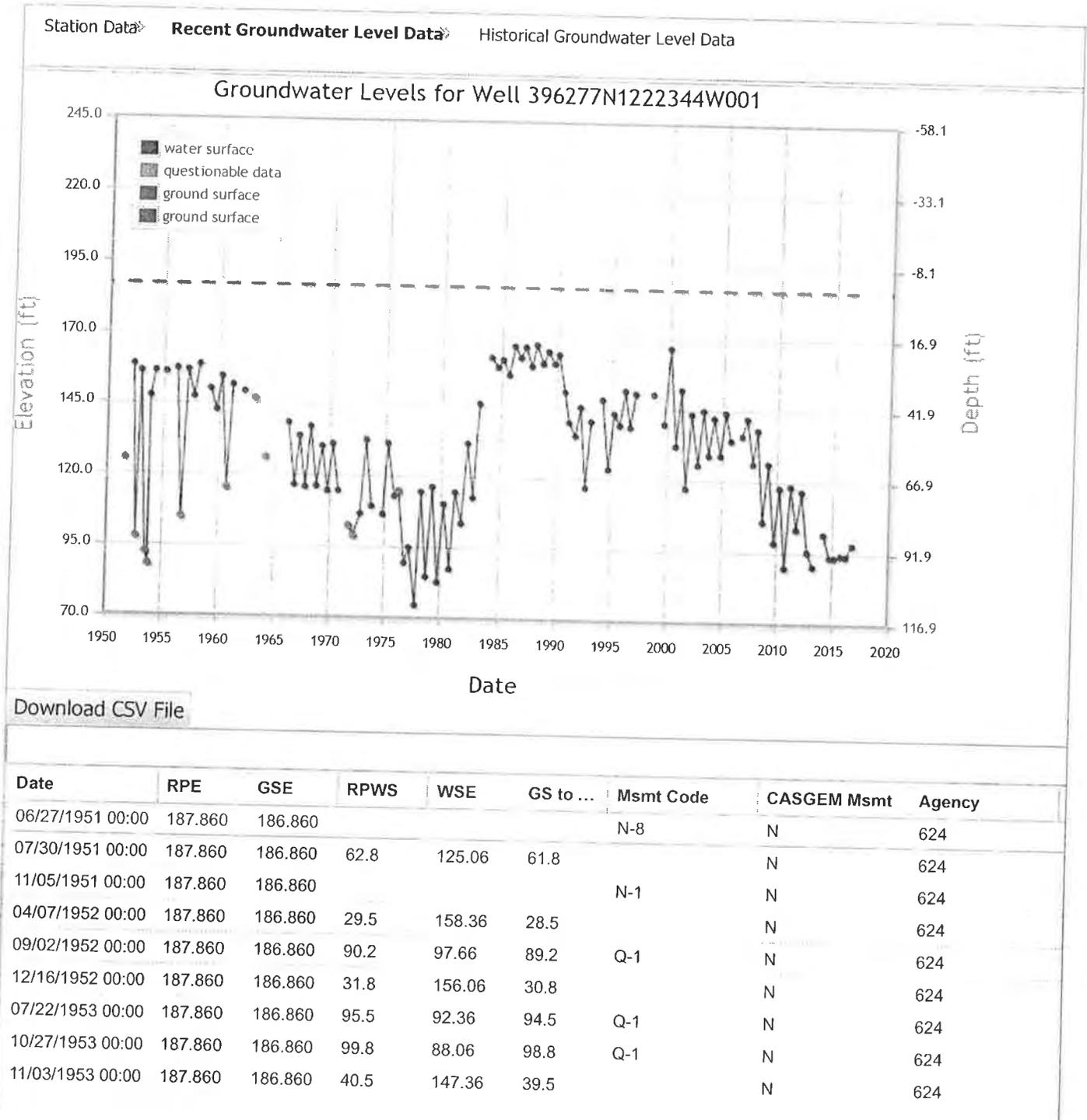
**Well Use:** Irrigation  
**Well Status:** Active  
**Well Completion Report Number:**  
**Reference Point Elevation (NAVD88 ft):** 187.860  
**Ground Surface Elevation (NAVD88 ft):** 186.860  
**Total Depth (ft):** 430  
**Perforated Interval Depths (ft):**



[Perform a New Well Search](#)

## Groundwater Levels for Station 396277N1222344W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



04/01/1954 00:00	187.860	186.860	31.7	156.16	30.7		N	624
03/30/1955 00:00	187.860	186.860	32.1	155.76	31.1		N	624
03/22/1956 00:00	187.860	186.860	30.8	157.06	29.8		N	624
10/04/1956 00:00	187.860	186.860	83	104.86	82	Q-1	N	624
03/20/1957 00:00	187.860	186.860	31.3	156.56	30.3		N	624
10/09/1957 00:00	187.860	186.860	40.7	147.16	39.7		N	624
03/24/1958 00:00	187.860	186.860	29.4	158.46	28.4		N	624
03/18/1959 00:00	187.860	186.860	37.9	149.96	36.9		N	624
10/06/1959 00:00	187.860	186.860	45.3	142.56	44.3		N	624
03/16/1960 00:00	187.860	186.860	33.5	154.36	32.5		N	624
10/04/1960 00:00	187.860	186.860	72.6	115.26	71.6	Q-2	N	624
03/07/1961 00:00	187.860	186.860	36.4	151.46	35.4		N	624
10/17/1961 00:00	187.860	186.860				N-1	N	624
03/28/1962 00:00	187.860	186.860	38.7	149.16	37.7		N	624
10/04/1962 00:00	187.860	186.860				N-1	N	624
03/12/1963 00:00	187.860	186.860	40.9	146.96	39.9	Q-2	N	624
10/09/1963 00:00	187.860	186.860				N-1	N	624
03/10/1964 00:00	187.860	186.860	61.9	125.96	60.9	Q-2	N	624
10/06/1964 00:00	187.860	186.860				N-1	N	624
03/17/1965 00:00	187.860	186.860				N-1	N	624
10/07/1965 00:00	187.860	186.860				N-1	N	624
03/10/1966 00:00	187.860	186.860	49.5	138.36	48.5		N	624
10/19/1966 00:00	187.860	186.860	71.4	116.46	70.4		N	624
03/15/1967 00:00	187.860	186.860	54.1	133.76	53.1		N	624
10/05/1967 00:00	187.860	186.860	72.2	115.66	71.2		N	624
03/07/1968 00:00	187.860	186.860	50.8	137.06	49.8		N	624
10/11/1968 00:00	187.860	186.860	71.8	116.06	70.8		N	624
04/03/1969 00:00	187.860	186.860	57.7	130.16	56.7		N	624
10/07/1969 00:00	187.860	186.860	73.4	114.46	72.4		N	624
03/19/1970 00:00	187.860	186.860	56.8	131.06	55.8		N	624
10/08/1970 00:00	187.860	186.860	73.3	114.56	72.3		N	624
03/10/1971 00:00	187.860	186.860				N-1	N	624
10/06/1971 00:00	187.860	186.860	85.6	102.26	84.6	Q-4	N	624
03/07/1972 00:00	187.860	186.860	89	98.86	88	Q-4	N	624
10/12/1972 00:00	187.860	186.860	81.3	106.56	80.3		N	624
03/28/1973 00:00	187.860	186.860	55.2	132.66	54.2		N	624
10/09/1973 00:00	187.860	186.860	78.6	109.26	77.6		N	624
03/06/1974 00:00	187.860	186.860				N-0	N	624
10/16/1974 00:00	187.860	186.860	81.5	106.36	80.5		N	624
03/05/1975 00:00	187.860	186.860	56.4	131.46	55.4		N	624
10/22/1975 00:00	187.860	186.860	75	112.86	74		N	624
03/08/1976 00:00	187.860	186.860	73.2	114.66	72.2	Q-6	N	624
10/06/1976 00:00	187.860	186.860	98.5	89.36	97.5		N	624
03/02/1977 00:00	187.860	186.860	93.1	94.76	92.1		N	624

10/20/1977 00:00	187.860	186.860	113.4	74.46	112.4	N	624
03/15/1978 00:00	187.860	186.860	73.5	114.36	72.5	N	624
09/29/1978 00:00	187.860	186.860	103.4	84.46	102.4	N	624
03/13/1979 00:00	187.860	186.860	71.6	116.26	70.6	N	624
10/03/1979 00:00	187.860	186.860	105.2	82.66	104.2	N	624
03/18/1980 00:00	187.860	186.860	77.6	110.26	76.6	N	624
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03/09/1981 00:00	187.860	186.860	73.4	114.46	72.4	N	624
10/06/1981 00:00	187.860	186.860	84.4	103.46	83.4	N	624
03/23/1982 00:00	187.860	186.860	56.1	131.76	55.1	N	624
10/07/1982 00:00	187.860	186.860	75.3	112.56	74.3	N	624
03/29/1983 00:00	187.860	186.860	42	145.86	41	N	624
10/13/1983 00:00	187.860	186.860				N-9	624
03/13/1984 00:00	187.860	186.860	25.7	162.16	24.7	N	624
10/11/1984 00:00	187.860	186.860	29.1	158.76	28.1	N	624
03/07/1985 00:00	187.860	186.860	26.4	161.46	25.4	N	624
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03/18/1986 00:00	187.860	186.860	21.5	166.36	20.5	N	624
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03/09/1987 00:00	187.860	186.860	21.8	166.06	20.8	N	624
09/29/1987 00:00	187.860	186.860	28.6	159.26	27.6	N	624
02/29/1988 00:00	187.860	186.860	20.9	166.96	19.9	N	624
10/04/1988 00:00	187.860	186.860	27.6	160.26	26.6	N	624
03/29/1989 00:00	187.860	186.860	23.2	164.66	22.2	N	624
10/24/1989 00:00	187.860	186.860	27.6	160.26	26.6	N	624
03/05/1990 00:00	187.860	186.860	24.2	163.66	23.2	N	624
10/15/1990 00:00	187.860	186.860	37.4	150.46	36.4	N	624
03/21/1991 00:00	187.860	186.860	48.2	139.66	47.2	N	624
10/22/1991 00:00	187.860	186.860	52.9	134.96	51.9	N	624
03/19/1992 00:00	187.860	186.860	42.6	145.26	41.6	N	624
10/09/1992 00:00	187.860	186.860	71.1	116.76	70.1	N	624
03/15/1993 00:00	187.860	186.860	47.6	140.26	46.6	N	624
03/14/1994 00:00	187.860	186.860	39.8	148.06	38.8	N	624
10/18/1994 00:00	187.860	186.860	64.4	123.46	63.4	N	624
04/11/1995 00:00	187.860	186.860	44.8	143.06	43.8	N	624
10/18/1995 00:00	187.860	186.860	48.9	138.96	47.9	N	624
04/03/1996 00:00	187.860	186.860	36.6	151.26	35.6	N	624
09/25/1996 00:00	187.860	186.860	49.5	138.36	48.5	N	624
03/13/1997 00:00	187.860	186.860	37.5	150.36	36.5	N	624
10/16/1998 00:00	187.860	186.860	37.7	150.16	36.7	N	624
10/01/1999 00:00	187.860	186.860	48.2	139.66	47.2	N	624
03/23/2000 00:00	187.860	186.860	21.4	166.46	20.4	N	624
10/16/2000 00:00	187.860	186.860	55.9	131.96	54.9	N	624
03/26/2001 00:00	187.860	186.860	36	151.86	35	N	624

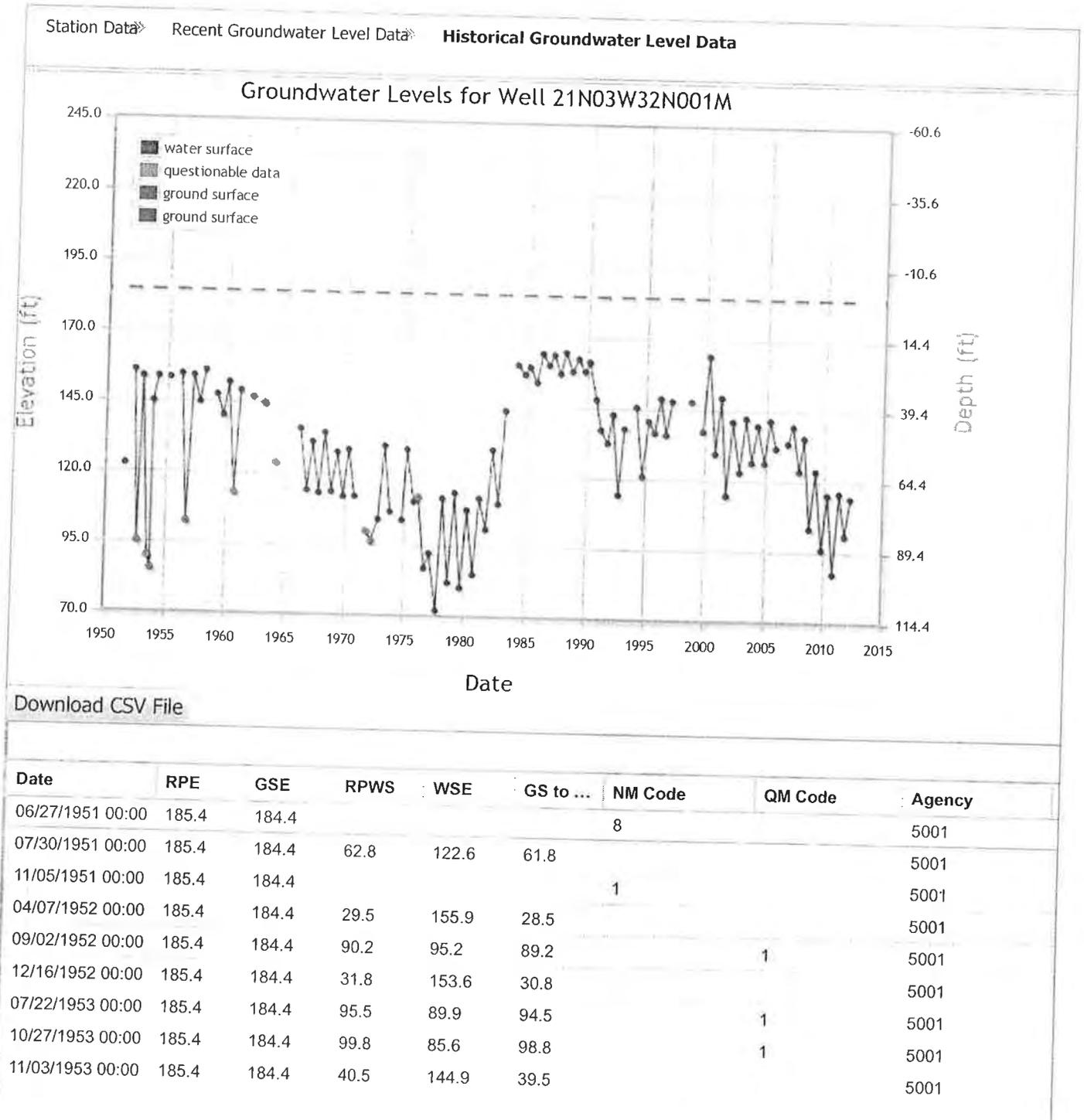
09/21/2001 00:00	187.860	186.860	70.7	117.16	69.7		N	624
03/06/2002 00:00	187.860	186.860	44.5	143.36	43.5		N	624
10/18/2002 00:00	187.860	186.860	62.4	125.46	61.4		N	624
04/07/2003 00:00	187.860	186.860	43.2	144.66	42.2		N	624
10/14/2003 00:00	187.860	186.860	59	128.86	58		N	624
04/01/2004 00:00	187.860	186.860	45.8	142.06	44.8		N	624
11/05/2004 00:00	187.860	186.860	59	128.86	58		N	624
04/14/2005 00:00	187.860	186.860	43.9	143.96	42.9		N	624
10/18/2005 00:00	187.860	186.860	53.7	134.16	52.7		N	624
03/30/2006 00:00	187.860	186.860				N-7	N	624
10/17/2006 00:00	187.860	186.860	52	135.86	51		N	624
03/28/2007 00:00	187.860	186.860	45.9	141.96	44.9		N	624
10/23/2007 00:00	187.860	186.860	61.8	126.06	60.8		N	624
03/14/2008 00:00	187.860	186.860	49.9	137.96	48.9		N	624
09/30/2008 00:00	187.860	186.860	82.1	105.76	81.1		N	624
03/23/2009 00:00	187.860	186.860	61.7	126.16	60.7		N	624
10/20/2009 00:00	187.860	186.860	89.4	98.46	88.4		N	624
04/08/2010 00:00	187.860	186.860	70.1	117.76	69.1		N	624
10/18/2010 00:00	187.860	186.860	98.1	89.76	97.1		N	624
04/04/2011 00:00	187.860	186.860	69.5	118.36	68.5		N	624
10/11/2011 00:00	187.860	186.860	84.6	103.26	83.6		N	624
03/26/2012 00:00	187.860	186.860	71.3	116.56	70.3		N	624
10/15/2012 00:00	187.860	186.860	92.5	95.36	91.5		N	624
04/15/2013 00:00	187.860	186.860	97.0	90.26	96.6		N	624
10/21/2013 00:00	187.860	186.860				N-9	N	624
03/18/2014 00:00	187.860	186.860	86.2	101.66	85.2		N	624
10/14/2014 00:00	187.860	186.860	94.4	93.46	93.4		N	624
03/16/2015 00:00	187.860	186.860	94.4	93.46	93.4		N	624
10/13/2015 00:00	187.860	186.860	93.6	94.26	92.6		N	624
03/14/2016 00:00	187.860	186.860	93.9	93.96	92.9		N	624
10/17/2016 00:00	187.860	186.860	90	97.86	89		N	624

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396277N1222344W001

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



04/01/1954 00:00	185.4	184.4	31.7	153.7	30.7		5001
03/30/1955 00:00	185.4	184.4	32.1	153.3	31.1		5001
03/22/1956 00:00	185.4	184.4	30.8	154.6	29.8		5001
10/04/1956 00:00	185.4	184.4	83	102.4	82	1	5001
03/20/1957 00:00	185.4	184.4	31.3	154.1	30.3		5001
10/09/1957 00:00	185.4	184.4	40.7	144.7	39.7		5001
03/24/1958 00:00	185.4	184.4	29.4	156	28.4		5001
03/18/1959 00:00	185.4	184.4	37.9	147.5	36.9		5001
10/06/1959 00:00	185.4	184.4	45.3	140.1	44.3		5001
03/16/1960 00:00	185.4	184.4	33.5	151.9	32.5		5001
10/04/1960 00:00	185.4	184.4	72.6	112.8	71.6	2	5001
03/07/1961 00:00	185.4	184.4	36.4	149	35.4		5001
10/17/1961 00:00	185.4	184.4				1	5001
03/28/1962 00:00	185.4	184.4	38.7	146.7	37.7		5001
10/04/1962 00:00	185.4	184.4				1	5001
03/12/1963 00:00	185.4	184.4	40.9	144.5	39.9	2	5001
10/09/1963 00:00	185.4	184.4				1	5001
03/10/1964 00:00	185.4	184.4	61.9	123.5	60.9	2	5001
10/06/1964 00:00	185.4	184.4				1	5001
03/17/1965 00:00	185.4	184.4				1	5001
10/07/1965 00:00	185.4	184.4				1	5001
03/10/1966 00:00	185.4	184.4	49.5	135.9	48.5		5001
10/19/1966 00:00	185.4	184.4	71.4	114	70.4		5001
03/15/1967 00:00	185.4	184.4	54.1	131.3	53.1		5001
10/05/1967 00:00	185.4	184.4	72.2	113.2	71.2		5001
03/07/1968 00:00	185.4	184.4	50.8	134.6	49.8		5001
10/11/1968 00:00	185.4	184.4	71.8	113.6	70.8		5001
04/03/1969 00:00	185.4	184.4	57.7	127.7	56.7		5001
10/07/1969 00:00	185.4	184.4	73.4	112	72.4		5001
03/19/1970 00:00	185.4	184.4	56.8	128.6	55.8		5001
10/08/1970 00:00	185.4	184.4	73.3	112.1	72.3		5001
03/10/1971 00:00	185.4	184.4				1	5001
10/06/1971 00:00	185.4	184.4	85.6	99.8	84.6	4	5001
03/07/1972 00:00	185.4	184.4	89	96.4	88	4	5001
10/12/1972 00:00	185.4	184.4	81.3	104.1	80.3		5001
03/28/1973 00:00	185.4	184.4	55.2	130.2	54.2		5001
10/09/1973 00:00	185.4	184.4	78.6	106.8	77.6		5001
03/06/1974 00:00	185.4	184.4				0	5001
10/16/1974 00:00	185.4	184.4	81.5	103.9	80.5		5001
03/05/1975 00:00	185.4	184.4	56.4	129	55.4		5001
10/22/1975 00:00	185.4	184.4	75	110.4	74		5001
03/08/1976 00:00	185.4	184.4	73.2	112.2	72.2	6	5001
10/06/1976 00:00	185.4	184.4	98.5	86.9	97.5		5001
03/02/1977 00:00	185.4	184.4	93.1	92.3	92.1		5001

10/20/1977 00:00	185.4	184.4	113.4	72	112.4	5001
03/15/1978 00:00	185.4	184.4	73.5	111.9	72.5	5001
09/29/1978 00:00	185.4	184.4	103.4	82	102.4	5001
03/13/1979 00:00	185.4	184.4	71.6	113.8	70.6	5001
10/03/1979 00:00	185.4	184.4	105.2	80.2	104.2	5001
03/18/1980 00:00	185.4	184.4	77.6	107.8	76.6	5001
10/16/1980 00:00	185.4	184.4	100.5	84.9	99.5	5001
03/09/1981 00:00	185.4	184.4	73.4	112	72.4	5001
10/06/1981 00:00	185.4	184.4	84.4	101	83.4	5001
03/23/1982 00:00	185.4	184.4	56.1	129.3	55.1	5001
10/07/1982 00:00	185.4	184.4	75.3	110.1	74.3	5001
03/29/1983 00:00	185.4	184.4	42	143.4	41	5001
10/13/1983 00:00	185.4	184.4				5001
03/13/1984 00:00	185.4	184.4	25.7	159.7	24.7	5001
10/11/1984 00:00	185.4	184.4	29.1	156.3	28.1	5001
03/07/1985 00:00	185.4	184.4	26.4	159	25.4	5001
10/09/1985 00:00	185.4	184.4	31.8	153.6	30.8	5001
03/18/1986 00:00	185.4	184.4	21.5	163.9	20.5	5001
10/07/1986 00:00	185.4	184.4	25.6	159.8	24.6	5001
03/09/1987 00:00	185.4	184.4	21.8	163.6	20.8	5001
09/29/1987 00:00	185.4	184.4	28.6	156.8	27.6	5001
02/29/1988 00:00	185.4	184.4	20.9	164.5	19.9	5001
10/04/1988 00:00	185.4	184.4	27.6	157.8	26.6	5001
03/29/1989 00:00	185.4	184.4	23.2	162.2	22.2	5001
10/24/1989 00:00	185.4	184.4	27.6	157.8	26.6	5001
03/05/1990 00:00	185.4	184.4	24.2	161.2	23.2	5001
10/15/1990 00:00	185.4	184.4	37.4	148	36.4	5001
03/21/1991 00:00	185.4	184.4	48.2	137.2	47.2	5001
10/22/1991 00:00	185.4	184.4	52.9	132.5	51.9	5001
03/19/1992 00:00	185.4	184.4	42.6	142.8	41.6	5001
10/09/1992 00:00	185.4	184.4	71.1	114.3	70.1	5001
03/15/1993 00:00	185.4	184.4	47.6	137.8	46.6	5001
03/14/1994 00:00	185.4	184.4	39.8	145.6	38.8	5001
10/18/1994 00:00	185.4	184.4	64.4	121	63.4	5001
04/11/1995 00:00	185.4	184.4	44.8	140.6	43.8	5001
10/18/1995 00:00	185.4	184.4	48.9	136.5	47.9	5001
04/03/1996 00:00	185.4	184.4	36.6	148.8	35.6	5001
09/25/1996 00:00	185.4	184.4	49.5	135.9	48.5	5001
03/13/1997 00:00	185.4	184.4	37.5	147.9	36.5	5001
10/16/1998 00:00	185.4	184.4	37.7	147.7	36.7	5001
10/01/1999 00:00	185.4	184.4	48.2	137.2	47.2	5001
03/23/2000 00:00	185.4	184.4	21.4	164	20.4	5001
10/16/2000 00:00	185.4	184.4	55.9	129.5	54.9	5001
03/26/2001 00:00	185.4	184.4	36	149.4	35	5001

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09/21/2001 00:00	185.4	184.4	70.7	114.7	69.7	5001
03/06/2002 00:00	185.4	184.4	44.5	140.9	43.5	5001
10/18/2002 00:00	185.4	184.4	62.4	123	61.4	5001
04/07/2003 00:00	185.4	184.4	43.2	142.2	42.2	5001
10/14/2003 00:00	185.4	184.4	59	126.4	58	5001
04/01/2004 00:00	185.4	184.4	45.8	139.6	44.8	5001
11/05/2004 00:00	185.4	184.4	59	126.4	58	5001
04/14/2005 00:00	185.4	184.4	43.9	141.5	42.9	5001
10/18/2005 00:00	185.4	184.4	53.7	131.7	52.7	5001
03/30/2006 00:00	185.4	184.4			7	5001
10/17/2006 00:00	185.4	184.4	52	133.4	51	5001
03/28/2007 00:00	185.4	184.4	45.9	139.5	44.9	5001
10/23/2007 00:00	185.4	184.4	61.8	123.6	60.8	5001
03/14/2008 00:00	185.4	184.4	49.9	135.5	48.9	5001
09/30/2008 00:00	185.4	184.4	82.1	103.3	81.1	5001
03/23/2009 00:00	185.4	184.4	61.7	123.7	60.7	5001
10/20/2009 00:00	185.4	184.4	89.4	96	88.4	5001
04/08/2010 00:00	185.4	184.4	70.1	115.3	69.1	5001
10/18/2010 00:00	185.4	184.4	98.1	87.3	97.1	5001
04/04/2011 00:00	185.4	184.4	69.5	115.9	68.5	5001
10/11/2011 00:00	185.4	184.4	84.6	100.8	83.6	5001
03/26/2012 00:00	185.4	184.4	71.3	114.1	70.3	5001

All elevation and depth measurements are in feet. The vertical datum for historical measurements is NGVD29.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data**
Recent Groundwater Level Data
Historical Groundwater Level Data

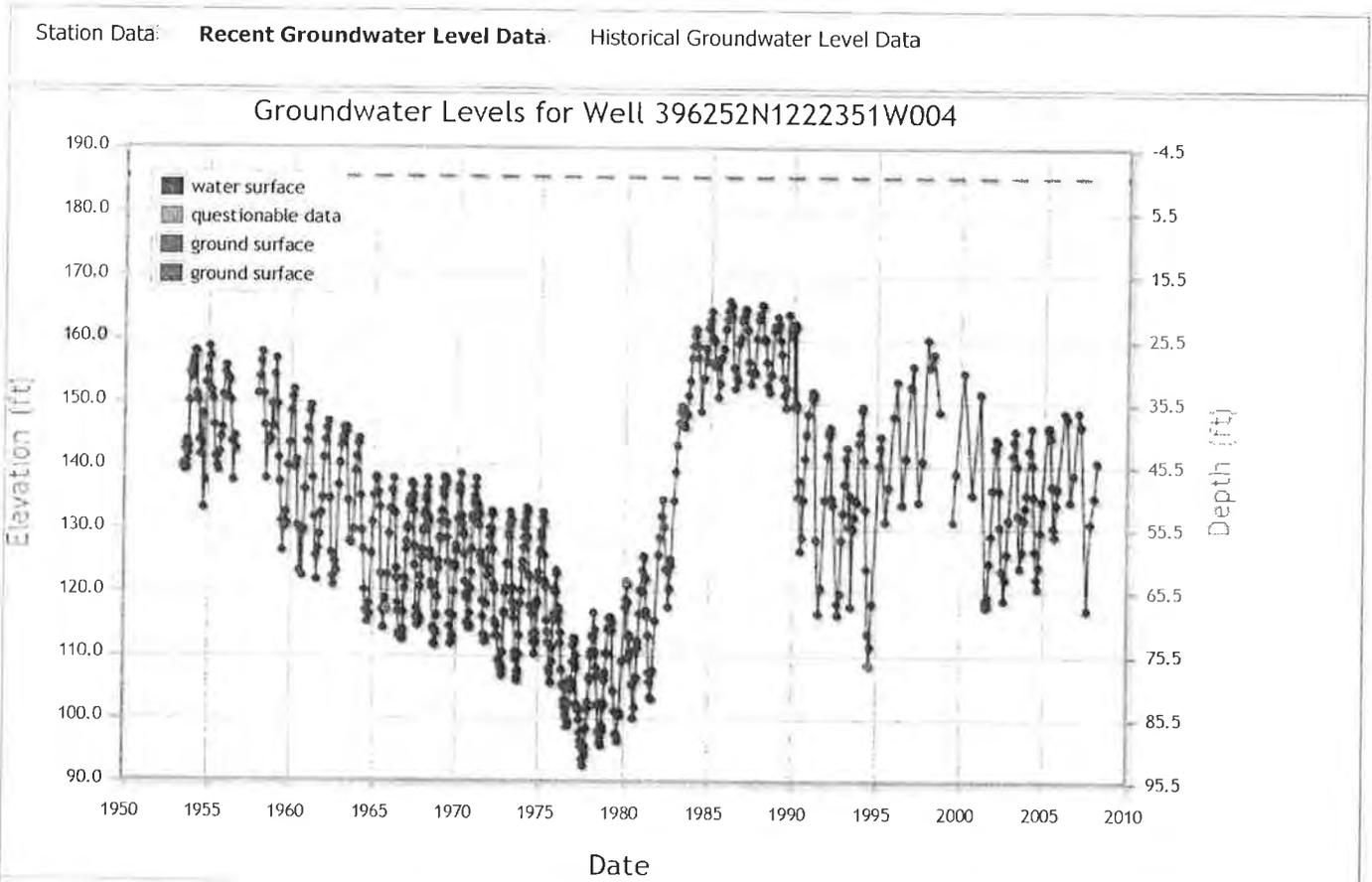
<p><b>State Well Number:</b> 21N03W31R005M  <b>Local Well ID:</b>  <b>Site Code:</b> 396252N1222351W004  <b>Latitude (NAD83):</b> 39.625200  <b>Longitude (NAD83):</b> -122.2351  <b>Groundwater Basin (code):</b> ()</p>	<p><b>Well Use:</b>  <b>Well Status:</b> Inactive  <b>Well Completion Report Number:</b>  <b>Reference Point Elevation (NAVD88 ft):</b> 187.460  <b>Ground Surface Elevation (NAVD88 ft):</b> 185.460  <b>Total Depth (ft):</b> 120  <b>Perforated Interval Depths (ft):</b> 80.000 120.000</p>
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Bureau of Land Management, Esri, HERE, ...

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W004

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



[Download CSV File](#)

Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
07/03/1953 00:00	187.460	185.460	48	139.46	46		N	624
07/08/1953 00:00	187.460	185.460	47.5	139.96	45.5		N	624
07/18/1953 00:00	187.460	185.460	48.4	139.06	46.4		N	624
07/24/1953 00:00	187.460	185.460	47.5	139.96	45.5		N	624
08/10/1953 00:00	187.460	185.460	45.1	142.36	43.1		N	624
08/16/1953 00:00	187.460	185.460	47.8	139.66	45.8		N	624
09/03/1953 00:00	187.460	185.460	44.2	143.26	42.2		N	624
09/10/1953 00:00	187.460	185.460	47	140.46	45		N	624
09/20/1953 00:00	187.460	185.460	43.7	143.76	41.7		N	624

10/10/1953 00:00	187.460	185.460	45.9	141.56	43.9	N	624
10/27/1953 00:00	187.460	185.460	44.8	142.66	42.8	N	624
11/13/1953 00:00	187.460	185.460	37.5	149.96	35.5	N	624
11/26/1953 00:00	187.460	185.460	33	154.46	31	N	624
12/12/1953 00:00	187.460	185.460	33	154.46	31	N	624
01/04/1954 00:00	187.460	185.460	33.8	153.66	31.8	N	624
01/21/1954 00:00	187.460	185.460	32.5	154.96	30.5	N	624
01/27/1954 00:00	187.460	185.460	31.8	155.66	29.8	N	624
02/15/1954 00:00	187.460	185.460	30.9	156.56	28.9	N	624
03/21/1954 00:00	187.460	185.460	29.6	157.86	27.6	N	624
03/30/1954 00:00	187.460	185.460	29.6	157.86	27.6	N	624
04/21/1954 00:00	187.460	185.460	36.4	151.06	34.4	N	624
05/26/1954 00:00	187.460	185.460	37.5	149.96	35.5	N	624
06/23/1954 00:00	187.460	185.460	43.7	143.76	41.7	N	624
07/18/1954 00:00	187.460	185.460	46	141.46	44	N	624
08/19/1954 00:00	187.460	185.460	39.5	147.96	37.5	N	624
09/21/1954 00:00	187.460	185.460	54.4	133.06	52.4	N	624
10/29/1954 00:00	187.460	185.460	50	137.46	48	N	624
11/24/1954 00:00	187.460	185.460	34.7	152.76	32.7	N	624
12/16/1954 00:00	187.460	185.460	32.6	154.86	30.6	N	624
01/25/1955 00:00	187.460	185.460	28.9	158.56	26.9	N	624
02/17/1955 00:00	187.460	185.460	30.4	157.06	28.4	N	624
03/21/1955 00:00	187.460	185.460	35.9	151.56	33.9	N	624
04/19/1955 00:00	187.460	185.460	37.2	150.26	35.2	N	624
05/19/1955 00:00	187.460	185.460	41.3	146.16	39.3	N	624
06/15/1955 00:00	187.460	185.460	46.3	141.16	44.3	N	624
07/19/1955 00:00	187.460	185.460	47.8	139.66	45.8	N	624
08/16/1955 00:00	187.460	185.460	48.4	139.06	46.4	N	624
09/20/1955 00:00	187.460	185.460	45.5	141.96	43.5	N	624
10/20/1955 00:00	187.460	185.460	43.2	144.26	41.2	N	624
11/17/1955 00:00	187.460	185.460	41.7	145.76	39.7	N	624
12/14/1955 00:00	187.460	185.460	36.5	150.96	34.5	N	624
01/18/1956 00:00	187.460	185.460	33	154.46	31	N	624
02/14/1956 00:00	187.460	185.460	31.9	155.56	29.9	N	624
03/15/1956 00:00	187.460	185.460	34	153.46	32	N	624
03/22/1956 00:00	187.460	185.460	37	150.46	35	N	624
04/17/1956 00:00	187.460	185.460	34	153.46	32	N	624
05/15/1956 00:00	187.460	185.460	37.3	150.16	35.3	N	624
06/19/1956 00:00	187.460	185.460	43.9	143.56	41.9	N	624
07/17/1956 00:00	187.460	185.460	50	137.46	48	N	624
08/23/1956 00:00	187.460	185.460	43	144.46	41	N	624
09/21/1956 00:00	187.460	185.460	45.1	142.36	43.1	N	624
01/15/1958 00:00	187.460	185.460	36.3	151.16	34.3	N	624
02/17/1958 00:00	187.460	185.460	33.6	153.86	31.6	N	624

03/19/1958 00:00	187.460	185.460	31.2	156.26	29.2	N	624
04/10/1958 00:00	187.460	185.460	29.7	157.76	27.7	N	624
05/15/1958 00:00	187.460	185.460	36.3	151.16	34.3	N	624
06/16/1958 00:00	187.460	185.460	41.3	146.16	39.3	N	624
07/15/1958 00:00	187.460	185.460	49.7	137.76	47.7	N	624
08/18/1958 00:00	187.460	185.460	44.2	143.26	42.2	N	624
09/16/1958 00:00	187.460	185.460	43.1	144.36	41.1	N	624
10/21/1958 00:00	187.460	185.460	43.5	143.96	41.5	N	624
11/17/1958 00:00	187.460	185.460	38	149.46	36	N	624
12/15/1958 00:00	187.460	185.460	41.5	145.96	39.5	N	624
01/15/1959 00:00	187.460	185.460	33.3	154.16	31.3	N	624
02/17/1959 00:00	187.460	185.460	30.7	156.76	28.7	N	624
03/18/1959 00:00	187.460	185.460	38	149.46	36	N	624
04/17/1959 00:00	187.460	185.460	46.4	141.06	44.4	N	624
05/15/1959 00:00	187.460	185.460	50.2	137.26	48.2	N	624
06/15/1959 00:00	187.460	185.460	56.5	130.96	54.5	N	624
07/16/1959 00:00	187.460	185.460	61.1	126.36	59.1	N	624
08/18/1959 00:00	187.460	185.460	57.4	130.06	55.4	N	624
09/16/1959 00:00	187.460	185.460	55	132.46	53	N	624
10/14/1959 00:00	187.460	185.460	56.8	130.66	54.8	N	624
11/17/1959 00:00	187.460	185.460	47.7	139.76	45.7	N	624
12/16/1959 00:00	187.460	185.460	44.1	143.36	42.1	N	624
01/19/1960 00:00	187.460	185.460	39	148.46	37	N	624
02/16/1960 00:00	187.460	185.460	36.8	150.66	34.8	N	624
03/15/1960 00:00	187.460	185.460	35.6	151.86	33.6	N	624
04/14/1960 00:00	187.460	185.460	47.9	139.56	45.9	N	624
05/16/1960 00:00	187.460	185.460	46.8	140.66	44.8	N	624
06/09/1960 00:00	187.460	185.460	57.2	130.26	55.2	N	624
07/12/1960 00:00	187.460	185.460	64.3	123.16	62.3	N	624
08/18/1960 00:00	187.460	185.460	58	129.46	56	N	624
09/15/1960 00:00	187.460	185.460	65.1	122.36	63.1	N	624
10/15/1960 00:00	187.460	185.460	57.7	129.76	55.7	N	624
11/14/1960 00:00	187.460	185.460	51.4	136.06	49.4	N	624
12/20/1960 00:00	187.460	185.460	43.9	143.56	41.9	N	624
01/16/1961 00:00	187.460	185.460	41.8	145.66	39.8	N	624
02/20/1961 00:00	187.460	185.460	39.1	148.36	37.1	N	624
03/21/1961 00:00	187.460	185.460	38.1	149.36	36.1	N	624
04/24/1961 00:00	187.460	185.460	49.6	137.86	47.6	N	624
05/30/1961 00:00	187.460	185.460	55.8	131.66	53.8	N	624
06/30/1961 00:00	187.460	185.460	61.9	125.56	59.9	N	624
07/21/1961 00:00	187.460	185.460	65.7	121.76	63.7	N	624
08/24/1961 00:00	187.460	185.460	60.7	126.76	58.7	N	624
09/27/1961 00:00	187.460	185.460	58.5	128.96	56.5	N	624
10/31/1961 00:00	187.460	185.460	55.1	132.36	53.1	N	624

11/24/1961 00:00	187.460	185.460	52.7	134.76	50.7	N	624
12/20/1961 00:00	187.460	185.460	46.4	141.06	44.4	N	624
01/23/1962 00:00	187.460	185.460	43.6	143.86	41.6	N	624
02/20/1962 00:00	187.460	185.460	41.8	145.66	39.8	N	624
03/28/1962 00:00	187.460	185.460	40.6	146.86	38.6	N	624
05/07/1962 00:00	187.460	185.460	52.8	134.66	50.8	N	624
06/07/1962 00:00	187.460	185.460	61.4	126.06	59.4	N	624
07/09/1962 00:00	187.460	185.460	65.2	122.26	63.2	N	624
07/26/1962 00:00	187.460	185.460	66.5	120.96	64.5	N	624
08/30/1962 00:00	187.460	185.460	62.8	124.66	60.8	N	624
09/28/1962 00:00	187.460	185.460	64.3	123.16	62.3	N	624
11/13/1962 00:00	187.460	185.460	50.7	136.76	48.7	N	624
12/07/1962 00:00	187.460	185.460	47.2	140.26	45.2	N	624
01/09/1963 00:00	187.460	185.460	44.4	143.06	42.4	N	624
02/06/1963 00:00	187.460	185.460	43.2	144.26	41.2	N	624
03/05/1963 00:00	187.460	185.460	41.6	145.86	39.6	N	624
04/04/1963 00:00	187.460	185.460	42.3	145.16	40.3	N	624
05/03/1963 00:00	187.460	185.460	41.5	145.96	39.5	N	624
06/07/1963 00:00	187.460	185.460	53.2	134.26	51.2	N	624
07/09/1963 00:00	187.460	185.460	59.6	127.86	57.6	N	624
08/12/1963 00:00	187.460	185.460	59.8	127.66	57.8	N	624
10/09/1963 00:00	187.460	185.460	57.7	129.76	55.7	N	624
11/12/1963 00:00	187.460	185.460	48.5	138.96	46.5	N	624
12/06/1963 00:00	187.460	185.460	46.2	141.26	44.2	N	624
01/07/1964 00:00	187.460	185.460	44.1	143.36	42.1	N	624
02/04/1964 00:00	187.460	185.460	43.3	144.16	41.3	N	624
03/09/1964 00:00	187.460	185.460	52.4	135.06	50.4	N	624
04/10/1964 00:00	187.460	185.460	57.9	129.56	55.9	N	624
05/07/1964 00:00	187.460	185.460	60.9	126.56	58.9	N	624
06/04/1964 00:00	187.460	185.460	67.3	120.16	65.3	N	624
07/02/1964 00:00	187.460	185.460	70.6	116.86	68.6	N	624
08/07/1964 00:00	187.460	185.460	72.3	115.16	70.3	N	624
09/08/1964 00:00	187.460	185.460	69.4	118.06	67.4	N	624
10/05/1964 00:00	187.460	185.460	71.1	116.36	69.1	N	624
11/09/1964 00:00	187.460	185.460	61.5	125.96	59.5	N	624
12/04/1964 00:00	187.460	185.460	56.6	130.86	54.6	N	624
01/06/1965 00:00	187.460	185.460	52.3	135.16	50.3	N	624
02/05/1965 00:00	187.460	185.460	49.6	137.86	47.6	N	624
03/05/1965 00:00	187.460	185.460	49.4	138.06	47.4	N	624
04/08/1965 00:00	187.460	185.460	51.8	135.66	49.8	N	624
05/07/1965 00:00	187.460	185.460	54.2	133.26	52.2	N	624
06/07/1965 00:00	187.460	185.460	64.8	122.66	62.8	N	624
07/06/1965 00:00	187.460	185.460	70.5	116.96	68.5	N	624
08/06/1965 00:00	187.460	185.460	73.3	114.16	71.3	N	624

09/03/1965 00:00	187.460	185.460	68.6	118.86	66.6		N	624
10/07/1965 00:00	187.460	185.460	70.2	117.26	68.2	Q-2	N	624
11/05/1965 00:00	187.460	185.460	64.9	122.56	62.9		N	624
12/03/1965 00:00	187.460	185.460	58.4	129.06	56.4		N	624
01/05/1966 00:00	187.460	185.460	54.5	132.96	52.5		N	624
02/09/1966 00:00	187.460	185.460	51.5	135.96	49.5		N	624
03/08/1966 00:00	187.460	185.460	49.6	137.86	47.6		N	624
04/11/1966 00:00	187.460	185.460	55.1	132.36	53.1		N	624
05/09/1966 00:00	187.460	185.460	63.9	123.56	61.9		N	624
05/17/1966 00:00	187.460	185.460	65.5	121.96	63.5		N	1
06/13/1966 00:00	187.460	185.460	69.4	118.06	67.4		N	624
06/21/1966 00:00	187.460	185.460	70.7	116.76	68.7		N	1
07/11/1966 00:00	187.460	185.460	74.1	113.36	72.1		N	624
07/19/1966 00:00	187.460	185.460	74.7	112.76	72.7		N	1
08/08/1966 00:00	187.460	185.460	74.9	112.56	72.9		N	624
08/17/1966 00:00	187.460	185.460	74.4	113.06	72.4		N	1
09/12/1966 00:00	187.460	185.460	75	112.46	73		N	624
09/20/1966 00:00	187.460	185.460	74.1	113.36	72.1		N	1
10/10/1966 00:00	187.460	185.460	73.5	113.96	71.5		N	624
10/17/1966 00:00	187.460	185.460	70.8	116.66	68.8		N	1
11/07/1966 00:00	187.460	185.460	67	120.46	65		N	624
11/16/1966 00:00	187.460	185.460	65.5	121.96	63.5		N	1
12/12/1966 00:00	187.460	185.460	61	126.46	59		N	624
12/19/1966 00:00	187.460	185.460	59.7	127.76	57.7		N	1
01/10/1967 00:00	187.460	185.460	57.7	129.76	55.7		N	624
01/18/1967 00:00	187.460	185.460	57.2	130.26	55.2		N	1
02/13/1967 00:00	187.460	185.460	53.8	133.66	51.8		N	624
02/23/1967 00:00	187.460	185.460	53.3	134.16	51.3		N	1
03/13/1967 00:00	187.460	185.460	53.2	134.26	51.2		N	624
03/21/1967 00:00	187.460	185.460	52.5	134.96	50.5		N	1
04/11/1967 00:00	187.460	185.460	50.6	136.86	48.6		N	624
04/20/1967 00:00	187.460	185.460	50.3	137.16	48.3		N	1
05/15/1967 00:00	187.460	185.460	52.2	135.26	50.2		N	624
05/27/1967 00:00	187.460	185.460	54.9	132.56	52.9		N	1
06/12/1967 00:00	187.460	185.460	63.4	124.06	61.4		N	624
06/19/1967 00:00	187.460	185.460	60.4	127.06	58.4		N	1
07/17/1967 00:00	187.460	185.460	71.5	115.96	69.5		N	624
07/25/1967 00:00	187.460	185.460	70.2	117.26	68.2		N	1
08/14/1967 00:00	187.460	185.460	72.9	114.56	70.9		N	624
08/24/1967 00:00	187.460	185.460	72.1	115.36	70.1		N	1
09/11/1967 00:00	187.460	185.460	71.4	116.06	69.4		N	624
09/18/1967 00:00	187.460	185.460	71.7	115.76	69.7		N	1
10/09/1967 00:00	187.460	185.460	66.8	120.66	64.8		N	624
10/23/1967 00:00	187.460	185.460	65.2	122.26	63.2		N	1

11/20/1967 00:00	187.460	185.460	62.1	125.36	60.1	N	624
11/27/1967 00:00	187.460	185.460	61	126.46	59	N	1
12/18/1967 00:00	187.460	185.460	57.6	129.86	55.6	N	624
12/19/1967 00:00	187.460	185.460	58	129.46	56	N	1
01/16/1968 00:00	187.460	185.460	55.4	132.06	53.4	N	624
01/24/1968 00:00	187.460	185.460	54.8	132.66	52.8	N	1
02/12/1968 00:00	187.460	185.460	53.1	134.36	51.1	N	624
02/21/1968 00:00	187.460	185.460	52.4	135.06	50.4	N	1
03/07/1968 00:00	187.460	185.460	51	136.46	49	N	624
03/19/1968 00:00	187.460	185.460	49.6	137.86	47.6	N	1
04/16/1968 00:00	187.460	185.460	55.9	131.56	53.9	N	624
04/17/1968 00:00	187.460	185.460	56.6	130.86	54.6	N	1
05/15/1968 00:00	187.460	185.460	61.2	126.26	59.2	N	624
05/21/1968 00:00	187.460	185.460	62.3	125.16	60.3	N	1
06/18/1968 00:00	187.460	185.460	66.1	121.36	64.1	N	1
06/19/1968 00:00	187.460	185.460	66.8	120.66	64.8	N	624
07/22/1968 00:00	187.460	185.460	73.5	113.96	71.5	N	1
07/24/1968 00:00	187.460	185.460	73.3	114.16	71.3	N	624
08/14/1968 00:00	187.460	185.460	75.9	111.56	73.9	N	624
08/20/1968 00:00	187.460	185.460	75.7	111.76	73.7	N	1
09/16/1968 00:00	187.460	185.460	74.2	113.26	72.2	N	624
09/23/1968 00:00	187.460	185.460	73.7	113.76	71.7	N	1
10/11/1968 00:00	187.460	185.460	71.3	116.16	69.3	N	624
10/21/1968 00:00	187.460	185.460	68.4	119.06	66.4	N	1
11/13/1968 00:00	187.460	185.460	63.9	123.56	61.9	N	624
11/22/1968 00:00	187.460	185.460	62.8	124.66	60.8	N	1
12/18/1968 00:00	187.460	185.460	59.3	128.16	57.3	N	1
12/23/1968 00:00	187.460	185.460	58.9	128.56	56.9	N	624
01/15/1969 00:00	187.460	185.460	56.5	130.96	54.5	N	624
01/27/1969 00:00	187.460	185.460	54.9	132.56	52.9	N	1
02/21/1969 00:00	187.460	185.460	52.2	135.26	50.2	N	624
02/24/1969 00:00	187.460	185.460	51.4	136.06	49.4	N	1
03/19/1969 00:00	187.460	185.460	49.7	137.76	47.7	N	1
03/20/1969 00:00	187.460	185.460	49.4	138.06	47.4	N	624
04/15/1969 00:00	187.460	185.460	49.5	137.96	47.5	N	624
04/22/1969 00:00	187.460	185.460	50.6	136.86	48.6	N	1
05/15/1969 00:00	187.460	185.460	56.7	130.76	54.7	N	624
05/27/1969 00:00	187.460	185.460	59.1	128.36	57.1	N	1
06/17/1969 00:00	187.460	185.460	62.9	124.56	60.9	N	624
07/16/1969 00:00	187.460	185.460	71	116.46	69	N	624
07/22/1969 00:00	187.460	185.460	73	114.46	71	N	1
08/18/1969 00:00	187.460	185.460	75.8	111.66	73.8	N	624
08/20/1969 00:00	187.460	185.460	75.6	111.86	73.6	N	1
09/17/1969 00:00	187.460	185.460	74.6	112.86	72.6	N	624

09/22/1969 00:00	187.460	185.460	74.4	113.06	72.4	N	1
10/09/1969 00:00	187.460	185.460	71.3	116.16	69.3	N	624
10/23/1969 00:00	187.460	185.460	67.6	119.86	65.6	N	1
11/13/1969 00:00	187.460	185.460	63.8	123.66	61.8	N	624
11/19/1969 00:00	187.460	185.460	63.2	124.26	61.2	N	1
12/12/1969 00:00	187.460	185.460	61.1	126.36	59.1	N	624
12/17/1969 00:00	187.460	185.460	60.3	127.16	58.3	N	1
01/15/1970 00:00	187.460	185.460	56.1	131.36	54.1	N	624
02/17/1970 00:00	187.460	185.460	51.7	135.76	49.7	N	624
02/24/1970 00:00	187.460	185.460	50.8	136.66	48.8	N	1
03/19/1970 00:00	187.460	185.460	48.8	138.66	46.8	N	1
04/16/1970 00:00	187.460	185.460	55.6	131.86	53.6	N	624
04/23/1970 00:00	187.460	185.460	56.9	130.56	54.9	N	1
05/18/1970 00:00	187.460	185.460	58.3	129.16	56.3	N	624
05/20/1970 00:00	187.460	185.460	58.6	128.86	56.6	N	1
06/17/1970 00:00	187.460	185.460	61.7	125.76	59.7	N	624
06/23/1970 00:00	187.460	185.460	66	121.46	64	N	1
07/16/1970 00:00	187.460	185.460	68	119.46	66	N	624
07/22/1970 00:00	187.460	185.460	68.5	118.96	66.5	N	1
08/13/1970 00:00	187.460	185.460	72.6	114.86	70.6	N	624
08/25/1970 00:00	187.460	185.460	72.4	115.06	70.4	N	1
09/14/1970 00:00	187.460	185.460	73.3	114.16	71.3	N	624
09/24/1970 00:00	187.460	185.460	72.7	114.76	70.7	N	1
10/08/1970 00:00	187.460	185.460	71	116.46	69	N	624
10/26/1970 00:00	187.460	185.460	67	120.46	65	N	1
11/09/1970 00:00	187.460	185.460	64.5	122.96	62.5	N	624
11/23/1970 00:00	187.460	185.460	60.8	126.66	58.8	N	1
12/08/1970 00:00	187.460	185.460	55.5	131.96	53.5	N	624
12/22/1970 00:00	187.460	185.460	56.2	131.26	54.2	N	1
01/11/1971 00:00	187.460	185.460	53.6	133.86	51.6	N	624
01/21/1971 00:00	187.460	185.460	52.5	134.96	50.5	N	1
02/10/1971 00:00	187.460	185.460	51	136.46	49	N	624
02/23/1971 00:00	187.460	185.460	49.6	137.86	47.6	N	1
03/09/1971 00:00	187.460	185.460	53.5	133.96	51.5	N	624
03/24/1971 00:00	187.460	185.460	53.8	133.66	51.8	N	1
04/15/1971 00:00	187.460	185.460	54.8	132.66	52.8	N	624
04/27/1971 00:00	187.460	185.460	57.1	130.36	55.1	N	1
05/11/1971 00:00	187.460	185.460	55.3	132.16	53.3	N	624
05/27/1971 00:00	187.460	185.460	62	125.46	60	N	1
06/16/1971 00:00	187.460	185.460	61.4	126.06	59.4	N	624
06/24/1971 00:00	187.460	185.460	62.9	124.56	60.9	N	1
07/13/1971 00:00	187.460	185.460	69	118.46	67	N	624
07/27/1971 00:00	187.460	185.460	71.5	115.96	69.5	N	1
08/11/1971 00:00	187.460	185.460	74.4	113.06	72.4	N	624

08/26/1971 00:00	187.460	185.460	74.7	112.76	72.7		
09/14/1971 00:00	187.460	185.460	75.5	111.96	73.5	N	1
09/28/1971 00:00	187.460	185.460	74.5	112.96	72.5	N	624
10/06/1971 00:00	187.460	185.460				N	1
10/19/1971 00:00	187.460	185.460	69.5	117.96	67.5	N-7	624
11/11/1971 00:00	187.460	185.460	65	122.46	63	N	1
11/23/1971 00:00	187.460	185.460	63.8	123.66	61.8	N	624
12/16/1971 00:00	187.460	185.460	60.8	126.66	58.8	N	1
12/27/1971 00:00	187.460	185.460	58.8	128.66	56.8	N	624
01/17/1972 00:00	187.460	185.460	57.5	129.96	55.5	N	1
01/18/1972 00:00	187.460	185.460	57.5	129.96	55.5	N	1
02/15/1972 00:00	187.460	185.460	55.3	132.16	53.3	N	624
02/22/1972 00:00	187.460	185.460	54.8	132.66	52.8	N	624
03/07/1972 00:00	187.460	185.460	60.9	126.56	58.9	N	1
03/27/1972 00:00	187.460	185.460	66.4	121.06	64.4	N	624
04/18/1972 00:00	187.460	185.460	67.3	120.16	65.3	N	1
04/25/1972 00:00	187.460	185.460	72.2	115.26	70.2	N	624
05/11/1972 00:00	187.460	185.460	74.5	112.96	72.5	N	1
05/23/1972 00:00	187.460	185.460	73	114.46	71	N	624
06/21/1972 00:00	187.460	185.460	74.5	112.96	72.5	N	1
07/18/1972 00:00	187.460	185.460	78.3	109.16	76.3	N	1
07/19/1972 00:00	187.460	185.460	78.5	108.96	76.5	N	1
08/22/1972 00:00	187.460	185.460	79.5	107.96	77.5	N	624
09/19/1972 00:00	187.460	185.460	80.5	106.96	78.5	N	1
09/20/1972 00:00	187.460	185.460	80.8	106.66	78.8	N	624
10/13/1972 00:00	187.460	185.460	79.5	107.96	77.5	N	1
10/19/1972 00:00	187.460	185.460	77.1	110.36	75.1	N	624
11/20/1972 00:00	187.460	185.460	71	116.46	69	N	1
11/22/1972 00:00	187.460	185.460	70.7	116.76	68.7	N	1
12/13/1972 00:00	187.460	185.460	67.7	119.76	65.7	N	624
12/19/1972 00:00	187.460	185.460	67	120.46	65	N	624
01/16/1973 00:00	187.460	185.460	63.1	124.36	61.1	N	1
01/17/1973 00:00	187.460	185.460	63.1	124.36	61.1	N	624
02/22/1973 00:00	187.460	185.460	58.8	128.66	56.8	N	1
02/26/1973 00:00	187.460	185.460	58.2	129.26	56.2	N	1
03/14/1973 00:00	187.460	185.460	57	130.46	55	N	624
03/29/1973 00:00	187.460	185.460	54.9	132.56	52.9	N	1
04/16/1973 00:00	187.460	185.460	56.1	131.36	54.1	N	624
04/17/1973 00:00	187.460	185.460	56.1	131.36	54.1	N	624
05/15/1973 00:00	187.460	185.460	69.2	118.26	67.2	N	1
05/22/1973 00:00	187.460	185.460	67	120.46	65	N	624
06/19/1973 00:00	187.460	185.460	70.4	117.06	68.4	N	1
06/21/1973 00:00	187.460	185.460	71.8	115.66	69.8	N	1
07/18/1973 00:00	187.460	185.460	77.1	110.36	75.1	N	624
						N	624

07/23/1973 00:00	187.460	185.460	78.2	109.26	76.2	N	1
08/21/1973 00:00	187.460	185.460	81.2	106.26	79.2	N	624
08/29/1973 00:00	187.460	185.460	81.6	105.86	79.6	N	1
09/17/1973 00:00	187.460	185.460	80.3	107.16	78.3	N	624
09/27/1973 00:00	187.460	185.460	80	107.46	78	N	1
10/09/1973 00:00	187.460	185.460	77.4	110.06	75.4	N	624
10/19/1973 00:00	187.460	185.460	74.4	113.06	72.4	N	1
11/12/1973 00:00	187.460	185.460	69.4	118.06	67.4	N	624
11/27/1973 00:00	187.460	185.460	67.3	120.16	65.3	N	1
12/18/1973 00:00	187.460	185.460	64	123.46	62	N	624
12/27/1973 00:00	187.460	185.460	62.8	124.66	60.8	N	1
01/15/1974 00:00	187.460	185.460	60.6	126.86	58.6	N	624
01/29/1974 00:00	187.460	185.460	59	128.46	57	N	1
02/12/1974 00:00	187.460	185.460	57.4	130.06	55.4	N	624
02/25/1974 00:00	187.460	185.460	56.4	131.06	54.4	N	1
03/13/1974 00:00	187.460	185.460	55.2	132.26	53.2	N	624
03/25/1974 00:00	187.460	185.460	54.2	133.26	52.2	N	1
04/16/1974 00:00	187.460	185.460	54.5	132.96	52.5	N	624
04/25/1974 00:00	187.460	185.460	59	128.46	57	N	1
05/14/1974 00:00	187.460	185.460	64.9	122.56	62.9	N	624
05/22/1974 00:00	187.460	185.460	65.2	122.26	63.2	N	1
06/18/1974 00:00	187.460	185.460	69.7	117.76	67.7	N	624
06/20/1974 00:00	187.460	185.460	69.9	117.56	67.9	N	1
07/16/1974 00:00	187.460	185.460	71.1	116.36	69.1	N	624
08/11/1974 00:00	187.460	185.460	74.3	113.16	72.3	N	1
08/13/1974 00:00	187.460	185.460	75.5	111.96	73.5	N	624
09/18/1974 00:00	187.460	185.460	77.4	110.06	75.4	N	624
10/16/1974 00:00	187.460	185.460	75.5	111.96	73.5	N	624
10/25/1974 00:00	187.460	185.460	74	113.46	72	N	1
11/13/1974 00:00	187.460	185.460	69.4	118.06	67.4	N	1
11/19/1974 00:00	187.460	185.460	68.9	118.56	66.9	N	624
12/10/1974 00:00	187.460	185.460	65.6	121.86	63.6	N	624
12/18/1974 00:00	187.460	185.460	64.5	122.96	62.5	N	1
01/14/1975 00:00	187.460	185.460	61.6	125.86	59.6	N	624
01/22/1975 00:00	187.460	185.460	61	126.46	59	N	1
02/11/1975 00:00	187.460	185.460	59	128.46	57	N	624
02/19/1975 00:00	187.460	185.460	58	129.46	56	N	1
03/17/1975 00:00	187.460	185.460	56	131.46	54	N	624
03/25/1975 00:00	187.460	185.460	54.9	132.56	52.9	N	1
04/15/1975 00:00	187.460	185.460	56.5	130.96	54.5	N	624
04/22/1975 00:00	187.460	185.460	61.8	125.66	59.8	N	1
05/13/1975 00:00	187.460	185.460	65.9	121.56	63.9	N	624
05/22/1975 00:00	187.460	185.460	66.8	120.66	64.8	N	1
06/17/1975 00:00	187.460	185.460	72.1	115.36	70.1	N	624

07/03/1975 00:00	187.460	185.460	73.9	113.56	71.9	N	1
07/15/1975 00:00	187.460	185.460	75.6	111.86	73.6	N	624
08/11/1975 00:00	187.460	185.460	79.7	107.76	77.7	N	1
08/19/1975 00:00	187.460	185.460	80.4	107.06	78.4	N	624
09/15/1975 00:00	187.460	185.460	81.9	105.56	79.9	N	1
09/16/1975 00:00	187.460	185.460	81.9	105.56	79.9	N	624
10/15/1975 00:00	187.460	185.460	78.6	108.86	76.6	N	624
10/22/1975 00:00	187.460	185.460	76.4	111.06	74.4	N	1
11/13/1975 00:00	187.460	185.460	71.9	115.56	69.9	N	624
11/18/1975 00:00	187.460	185.460	71	116.46	69	N	1
12/10/1975 00:00	187.460	185.460	67.5	119.96	65.5	N	624
12/17/1975 00:00	187.460	185.460	67	120.46	65	N	1
01/20/1976 00:00	187.460	185.460	64.1	123.36	62.1	N	624
01/21/1976 00:00	187.460	185.460	64.7	122.76	62.7	N	1
02/18/1976 00:00	187.460	185.460	72	115.46	70	N	624
02/19/1976 00:00	187.460	185.460	71.8	115.66	69.8	N	1
03/08/1976 00:00	187.460	185.460	70	117.46	68	N	1
03/10/1976 00:00	187.460	185.460	70.7	116.76	68.7	N	624
04/12/1976 00:00	187.460	185.460	75.6	111.86	73.6	N	624
04/19/1976 00:00	187.460	185.460	74	113.46	72	N	1
05/17/1976 00:00	187.460	185.460	79.9	107.56	77.9	N	1
06/14/1976 00:00	187.460	185.460	82.1	105.36	80.1	N	624
06/22/1976 00:00	187.460	185.460	82.5	104.96	80.5	N	1
07/12/1976 00:00	187.460	185.460	84.8	102.66	82.8	N	624
07/19/1976 00:00	187.460	185.460	85.8	101.66	83.8	N	1
08/09/1976 00:00	187.460	185.460	86.9	100.56	84.9	N	624
08/16/1976 00:00	187.460	185.460	82	105.46	80	N	1
09/13/1976 00:00	187.460	185.460	88.8	98.66	86.8	N	624
09/20/1976 00:00	187.460	185.460	87.9	99.56	85.9	N	1
10/12/1976 00:00	187.460	185.460	88.2	99.26	86.2	N	624
10/31/1976 00:00	187.460	185.460	85.2	102.26	83.2	N	1
11/16/1976 00:00	187.460	185.460	82.8	104.66	80.8	N	624
11/24/1976 00:00	187.460	185.460	81.5	105.96	79.5	N	1
12/13/1976 00:00	187.460	185.460	82.9	104.56	80.9	N	624
12/22/1976 00:00	187.460	185.460	82.5	104.96	80.5	N	1
01/17/1977 00:00	187.460	185.460	78.7	108.76	76.7	N	624
01/26/1977 00:00	187.460	185.460	76	111.46	74	N	1
02/14/1977 00:00	187.460	185.460	75	112.46	73	N	624
02/24/1977 00:00	187.460	185.460	74.8	112.66	72.8	N	1
03/11/1977 00:00	187.460	185.460	78.8	108.66	76.8	N	1
03/14/1977 00:00	187.460	185.460	79.5	107.96	77.5	N	624
03/28/1977 00:00	187.460	185.460	77.6	109.86	75.6	N	1
04/19/1977 00:00	187.460	185.460	85.3	102.16	83.3	N	624
04/20/1977 00:00	187.460	185.460	85.5	101.96	83.5	N	1

05/17/1977 00:00	187.460	185.460	86.3	101.16	84.3	N	624
05/18/1977 00:00	187.460	185.460	86	101.46	84	N	1
06/13/1977 00:00	187.460	185.460	87.8	99.66	85.8	N	624
06/28/1977 00:00	187.460	185.460	89.8	97.66	87.8	N	1
07/11/1977 00:00	187.460	185.460	91.1	96.36	89.1	N	624
07/19/1977 00:00	187.460	185.460	92	95.46	90	N	1
08/16/1977 00:00	187.460	185.460	94	93.46	92	N	1
09/13/1977 00:00	187.460	185.460	95.1	92.36	93.1	N	624
09/20/1977 00:00	187.460	185.460	92.5	94.96	90.5	N	1
10/11/1977 00:00	187.460	185.460	93.5	93.96	91.5	N	624
10/19/1977 00:00	187.460	185.460	92	95.46	90	N	1
11/15/1977 00:00	187.460	185.460	89.1	98.36	87.1	N	1
12/13/1977 00:00	187.460	185.460	86	101.46	84	N	624
12/19/1977 00:00	187.460	185.460	85	102.46	83	N	1
01/18/1978 00:00	187.460	185.460	81.4	106.06	79.4	N	624
01/24/1978 00:00	187.460	185.460	81	106.46	79	N	1
02/13/1978 00:00	187.460	185.460	77.7	109.76	75.7	N	624
02/22/1978 00:00	187.460	185.460	77	110.46	75	N	1
03/13/1978 00:00	187.460	185.460	74.5	112.96	72.5	N	1
03/15/1978 00:00	187.460	185.460	74.6	112.86	72.6	N	624
04/18/1978 00:00	187.460	185.460	70.8	116.66	68.8	N	1
05/16/1978 00:00	187.460	185.460	73.5	113.96	71.5	N	624
05/23/1978 00:00	187.460	185.460	77	110.46	75	N	1
06/13/1978 00:00	187.460	185.460	79.5	107.96	77.5	N	624
06/19/1978 00:00	187.460	185.460	80.8	106.66	78.8	N	1
07/17/1978 00:00	187.460	185.460	85.3	102.16	83.3	N	624
07/18/1978 00:00	187.460	185.460	85.6	101.86	83.6	N	1
08/14/1978 00:00	187.460	185.460	89.5	97.96	87.5	N	624
08/22/1978 00:00	187.460	185.460	90	97.46	88	N	1
09/11/1978 00:00	187.460	185.460	91.2	96.26	89.2	N	624
09/19/1978 00:00	187.460	185.460	91.8	95.66	89.8	N	1
10/16/1978 00:00	187.460	185.460	89.5	97.96	87.5	N	624
10/23/1978 00:00	187.460	185.460	88.7	98.76	86.7	N	1
11/13/1978 00:00	187.460	185.460	85.5	101.96	83.5	N	624
11/15/1978 00:00	187.460	185.460	85	102.46	83	N	1
12/11/1978 00:00	187.460	185.460	81.5	105.96	79.5	N	624
12/18/1978 00:00	187.460	185.460	80.3	107.16	78.3	N	1
01/15/1979 00:00	187.460	185.460	77.2	110.26	75.2	N	624
01/16/1979 00:00	187.460	185.460	77.2	110.26	75.2	N	1
02/20/1979 00:00	187.460	185.460	73.5	113.96	71.5	N	624
02/21/1979 00:00	187.460	185.460	73.2	114.26	71.2	N	1
03/13/1979 00:00	187.460	185.460	71.6	115.86	69.6	N	624
03/14/1979 00:00	187.460	185.460	71.8	115.66	69.8	N	1
04/18/1979 00:00	187.460	185.460	71.5	115.96	69.5	N	1

04/24/1979 00:00	187.460	185.460	72.5	114.96	70.5		N	624
05/14/1979 00:00	187.460	185.460	73.6	113.86	71.6		N	624
06/18/1979 00:00	187.460	185.460	83.2	104.26	81.2		N	624
07/16/1979 00:00	187.460	185.460	86.5	100.96	84.5		N	624
08/13/1979 00:00	187.460	185.460	90.1	97.36	88.1		N	624
08/21/1979 00:00	187.460	185.460	90	97.46	88		N	1
09/17/1979 00:00	187.460	185.460	91.2	96.26	89.2		N	624
10/23/1979 00:00	187.460	185.460	87	100.46	85		N	1
10/26/1979 00:00	187.460	185.460	86.5	100.96	84.5		N	624
12/13/1979 00:00	187.460	185.460	78.5	108.96	76.5		N	624
02/14/1980 00:00	187.460	185.460	70	117.46	68		N	1
02/27/1980 00:00	187.460	185.460	68.7	118.76	66.7		N	624
03/17/1980 00:00	187.460	185.460	65.9	121.56	63.9	Q-6	N	1
03/18/1980 00:00	187.460	185.460	66.4	121.06	64.4		N	624
04/10/1980 00:00	187.460	185.460	69.1	118.36	67.1		N	624
04/17/1980 00:00	187.460	185.460	78	109.46	76		N	1
05/16/1980 00:00	187.460	185.460	74.6	112.86	72.6		N	624
05/20/1980 00:00	187.460	185.460	74.3	113.16	72.3		N	1
06/17/1980 00:00	187.460	185.460	76.9	110.56	74.9		N	1
06/19/1980 00:00	187.460	185.460	77.2	110.26	75.2		N	624
07/16/1980 00:00	187.460	185.460	82.2	105.26	80.2		N	1
08/19/1980 00:00	187.460	185.460	87.5	99.96	85.5		N	1
09/17/1980 00:00	187.460	185.460	85.8	101.66	83.8		N	1
10/14/1980 00:00	187.460	185.460	81.2	106.26	79.2		N	1
10/15/1980 00:00	187.460	185.460	81	106.46	79		N	624
11/13/1980 00:00	187.460	185.460	76.4	111.06	74.4		N	624
11/18/1980 00:00	187.460	185.460	75.3	112.16	73.3		N	1
12/17/1980 00:00	187.460	185.460	71	116.46	69		N	1
01/15/1981 00:00	187.460	185.460	67.4	120.06	65.4		N	624
01/20/1981 00:00	187.460	185.460	67.1	120.36	65.1		N	1
02/18/1981 00:00	187.460	185.460	64.1	123.36	62.1		N	1
03/09/1981 00:00	187.460	185.460	62.1	125.36	60.1		N	624
03/16/1981 00:00	187.460	185.460	61.8	125.66	59.8		N	1
04/16/1981 00:00	187.460	185.460	65.2	122.26	63.2		N	624
04/23/1981 00:00	187.460	185.460	65.5	121.96	63.5		N	1
05/14/1981 00:00	187.460	185.460	70.5	116.96	68.5		N	624
05/22/1981 00:00	187.460	185.460	71.3	116.16	69.3		N	1
06/19/1981 00:00	187.460	185.460	74.4	113.06	72.4		N	1
07/14/1981 00:00	187.460	185.460	80.3	107.16	78.3		N	624
07/22/1981 00:00	187.460	185.460	81.8	105.66	79.8		N	1
08/13/1981 00:00	187.460	185.460	84.2	103.26	82.2		N	624
09/10/1981 00:00	187.460	185.460	84.5	102.96	82.5		N	624
10/09/1981 00:00	187.460	185.460	79.9	107.56	77.9		N	624
11/18/1981 00:00	187.460	185.460	72.1	115.36	70.1		N	624

01/21/1982 00:00	187.460	185.460	61.7	125.76	59.7	N	624
02/18/1982 00:00	187.460	185.460	58.9	128.56	56.9	N	1
03/23/1982 00:00	187.460	185.460	55.5	131.96	53.5	N	624
04/22/1982 00:00	187.460	185.460	52.9	134.56	50.9	N	1
05/20/1982 00:00	187.460	185.460	57.2	130.26	55.2	N	624
06/24/1982 00:00	187.460	185.460	64	123.46	62	N	1
07/15/1982 00:00	187.460	185.460	64	123.46	62	N	624
08/19/1982 00:00	187.460	185.460	69.9	117.56	67.9	N	1
09/16/1982 00:00	187.460	185.460	67	120.46	65	N	624
10/07/1982 00:00	187.460	185.460	63.3	124.16	61.3	N	624
10/12/1982 00:00	187.460	185.460	62.4	125.06	60.4	N	1
12/15/1982 00:00	187.460	185.460	53	134.46	51	N	1
01/20/1983 00:00	187.460	185.460	48.5	138.96	46.5	N	1
02/15/1983 00:00	187.460	185.460	44.3	143.16	42.3	N	624
03/30/1983 00:00	187.460	185.460	40.8	146.66	38.8	N	624
04/27/1983 00:00	187.460	185.460	39	148.46	37	N	1
05/19/1983 00:00	187.460	185.460	38.1	149.36	36.1	N	624
07/21/1983 00:00	187.460	185.460	41.4	146.06	39.4	N	624
08/08/1983 00:00	187.460	185.460	41.2	146.26	39.2	N	1
09/13/1983 00:00	187.460	185.460	39.4	148.06	37.4	N	1
09/16/1983 00:00	187.460	185.460	39.3	148.16	37.3	N	624
10/12/1983 00:00	187.460	185.460	36.4	151.06	34.4	N	624
11/14/1983 00:00	187.460	185.460	34.1	153.36	32.1	N	1
12/21/1983 00:00	187.460	185.460	30.5	156.96	28.5	N	624
01/17/1984 00:00	187.460	185.460	28.6	158.86	26.6	N	1
02/16/1984 00:00	187.460	185.460	26.9	160.56	24.9	N	624
03/14/1984 00:00	187.460	185.460	25.9	161.56	23.9	N	624
03/15/1984 00:00	187.460	185.460	25.9	161.56	23.9	N	624
04/25/1984 00:00	187.460	185.460	28.6	158.86	26.6	N	1
05/16/1984 00:00	187.460	185.460	30.4	157.06	28.4	N	624
07/17/1984 00:00	187.460	185.460	38.9	148.56	36.9	N	624
09/19/1984 00:00	187.460	185.460	33.7	153.76	31.7	N	624
10/10/1984 00:00	187.460	185.460	28.9	158.56	26.9	N	624
11/28/1984 00:00	187.460	185.460	31.1	156.36	29.1	N	1
12/12/1984 00:00	187.460	185.460	25.7	161.76	23.7	N	624
01/15/1985 00:00	187.460	185.460	24.5	162.96	22.5	N	1
02/20/1985 00:00	187.460	185.460	23.1	164.36	21.1	N	624
03/07/1985 00:00	187.460	185.460	27.2	160.26	25.2	N	624
04/16/1985 00:00	187.460	185.460	27.8	159.66	25.8	N	1
05/16/1985 00:00	187.460	185.460	31.8	155.66	29.8	N	624
06/05/1985 00:00	187.460	185.460	30.9	156.56	28.9	N	1
07/17/1985 00:00	187.460	185.460	36.7	150.76	34.7	N	624
08/27/1985 00:00	187.460	185.460	34.5	152.96	32.5	N	1
09/25/1985 00:00	187.460	185.460	30.4	157.06	28.4	N	624

11/14/1985 00:00	187.460	185.460	29	158.46	27	N	1
12/19/1985 00:00	187.460	185.460	25.9	161.56	23.9	N	624
01/21/1986 00:00	187.460	185.460	24.4	163.06	22.4	N	1
02/13/1986 00:00	187.460	185.460	23	164.46	21	N	624
03/12/1986 00:00	187.460	185.460	21.5	165.96	19.5	N	624
04/21/1986 00:00	187.460	185.460	22.2	165.26	20.2	N	1
05/07/1986 00:00	187.460	185.460	23.9	163.56	21.9	N	624
06/16/1986 00:00	187.460	185.460	32	155.46	30	N	1
07/17/1986 00:00	187.460	185.460	35.3	152.16	33.3	N	624
08/21/1986 00:00	187.460	185.460	33.6	153.86	31.6	N	1
09/11/1986 00:00	187.460	185.460	33.9	153.56	31.9	N	624
10/07/1986 00:00	187.460	185.460	28.1	159.36	26.1	N	624
11/20/1986 00:00	187.460	185.460	27.2	160.26	25.2	N	624
12/16/1986 00:00	187.460	185.460	24.5	162.96	22.5	N	1
01/15/1987 00:00	187.460	185.460	23.9	163.56	21.9	N	1
02/13/1987 00:00	187.460	185.460	23	164.46	21	N	1
03/09/1987 00:00	187.460	185.460	22.7	164.76	20.7	N	624
04/15/1987 00:00	187.460	185.460	26	161.46	24	N	1
05/13/1987 00:00	187.460	185.460	31.1	156.36	29.1	N	624
06/16/1987 00:00	187.460	185.460	32.6	154.86	30.6	N	1
07/07/1987 00:00	187.460	185.460	34.6	152.86	32.6	N	624
08/14/1987 00:00	187.460	185.460	32.7	154.76	30.7	N	1
09/24/1987 00:00	187.460	185.460	32.6	154.86	30.6	N	624
11/05/1987 00:00	187.460	185.460	27.4	160.06	25.4	N	624
12/17/1987 00:00	187.460	185.460	24.4	163.06	22.4	N	1
01/12/1988 00:00	187.460	185.460	23.6	163.86	21.6	N	624
02/16/1988 00:00	187.460	185.460	22.1	165.36	20.1	N	1
03/07/1988 00:00	187.460	185.460	22.1	165.36	20.1	N	624
04/14/1988 00:00	187.460	185.460	27.6	159.86	25.6	N	1
05/12/1988 00:00	187.460	185.460	27.4	160.06	25.4	N	624
06/16/1988 00:00	187.460	185.460	31.1	156.36	29.1	N	1
07/08/1988 00:00	187.460	185.460	34.8	152.66	32.8	N	624
08/18/1988 00:00	187.460	185.460	35.9	151.56	33.9	N	1
09/28/1988 00:00	187.460	185.460	33.1	154.36	31.1	N	624
11/30/1988 00:00	187.460	185.460	26.2	161.26	24.2	N	624
12/15/1988 00:00	187.460	185.460	25.4	162.06	23.4	N	1
01/18/1989 00:00	187.460	185.460				N-7	624
02/15/1989 00:00	187.460	185.460	24	163.46	22	N	1
03/15/1989 00:00	187.460	185.460	25.2	162.26	23.2	N	624
04/14/1989 00:00	187.460	185.460	27.6	159.86	25.6	N	1
05/08/1989 00:00	187.460	185.460	29.8	157.66	27.8	N	624
06/14/1989 00:00	187.460	185.460	33.6	153.86	31.6	N	1
07/05/1989 00:00	187.460	185.460	36.3	151.16	34.3	N	624
08/16/1989 00:00	187.460	185.460	38.3	149.16	36.3	N	1

09/14/1989 00:00	187.460	185.460	35.2	152.26	33.2	N	624
10/16/1989 00:00	187.460	185.460	23.6	163.86	21.6	N	1
11/30/1989 00:00	187.460	185.460	26.9	160.56	24.9	N	624
12/18/1989 00:00	187.460	185.460	26.2	161.26	24.2	N	1
01/18/1990 00:00	187.460	185.460	25.6	161.86	23.6	N	624
02/14/1990 00:00	187.460	185.460	38.1	149.36	36.1	N	624
02/15/1990 00:00	187.460	185.460	25.2	162.26	23.2	N	1
03/11/1990 00:00	187.460	185.460	38	149.46	36	N	624
03/14/1990 00:00	187.460	185.460	25.1	162.36	23.1	N	624
04/12/1990 00:00	187.460	185.460	37.7	149.76	35.7	N	1
05/15/1990 00:00	187.460	185.460	52.5	134.96	50.5	N	624
06/11/1990 00:00	187.460	185.460	49.8	137.66	47.8	N	624
07/16/1990 00:00	187.460	185.460	61	126.46	59	N	624
08/14/1990 00:00	187.460	185.460	58.8	128.66	56.8	N	624
09/12/1990 00:00	187.460	185.460	52.8	134.66	50.8	N	624
10/17/1990 00:00	187.460	185.460	46.3	141.16	44.3	N	624
11/15/1990 00:00	187.460	185.460	42.5	144.96	40.5	N	624
12/13/1990 00:00	187.460	185.460	39.3	148.16	37.3	N	624
03/15/1991 00:00	187.460	185.460	36.7	150.76	34.7	N	624
04/01/1991 00:00	187.460	185.460	35.8	151.66	33.8	N	624
04/15/1991 00:00	187.460	185.460	36.1	151.36	34.1	N	624
06/17/1991 00:00	187.460	185.460	59.2	128.26	57.2	N	624
08/15/1991 00:00	187.460	185.460	70.9	116.56	68.9	N	624
10/01/1991 00:00	187.460	185.460	66.8	120.66	64.8	N	624
12/16/1991 00:00	187.460	185.460	52.8	134.66	50.8	N	624
02/14/1992 00:00	187.460	185.460	45.8	141.66	43.8	N	624
03/02/1992 00:00	187.460	185.460	42.4	145.06	40.4	N	624
03/19/1992 00:00	187.460	185.460	42	145.46	40	N	624
04/14/1992 00:00	187.460	185.460	41.4	146.06	39.4	N	1
05/12/1992 00:00	187.460	185.460	52.5	134.96	50.5	N	1
06/15/1992 00:00	187.460	185.460	53.7	133.76	51.7	N	1
09/15/1992 00:00	187.460	185.460	69.3	118.16	67.3	N	1
10/06/1992 00:00	187.460	185.460	71.1	116.36	69.1	N	1
11/16/1992 00:00	187.460	185.460	67.7	119.76	65.7	N	624
12/14/1992 00:00	187.460	185.460	59.2	128.26	57.2	N	624
01/19/1993 00:00	187.460	185.460	55	132.46	53	N	624
02/16/1993 00:00	187.460	185.460	50.3	137.16	48.3	N	624
03/16/1993 00:00	187.460	185.460	46.3	141.16	44.3	N	1
04/15/1993 00:00	187.460	185.460	44.6	142.86	42.6	N	1
05/20/1993 00:00	187.460	185.460	57.1	130.36	55.1	N	1
06/15/1993 00:00	187.460	185.460	52.1	135.36	50.1	N	1
07/09/1993 00:00	187.460	185.460	69.8	117.66	67.8	N	624
08/16/1993 00:00	187.460	185.460	57.4	130.06	55.4	N	1
09/14/1993 00:00	187.460	185.460	55.6	131.86	53.6	N	624

10/05/1993 00:00	187.460	185.460	52.9	134.56	50.9		N	1
11/19/1993 00:00	187.460	185.460	53.2	134.26	51.2		N	624
12/16/1993 00:00	187.460	185.460	43.8	143.66	41.8		N	624
01/13/1994 00:00	187.460	185.460	42.2	145.26	40.2		N	1
02/14/1994 00:00	187.460	185.460	38.6	148.86	36.6		N	624
03/15/1994 00:00	187.460	185.460	38.1	149.36	36.1		N	1
04/12/1994 00:00	187.460	185.460	46.5	140.96	44.5		N	624
05/19/1994 00:00	187.460	185.460	54.3	133.16	52.3		N	624
06/16/1994 00:00	187.460	185.460	63.8	123.66	61.8		N	624
07/15/1994 00:00	187.460	185.460	74.1	113.36	72.1		N	1
08/15/1994 00:00	187.460	185.460	79	108.46	77	Q-2	N	1
09/15/1994 00:00	187.460	185.460	76.1	111.36	74.1		N	1
10/18/1994 00:00	187.460	185.460	69.3	118.16	67.3		N	1
03/07/1995 00:00	187.460	185.460	47.4	140.06	45.4		N	1
03/31/1995 00:00	187.460	185.460	44.6	142.86	42.6		N	1
04/16/1995 00:00	187.460	185.460	42.8	144.66	40.8		N	1
07/26/1995 00:00	187.460	185.460	56.3	131.16	54.3		N	1
10/03/1995 00:00	187.460	185.460	50.8	136.66	48.8		N	1
01/17/1996 00:00	187.460	185.460	39.7	147.76	37.7		N	1
03/27/1996 00:00	187.460	185.460	34.1	153.36	32.1		N	1
07/22/1996 00:00	187.460	185.460	53.6	133.86	51.6		N	1
10/08/1996 00:00	187.460	185.460	46.2	141.26	44.2		N	1
01/15/1997 00:00	187.460	185.460	34.9	152.56	32.9		N	1
03/04/1997 00:00	187.460	185.460	31.7	155.76	29.7		N	1
07/15/1997 00:00	187.460	185.460	53.2	134.26	51.2		N	1
10/07/1997 00:00	187.460	185.460	46.7	140.76	44.7		N	1
01/13/1998 00:00	187.460	185.460	27.5	159.96	25.5		N	1
03/11/1998 00:00	187.460	185.460	31.8	155.66	29.8		N	1
06/01/1998 00:00	187.460	185.460	29.8	157.66	27.8		N	1
10/08/1998 00:00	187.460	185.460	38.9	148.56	36.9		N	1
03/16/1999 00:00	187.460	185.460				N-2	N	1
08/05/1999 00:00	187.460	185.460	56.3	131.16	54.3		N	1
10/04/1999 00:00	187.460	185.460	48.6	138.86	46.6		N	1
03/23/2000 00:00	187.460	185.460	32.7	154.76	30.7		N	1
10/04/2000 00:00	187.460	185.460	52	135.46	50		N	1
03/20/2001 00:00	187.460	185.460	36	151.46	34		N	1
07/19/2001 00:00	187.460	185.460	68.8	118.66	66.8		N	1
08/01/2001 00:00	187.460	185.460	69.8	117.66	67.8		N	1
08/16/2001 00:00	187.460	185.460	69.2	118.26	67.2		N	1
09/04/2001 00:00	187.460	185.460	68.2	119.26	66.2		N	1
10/09/2001 00:00	187.460	185.460	62.8	124.66	60.8		N	1
11/09/2001 00:00	187.460	185.460	58.5	128.96	56.5		N	1
12/13/2001 00:00	187.460	185.460	51.2	136.26	49.2		N	1
02/05/2002 00:00	187.460	185.460	44.6	142.86	42.6		N	1

02/28/2002 00:00	187.460	185.460	43.2	144.26	41.2	N	1
03/19/2002 00:00	187.460	185.460	43.5	143.96	41.5	N	1
04/26/2002 00:00	187.460	185.460	51.2	136.26	49.2	N	1
05/15/2002 00:00	187.460	185.460	57	130.46	55	N	1
06/27/2002 00:00	187.460	185.460	64.1	123.36	62.1	N	1
08/19/2002 00:00	187.460	185.460	68.7	118.76	66.7	N	1
09/17/2002 00:00	187.460	185.460	65.4	122.06	63.4	N	1
10/16/2002 00:00	187.460	185.460	61.3	126.16	59.3	N	1
11/20/2002 00:00	187.460	185.460	56	131.46	54	N	1
02/18/2003 00:00	187.460	185.460	45.7	141.76	43.7	N	1
03/13/2003 00:00	187.460	185.460	43.5	143.96	41.5	N	1
04/09/2003 00:00	187.460	185.460	41.9	145.56	39.9	N	1
05/28/2003 00:00	187.460	185.460	47.3	140.16	45.3	N	1
06/19/2003 00:00	187.460	185.460	55.2	132.26	53.2	N	1
07/30/2003 00:00	187.460	185.460	63.6	123.86	61.6	N	1
09/22/2003 00:00	187.460	185.460	60.9	126.56	58.9	N	1
10/21/2003 00:00	187.460	185.460	55.9	131.56	53.9	N	1
11/25/2003 00:00	187.460	185.460	54	133.46	52	N	1
12/16/2003 00:00	187.460	185.460	52	135.46	50	N	1
02/10/2004 00:00	187.460	185.460	44.9	142.56	42.9	N	1
04/01/2004 00:00	187.460	185.460	41.4	146.06	39.4	N	1
04/26/2004 00:00	187.460	185.460	47.2	140.26	45.2	N	1
05/21/2004 00:00	187.460	185.460	52.2	135.26	50.2	N	1
06/21/2004 00:00	187.460	185.460	60.9	126.56	58.9	N	1
07/27/2004 00:00	187.460	185.460	65.3	122.16	63.3	N	1
08/24/2004 00:00	187.460	185.460	66.8	120.66	64.8	N	1
09/21/2004 00:00	187.460	185.460	63.4	124.06	61.4	N	1
10/19/2004 00:00	187.460	185.460	57.9	129.56	55.9	N	1
11/22/2004 00:00	187.460	185.460	53	134.46	51	N	1
03/31/2005 00:00	187.460	185.460	41.6	145.86	39.6	N	1
04/29/2005 00:00	187.460	185.460	41.2	146.26	39.2	N	1
05/25/2005 00:00	187.460	185.460	42.9	144.56	40.9	N	1
06/24/2005 00:00	187.460	185.460	50.6	136.86	48.6	N	1
07/27/2005 00:00	187.460	185.460	57.2	130.26	55.2	N	1
08/24/2005 00:00	187.460	185.460	58.6	128.86	56.6	N	1
09/30/2005 00:00	187.460	185.460	53.5	133.96	51.5	N	1
10/19/2005 00:00	187.460	185.460	50.9	136.56	48.9	N	1
03/28/2006 00:00	187.460	185.460	39	148.46	37	N	1
05/18/2006 00:00	187.460	185.460	39.9	147.56	37.9	N	1
08/02/2006 00:00	187.460	185.460	53.1	134.36	51.1	N	1
10/10/2006 00:00	187.460	185.460	48.8	138.66	46.8	N	1
01/23/2007 00:00	187.460	185.460	38.87	148.59	36.87	N	1
03/19/2007 00:00	187.460	185.460	41.06	146.4	39.06	N	1
08/06/2007 00:00	187.460	185.460	70.3	117.16	68.3	N	1

10/16/2007 00:00	187.460	185.460	56.54	130.92	54.54	N	1
01/16/2008 00:00	187.460	185.460	52.38	135.08	50.38	N	1
03/10/2008 00:00	187.460	185.460	46.8	140.66	44.8	N	1
08/04/2008 00:00	187.460	185.460			N-0	N	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W005

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDL tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.

**Station Data**
Recent Groundwater Level Data
Historical Groundwater Level Data

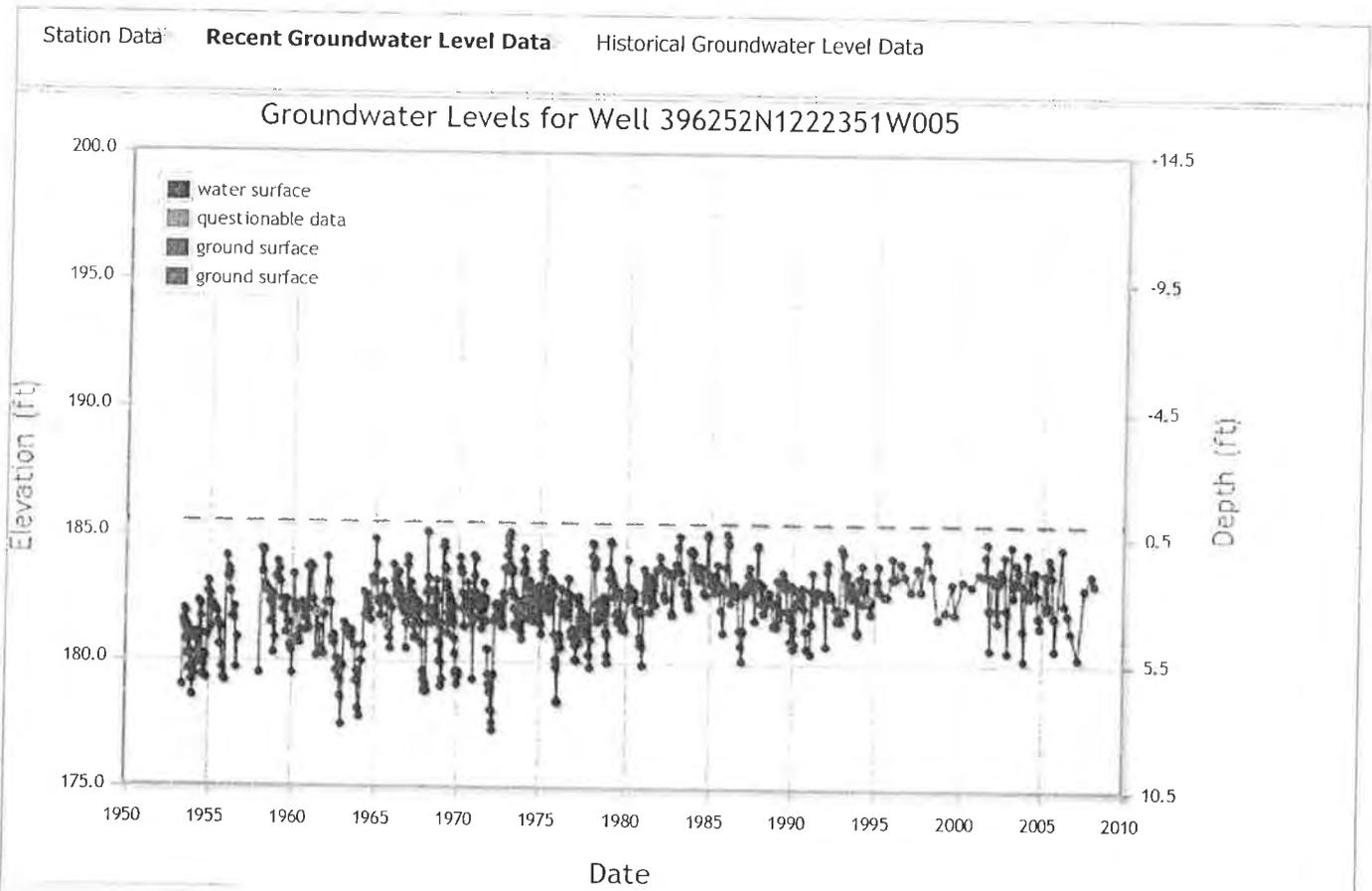
<p><b>State Well Number:</b> 21N03W31R006M</p> <p><b>Local Well ID:</b></p> <p><b>Site Code:</b> 396252N1222351W005</p> <p><b>Latitude (NAD83):</b> 39.625200</p> <p><b>Longitude (NAD83):</b> -122.2351</p> <p><b>Groundwater Basin (code):</b> ()</p>	<p><b>Well Use:</b></p> <p><b>Well Status:</b> Inactive</p> <p><b>Well Completion Report Number:</b></p> <p><b>Reference Point Elevation (NAVD88 ft):</b> 187.060</p> <p><b>Ground Surface Elevation (NAVD88 ft):</b> 185.460</p> <p><b>Total Depth (ft):</b> 75</p> <p><b>Perforated Interval Depths (ft):</b> 69.000 75.000</p>
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[Perform a New Well Search](#)

## Groundwater Levels for Station 396252N1222351W005

Data for your selected well is shown in the tabbed interface below. To view data managed in the updated WDI tables, including data collected under the CASGEM program, click the "Recent Groundwater Level Data" tab. To view data stored in the former WDL tables, click the "Historical Groundwater Level Data" tab. To download the data in CSV format, click the "Download CSV File" button on the respective tab. Please note that the vertical datum for "recent" measurements is NAVD88, while the vertical datum for "historical" measurements is NGVD29. To change your well selection criteria, click the "Perform a New Well Search" button.



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Date	RPE	GSE	RPWS	WSE	GS to ...	Msmt Code	CASGEM Msmt	Agency
05/29/1953 00:00	187.060	185.460	8.1	178.96	6.5	N		624
06/18/1953 00:00	187.060	185.460	5.5	181.56	3.9	N		624
06/19/1953 00:00	187.060	185.460	5.6	181.46	4	N		624
07/03/1953 00:00	187.060	185.460	5.6	181.46	4	N		624
07/10/1953 00:00	187.060	185.460	5.8	181.26	4.2	N		624
07/16/1953 00:00	187.060	185.460	5.1	181.96	3.5	N		624
07/24/1953 00:00	187.060	185.460	5.2	181.86	3.6	N		624
08/07/1953 00:00	187.060	185.460	6.3	180.76	4.7	N		624
08/17/1953 00:00	187.060	185.460	5.7	181.36	4.1	N		624

09/03/1953 00:00	187.060	185.460	5.8	181.26	4.2	N	624
09/11/1953 00:00	187.060	185.460	6.9	180.16	5.3	N	624
09/21/1953 00:00	187.060	185.460	6.2	180.86	4.6	N	624
10/09/1953 00:00	187.060	185.460	6.1	180.96	4.5	N	624
10/27/1953 00:00	187.060	185.460	7.5	179.56	5.9	N	624
11/13/1953 00:00	187.060	185.460	7.4	179.66	5.8	N	624
11/16/1953 00:00	187.060	185.460	6	181.06	4.4	N	624
11/25/1953 00:00	187.060	185.460	6.8	180.26	5.2	N	624
12/14/1953 00:00	187.060	185.460	7.9	179.16	6.3	N	624
01/04/1954 00:00	187.060	185.460	8.5	178.56	6.9	N	624
01/21/1954 00:00	187.060	185.460	7.3	179.76	5.7	N	624
01/26/1954 00:00	187.060	185.460	7.3	179.76	5.7	N	624
02/15/1954 00:00	187.060	185.460	7.7	179.36	6.1	N	624
03/22/1954 00:00	187.060	185.460	6.3	180.76	4.7	N	624
04/20/1954 00:00	187.060	185.460	6	181.06	4.4	N	624
05/24/1954 00:00	187.060	185.460	7.2	179.86	5.6	N	624
05/28/1954 00:00	187.060	185.460	4.8	182.26	3.2	N	624
06/21/1954 00:00	187.060	185.460	6	181.06	4.4	N	624
07/07/1954 00:00	187.060	185.460	4.9	182.16	3.3	N	624
07/19/1954 00:00	187.060	185.460	5.4	181.66	3.8	N	624
08/19/1954 00:00	187.060	185.460	7.7	179.36	6.1	N	624
09/21/1954 00:00	187.060	185.460	6.9	180.16	5.3	N	624
10/29/1954 00:00	187.060	185.460	7.8	179.26	6.2	N	624
11/24/1954 00:00	187.060	185.460	6.1	180.96	4.5	N	624
12/06/1954 00:00	187.060	185.460	4.4	182.66	2.8	N	624
12/16/1954 00:00	187.060	185.460	4	183.06	2.4	N	624
01/25/1955 00:00	187.060	185.460	4.5	182.56	2.9	N	624
02/17/1955 00:00	187.060	185.460	5.8	181.26	4.2	N	624
03/21/1955 00:00	187.060	185.460	4.9	182.16	3.3	N	624
04/19/1955 00:00	187.060	185.460	5.1	181.96	3.5	N	624
05/19/1955 00:00	187.060	185.460	5.1	181.96	3.5	N	624
06/15/1955 00:00	187.060	185.460	5.2	181.86	3.6	N	624
07/19/1955 00:00	187.060	185.460	5.6	181.46	4	N	624
08/16/1955 00:00	187.060	185.460	6.5	180.56	4.9	N	624
09/20/1955 00:00	187.060	185.460	5.8	181.26	4.2	N	624
10/20/1955 00:00	187.060	185.460	7.4	179.66	5.8	N	624
11/17/1955 00:00	187.060	185.460	7.8	179.26	6.2	N	624
12/14/1955 00:00	187.060	185.460	7.9	179.16	6.3	N	624
01/18/1956 00:00	187.060	185.460	3	184.06	1.4	N	624
02/14/1956 00:00	187.060	185.460	3.8	183.26	2.2	N	624
03/15/1956 00:00	187.060	185.460	3.5	183.56	1.9	N	624
03/22/1956 00:00	187.060	185.460	3.7	183.36	2.1	N	624
04/17/1956 00:00	187.060	185.460	4.4	182.66	2.8	N	624
05/15/1956 00:00	187.060	185.460	5.4	181.66	3.8	N	624

06/19/1956 00:00	187.060	185.460	5.4	181.66	3.8	N	624
07/17/1956 00:00	187.060	185.460	5	182.06	3.4	N	624
08/23/1956 00:00	187.060	185.460	7.4	179.66	5.8	N	624
09/21/1956 00:00	187.060	185.460	6.2	180.86	4.6	N	624
01/15/1958 00:00	187.060	185.460	7.6	179.46	6	N	624
02/17/1958 00:00	187.060	185.460	2.7	184.36	1.1	N	624
03/19/1958 00:00	187.060	185.460	3.6	183.46	2	N	624
04/10/1958 00:00	187.060	185.460	2.7	184.36	1.1	N	624
05/15/1958 00:00	187.060	185.460	4.1	182.96	2.5	N	624
06/16/1958 00:00	187.060	185.460	4.4	182.66	2.8	N	624
07/15/1958 00:00	187.060	185.460	4.3	182.76	2.7	N	624
08/18/1958 00:00	187.060	185.460	4.8	182.26	3.2	N	624
09/16/1958 00:00	187.060	185.460	5.6	181.46	4	N	624
10/21/1958 00:00	187.060	185.460	4.5	182.56	2.9	N	624
11/17/1958 00:00	187.060	185.460	6.8	180.26	5.2	N	624
12/15/1958 00:00	187.060	185.460	6.2	180.86	4.6	N	624
01/15/1959 00:00	187.060	185.460	3.8	183.26	2.2	N	624
02/17/1959 00:00	187.060	185.460	3.2	183.86	1.6	N	624
03/18/1959 00:00	187.060	185.460	3.5	183.56	1.9	N	624
04/17/1959 00:00	187.060	185.460	4	183.06	2.4	N	624
05/15/1959 00:00	187.060	185.460	4.7	182.36	3.1	N	624
06/15/1959 00:00	187.060	185.460	5.1	181.96	3.5	N	624
07/16/1959 00:00	187.060	185.460	4.7	182.36	3.1	N	624
08/18/1959 00:00	187.060	185.460	6	181.06	4.4	N	624
09/16/1959 00:00	187.060	185.460	4.7	182.36	3.1	N	624
10/14/1959 00:00	187.060	185.460	5.6	181.46	4	N	624
11/17/1959 00:00	187.060	185.460	6.5	180.56	4.9	N	624
12/16/1959 00:00	187.060	185.460	6.7	180.36	5.1	N	624
01/19/1960 00:00	187.060	185.460	7.6	179.46	6	N	624
02/16/1960 00:00	187.060	185.460	3.7	183.36	2.1	N	624
03/15/1960 00:00	187.060	185.460	4.9	182.16	3.3	N	624
04/14/1960 00:00	187.060	185.460	5.1	181.96	3.5	N	624
05/16/1960 00:00	187.060	185.460	6.2	180.86	4.6	N	624
06/09/1960 00:00	187.060	185.460	6.4	180.66	4.8	N	624
07/12/1960 00:00	187.060	185.460	5.9	181.16	4.3	N	624
08/18/1960 00:00	187.060	185.460	4.8	182.26	3.2	N	624
09/15/1960 00:00	187.060	185.460	4.9	182.16	3.3	N	624
10/15/1960 00:00	187.060	185.460	5.4	181.66	3.8	N	624
11/14/1960 00:00	187.060	185.460	5.9	181.16	4.3	N	624
12/20/1960 00:00	187.060	185.460	3.4	183.66	1.8	N	624
01/16/1961 00:00	187.060	185.460	5.8	181.26	4.2	N	624
02/20/1961 00:00	187.060	185.460	3.3	183.76	1.7	N	624
03/21/1961 00:00	187.060	185.460	3.4	183.66	1.8	N	624
04/24/1961 00:00	187.060	185.460	4.7	182.36	3.1	N	624

05/30/1961 00:00	187.060	185.460	5.1	181.96	3.5		N	624
06/30/1961 00:00	187.060	185.460	6.9	180.16	5.3		N	624
07/21/1961 00:00	187.060	185.460	5.2	181.86	3.6	Q-6	N	624
08/24/1961 00:00	187.060	185.460	5.8	181.26	4.2		N	624
09/27/1961 00:00	187.060	185.460	6.6	180.46	5		N	624
10/31/1961 00:00	187.060	185.460	6.8	180.26	5.2		N	624
11/24/1961 00:00	187.060	185.460	6.8	180.26	5.2		N	624
12/20/1961 00:00	187.060	185.460	5.3	181.76	3.7		N	624
01/23/1962 00:00	187.060	185.460	4.8	182.26	3.2		N	624
02/20/1962 00:00	187.060	185.460	3	184.06	1.4		N	624
03/28/1962 00:00	187.060	185.460	4	183.06	2.4		N	624
05/07/1962 00:00	187.060	185.460	4.8	182.26	3.2		N	624
06/07/1962 00:00	187.060	185.460	6.2	180.86	4.6		N	624
07/09/1962 00:00	187.060	185.460	6.4	180.66	4.8		N	624
07/26/1962 00:00	187.060	185.460	6.1	180.96	4.5		N	624
08/30/1962 00:00	187.060	185.460	7.5	179.56	5.9		N	624
09/28/1962 00:00	187.060	185.460	7	180.06	5.4		N	624
11/13/1962 00:00	187.060	185.460	7.8	179.26	6.2		N	624
12/07/1962 00:00	187.060	185.460	8.5	178.56	6.9		N	624
01/09/1963 00:00	187.060	185.460	9.6	177.46	8		N	624
02/06/1963 00:00	187.060	185.460	7.3	179.76	5.7		N	624
03/05/1963 00:00	187.060	185.460	5.6	181.46	4		N	624
04/04/1963 00:00	187.060	185.460	5.9	181.16	4.3		N	624
05/03/1963 00:00	187.060	185.460	5.8	181.26	4.2		N	624
06/07/1963 00:00	187.060	185.460	6	181.06	4.4		N	624
07/09/1963 00:00	187.060	185.460	6.2	180.86	4.6		N	624
08/12/1963 00:00	187.060	185.460	5.9	181.16	4.3		N	624
10/09/1963 00:00	187.060	185.460	6.5	180.56	4.9		N	624
11/12/1963 00:00	187.060	185.460	7.9	179.16	6.3		N	624
12/06/1963 00:00	187.060	185.460	7.5	179.56	5.9		N	624
01/07/1964 00:00	187.060	185.460	9	178.06	7.4		N	624
02/04/1964 00:00	187.060	185.460	9.3	177.76	7.7		N	624
03/09/1964 00:00	187.060	185.460	7.1	179.96	5.5		N	624
04/10/1964 00:00	187.060	185.460	6.5	180.56	4.9		N	624
05/07/1964 00:00	187.060	185.460	4.4	182.66	2.8		N	624
06/04/1964 00:00	187.060	185.460	5.3	181.76	3.7		N	624
07/02/1964 00:00	187.060	185.460	4.5	182.56	2.9		N	624
08/07/1964 00:00	187.060	185.460	4.9	182.16	3.3		N	624
09/08/1964 00:00	187.060	185.460	5.1	181.96	3.5		N	624
10/05/1964 00:00	187.060	185.460	5.5	181.56	3.9		N	624
11/09/1964 00:00	187.060	185.460	3.8	183.26	2.2		N	624
12/04/1964 00:00	187.060	185.460	4	183.06	2.4		N	624
01/06/1965 00:00	187.060	185.460	2.3	184.76	0.7		N	624
02/05/1965 00:00	187.060	185.460	3.3	183.76	1.7		N	624

03/05/1965 00:00	187.060	185.460	4.7	182.36	3.1	N	624
04/08/1965 00:00	187.060	185.460	4.8	182.26	3.2	N	624
05/02/1965 00:00	187.060	185.460	5.3	181.76	3.7	N	624
05/07/1965 00:00	187.060	185.460	5.3	181.76	3.7	N	624
06/07/1965 00:00	187.060	185.460	4.6	182.46	3	N	624
07/06/1965 00:00	187.060	185.460	4	183.06	2.4	N	624
08/06/1965 00:00	187.060	185.460	4.7	182.36	3.1	N	624
09/03/1965 00:00	187.060	185.460	4.6	182.46	3	N	624
10/07/1965 00:00	187.060	185.460	5.7	181.36	4.1	N	624
11/05/1965 00:00	187.060	185.460	6.2	180.86	4.6	N	624
12/03/1965 00:00	187.060	185.460	6.6	180.46	5	N	624
01/05/1966 00:00	187.060	185.460	5	182.06	3.4	N	624
02/09/1966 00:00	187.060	185.460	3.3	183.76	1.7	N	624
03/08/1966 00:00	187.060	185.460	3.9	183.16	2.3	N	624
04/11/1966 00:00	187.060	185.460	4	183.06	2.4	N	624
04/27/1966 00:00	187.060	185.460	4.5	182.56	2.9	N	1
05/09/1966 00:00	187.060	185.460	4.2	182.86	2.6	N	624
05/17/1966 00:00	187.060	185.460	4.1	182.96	2.5	N	1
06/13/1966 00:00	187.060	185.460	3.6	183.46	2	N	624
06/21/1966 00:00	187.060	185.460	4.2	182.86	2.6	N	1
07/11/1966 00:00	187.060	185.460	4.7	182.36	3.1	N	624
07/19/1966 00:00	187.060	185.460	4.5	182.56	2.9	N	1
08/08/1966 00:00	187.060	185.460	4.9	182.16	3.3	N	624
08/17/1966 00:00	187.060	185.460	5	182.06	3.4	N	1
09/12/1966 00:00	187.060	185.460	4.8	182.26	3.2	N	624
09/20/1966 00:00	187.060	185.460	5	182.06	3.4	N	1
10/10/1966 00:00	187.060	185.460	5.2	181.86	3.6	N	624
10/17/1966 00:00	187.060	185.460	5.1	181.96	3.5	N	1
11/07/1966 00:00	187.060	185.460	5.6	181.46	4	N	624
11/16/1966 00:00	187.060	185.460	6.6	180.46	5	N	1
12/12/1966 00:00	187.060	185.460	3.3	183.76	1.7	N	624
12/19/1966 00:00	187.060	185.460	3	184.06	1.4	N	1
01/10/1967 00:00	187.060	185.460	4.8	182.26	3.2	N	624
01/18/1967 00:00	187.060	185.460	5.3	181.76	3.7	N	1
02/13/1967 00:00	187.060	185.460	4.5	182.56	2.9	N	624
02/23/1967 00:00	187.060	185.460	4	183.06	2.4	N	1
03/13/1967 00:00	187.060	185.460	4.5	182.56	2.9	N	624
03/21/1967 00:00	187.060	185.460	4.4	182.66	2.8	N	1
04/11/1967 00:00	187.060	185.460	5.2	181.86	3.6	N	624
04/20/1967 00:00	187.060	185.460	5.7	181.36	4.1	N	1
05/15/1967 00:00	187.060	185.460	6.2	180.86	4.6	N	624
05/22/1967 00:00	187.060	185.460	6.1	180.96	4.5	N	1
06/12/1967 00:00	187.060	185.460	5.4	181.66	3.8	N	624
06/19/1967 00:00	187.060	185.460	4.7	182.36	3.1	N	1

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07/17/1967 00:00	187.060	185.460	5	182.06	3.4	N	624
07/25/1967 00:00	187.060	185.460	4.8	182.26	3.2	N	1
08/14/1967 00:00	187.060	185.460	4.8	182.26	3.2	N	624
08/24/1967 00:00	187.060	185.460	5.6	181.46	4	N	1
09/11/1967 00:00	187.060	185.460	4.9	182.16	3.3	N	624
09/18/1967 00:00	187.060	185.460	5	182.06	3.4	N	1
10/09/1967 00:00	187.060	185.460	5.6	181.46	4	N	624
10/23/1967 00:00	187.060	185.460	6.4	180.66	4.8	N	1
11/20/1967 00:00	187.060	185.460	7.5	179.56	5.9	N	624
11/29/1967 00:00	187.060	185.460	7.8	179.26	6.2	N	1
12/18/1967 00:00	187.060	185.460	8.2	178.86	6.6	N	624
12/19/1967 00:00	187.060	185.460	8.3	178.76	6.7	N	1
01/16/1968 00:00	187.060	185.460	8	179.06	6.4	N	624
01/24/1968 00:00	187.060	185.460	8.2	178.86	6.6	N	1
02/12/1968 00:00	187.060	185.460	4.4	182.66	2.8	N	624
02/21/1968 00:00	187.060	185.460	2	185.06	0.4	N	1
03/07/1968 00:00	187.060	185.460	3.8	183.26	2.2	N	624
03/19/1968 00:00	187.060	185.460	4.3	182.76	2.7	N	1
04/16/1968 00:00	187.060	185.460	5.2	181.86	3.6	N	624
04/17/1968 00:00	187.060	185.460	5.2	181.86	3.6	N	1
05/15/1968 00:00	187.060	185.460	5.2	181.86	3.6	N	624
05/21/1968 00:00	187.060	185.460	5.6	181.46	4	N	1
06/18/1968 00:00	187.060	185.460	5	182.06	3.4	N	1
06/19/1968 00:00	187.060	185.460	5.2	181.86	3.6	N	624
07/22/1968 00:00	187.060	185.460	5	182.06	3.4	N	1
07/24/1968 00:00	187.060	185.460	5.1	181.96	3.5	N	624
08/14/1968 00:00	187.060	185.460	4.3	182.76	2.7	N	624
08/20/1968 00:00	187.060	185.460	4.4	182.66	2.8	N	1
09/16/1968 00:00	187.060	185.460	3.9	183.16	2.3	N	624
09/23/1968 00:00	187.060	185.460	4.7	182.36	3.1	N	1
10/11/1968 00:00	187.060	185.460	5.6	181.46	4	N	624
10/21/1968 00:00	187.060	185.460	6.3	180.76	4.7	N	1
11/13/1968 00:00	187.060	185.460	7.1	179.96	5.5	N	624
11/22/1968 00:00	187.060	185.460	7.1	179.96	5.5	N	1
12/18/1968 00:00	187.060	185.460	5.6	181.46	4	N	1
12/23/1968 00:00	187.060	185.460	8.1	178.96	6.5	N	624
01/15/1969 00:00	187.060	185.460	7.8	179.26	6.2	N	624
01/27/1969 00:00	187.060	185.460	2.6	184.46	1	N	1
02/21/1969 00:00	187.060	185.460	2.6	184.46	1	N	624
02/24/1969 00:00	187.060	185.460	2.4	184.66	0.8	N	1
03/19/1969 00:00	187.060	185.460	3.4	183.66	1.8	N	1
03/20/1969 00:00	187.060	185.460	3.4	183.66	1.8	N	624
04/15/1969 00:00	187.060	185.460	4.2	182.86	2.6	N	624
04/22/1969 00:00	187.060	185.460	4	183.06	2.4	N	1

05/15/1969 00:00	187.060	185.460	6	181.06	4.4	N	624
05/27/1969 00:00	187.060	185.460	5.2	181.86	3.6	N	1
06/17/1969 00:00	187.060	185.460	5.5	181.56	3.9	N	624
06/25/1969 00:00	187.060	185.460	4.5	182.56	2.9	N	1
07/16/1969 00:00	187.060	185.460	4.7	182.36	3.1	N	624
07/22/1969 00:00	187.060	185.460	4.9	182.16	3.3	N	1
08/18/1969 00:00	187.060	185.460	4.9	182.16	3.3	N	624
08/20/1969 00:00	187.060	185.460	5.3	181.76	3.7	N	1
09/17/1969 00:00	187.060	185.460	4.9	182.16	3.3	N	624
09/22/1969 00:00	187.060	185.460	5.6	181.46	4	N	1
10/09/1969 00:00	187.060	185.460	6.2	180.86	4.6	N	624
10/23/1969 00:00	187.060	185.460	6.8	180.26	5.2	N	1
11/13/1969 00:00	187.060	185.460	7.5	179.56	5.9	N	624
11/19/1969 00:00	187.060	185.460	7.6	179.46	6	N	1
12/12/1969 00:00	187.060	185.460	8	179.06	6.4	N	624
12/17/1969 00:00	187.060	185.460	7.7	179.36	6.1	N	1
01/15/1970 00:00	187.060	185.460	7.5	179.56	5.9	N	624
01/18/1970 00:00	187.060	185.460				N-2	1
02/17/1970 00:00	187.060	185.460	3	184.06	1.4	N	624
02/24/1970 00:00	187.060	185.460	3.4	183.66	1.8	N	1
03/19/1970 00:00	187.060	185.460	3.6	183.46	2	N	1
04/16/1970 00:00	187.060	185.460	4.4	182.66	2.8	N	624
04/23/1970 00:00	187.060	185.460	5	182.06	3.4	N	1
05/18/1970 00:00	187.060	185.460	5.7	181.36	4.1	N	624
05/20/1970 00:00	187.060	185.460	5.7	181.36	4.1	N	1
06/17/1970 00:00	187.060	185.460	4.8	182.26	3.2	N	624
06/23/1970 00:00	187.060	185.460	4.6	182.46	3	N	1
07/16/1970 00:00	187.060	185.460	4.9	182.16	3.3	N	624
07/22/1970 00:00	187.060	185.460	4.6	182.46	3	N	1
08/13/1970 00:00	187.060	185.460	4	183.06	2.4	N	624
08/25/1970 00:00	187.060	185.460	4.9	182.16	3.3	N	1
09/14/1970 00:00	187.060	185.460	4.4	182.66	2.8	N	624
09/24/1970 00:00	187.060	185.460	4.9	182.16	3.3	N	1
10/08/1970 00:00	187.060	185.460				N-7	624
10/26/1970 00:00	187.060	185.460	5.3	181.76	3.7	N	1
11/09/1970 00:00	187.060	185.460	4.4	182.66	2.8	N	624
11/23/1970 00:00	187.060	185.460	5.6	181.46	4	N	1
12/08/1970 00:00	187.060	185.460	7.8	179.26	6.2	N	624
12/22/1970 00:00	187.060	185.460	2.9	184.16	1.3	N	1
01/11/1971 00:00	187.060	185.460	3.7	183.36	2.1	N	624
01/21/1971 00:00	187.060	185.460	3	184.06	1.4	N	1
02/10/1971 00:00	187.060	185.460	4.4	182.66	2.8	N	624
02/23/1971 00:00	187.060	185.460	4.8	182.26	3.2	N	1
03/09/1971 00:00	187.060	185.460	4.4	182.66	2.8	N	624

03/24/1971 00:00	187.060	185.460	4.9	182.16	3.3	N	1
04/15/1971 00:00	187.060	185.460	5.3	181.76	3.7	N	624
04/27/1971 00:00	187.060	185.460	4.9	182.16	3.3	N	1
05/11/1971 00:00	187.060	185.460	5.4	181.66	3.8	N	624
05/27/1971 00:00	187.060	185.460	4.9	182.16	3.3	N	1
06/16/1971 00:00	187.060	185.460	5.8	181.26	4.2	N	624
06/24/1971 00:00	187.060	185.460	4.9	182.16	3.3	N	1
07/13/1971 00:00	187.060	185.460	4.7	182.36	3.1	N	624
07/27/1971 00:00	187.060	185.460	4.8	182.26	3.2	N	1
08/11/1971 00:00	187.060	185.460	4	183.06	2.4	N	624
08/26/1971 00:00	187.060	185.460	4.6	182.46	3	N	1
09/14/1971 00:00	187.060	185.460	4.6	182.46	3	N	624
09/28/1971 00:00	187.060	185.460	5.5	181.56	3.9	N	1
10/06/1971 00:00	187.060	185.460				N-7	624
10/19/1971 00:00	187.060	185.460	6.6	180.46	5	N	1
11/11/1971 00:00	187.060	185.460	7.6	179.46	6	N	624
11/23/1971 00:00	187.060	185.460	8	179.06	6.4	N	1
12/16/1971 00:00	187.060	185.460	8.3	178.76	6.7	N	624
12/27/1971 00:00	187.060	185.460	8	179.06	6.4	N	1
01/17/1972 00:00	187.060	185.460	9	178.06	7.4	N	1
01/18/1972 00:00	187.060	185.460	9	178.06	7.4	N	624
02/15/1972 00:00	187.060	185.460	9.5	177.56	7.9	N	624
02/22/1972 00:00	187.060	185.460	9.8	177.26	8.2	N	1
03/07/1972 00:00	187.060	185.460	7.6	179.46	6	N	624
03/27/1972 00:00	187.060	185.460	5.5	181.56	3.9	N	1
04/18/1972 00:00	187.060	185.460	5.3	181.76	3.7	N	624
04/25/1972 00:00	187.060	185.460	4.9	182.16	3.3	N	1
05/11/1972 00:00	187.060	185.460	4.9	182.16	3.3	N	624
05/23/1972 00:00	187.060	185.460	4.8	182.26	3.2	N	1
06/21/1972 00:00	187.060	185.460	5.5	181.56	3.9	N	1
07/18/1972 00:00	187.060	185.460	5	182.06	3.4	N	1
07/19/1972 00:00	187.060	185.460	4.9	182.16	3.3	N	624
08/22/1972 00:00	187.060	185.460	5.3	181.76	3.7	N	1
09/19/1972 00:00	187.060	185.460	5.6	181.46	4	N	624
09/20/1972 00:00	187.060	185.460	5.7	181.36	4.1	N	1
10/13/1972 00:00	187.060	185.460	4.4	182.66	2.8	N	624
10/19/1972 00:00	187.060	185.460	4.7	182.36	3.1	N	1
11/20/1972 00:00	187.060	185.460	3.4	183.66	1.8	N	1
11/22/1972 00:00	187.060	185.460	3.4	183.66	1.8	N	624
12/12/1972 00:00	187.060	185.460	3.4	183.66	1.8	N	624
12/19/1972 00:00	187.060	185.460	2.9	184.16	1.3	N	1
01/16/1973 00:00	187.060	185.460	2.2	184.86	0.6	N	624
01/17/1973 00:00	187.060	185.460	2.5	184.56	0.9	N	1
02/22/1973 00:00	187.060	185.460	3.3	183.76	1.7	N	1

02/26/1973 00:00	187.060	185.460	2	185.06	0.4	N	624
03/14/1973 00:00	187.060	185.460	3.4	183.66	1.8	N	1
03/29/1973 00:00	187.060	185.460	3.6	183.46	2	N	624
04/16/1973 00:00	187.060	185.460	4.3	182.76	2.7	N	624
04/17/1973 00:00	187.060	185.460	3.4	183.66	1.8	N	1
05/15/1973 00:00	187.060	185.460	4.5	182.56	2.9	N	624
05/22/1973 00:00	187.060	185.460	5	182.06	3.4	N	1
06/19/1973 00:00	187.060	185.460	5.6	181.46	4	N	1
06/21/1973 00:00	187.060	185.460	5.7	181.36	4.1	N	624
07/18/1973 00:00	187.060	185.460	5.7	181.36	4.1	N	624
07/23/1973 00:00	187.060	185.460	5.6	181.46	4	N	1
08/21/1973 00:00	187.060	185.460	5.7	181.36	4.1	N	624
08/29/1973 00:00	187.060	185.460	5.5	181.56	3.9	N	1
09/17/1973 00:00	187.060	185.460	5.4	181.66	3.8	N	624
09/27/1973 00:00	187.060	185.460	4.7	182.36	3.1	N	1
10/09/1973 00:00	187.060	185.460	5.3	181.76	3.7	N	624
10/19/1973 00:00	187.060	185.460	5.9	181.16	4.3	N	1
11/12/1973 00:00	187.060	185.460	6.2	180.86	4.6	N	624
11/27/1973 00:00	187.060	185.460	5.3	181.76	3.7	N	1
12/18/1973 00:00	187.060	185.460	3.6	183.46	2	N	624
12/27/1973 00:00	187.060	185.460	3.1	183.96	1.5	N	1
01/15/1974 00:00	187.060	185.460	2.6	184.46	1	N	624
01/29/1974 00:00	187.060	185.460	3.4	183.66	1.8	N	1
02/12/1974 00:00	187.060	185.460	4.1	182.96	2.5	N	624
02/25/1974 00:00	187.060	185.460	4.6	182.46	3	N	1
03/13/1974 00:00	187.060	185.460	4.9	182.16	3.3	N	624
03/25/1974 00:00	187.060	185.460	5	182.06	3.4	N	1
04/16/1974 00:00	187.060	185.460	5.4	181.66	3.8	N	624
04/25/1974 00:00	187.060	185.460	5	182.06	3.4	N	1
05/14/1974 00:00	187.060	185.460	3.9	183.16	2.3	N	624
05/22/1974 00:00	187.060	185.460	4.4	182.66	2.8	N	1
06/18/1974 00:00	187.060	185.460	4.3	182.76	2.7	N	624
06/20/1974 00:00	187.060	185.460	4.2	182.86	2.6	N	1
07/16/1974 00:00	187.060	185.460	4.9	182.16	3.3	N	624
08/11/1974 00:00	187.060	185.460	5.5	181.56	3.9	N	1
08/13/1974 00:00	187.060	185.460	5.3	181.76	3.7	N	624
09/18/1974 00:00	187.060	185.460	4.7	182.36	3.1	N	624
10/16/1974 00:00	187.060	185.460	4.4	182.66	2.8	N	624
10/25/1974 00:00	187.060	185.460	4.8	182.26	3.2	N	1
11/13/1974 00:00	187.060	185.460	4.8	182.26	3.2	N	1
11/19/1974 00:00	187.060	185.460	5.2	181.86	3.6	N	624
12/10/1974 00:00	187.060	185.460	4.1	182.96	2.5	N	624
12/18/1974 00:00	187.060	185.460	4.8	182.26	3.2	N	1
01/14/1975 00:00	187.060	185.460	5.6	181.46	4	N	624

01/22/1975 00:00	187.060	185.460	6	181.06	4.4	N	1
02/11/1975 00:00	187.060	185.460	3.1	183.96	1.5	N	624
02/19/1975 00:00	187.060	185.460	3.4	183.66	1.8	N	1
03/17/1975 00:00	187.060	185.460	3.4	183.66	1.8	N	624
03/25/1975 00:00	187.060	185.460	2.8	184.26	1.2	N	1
04/15/1975 00:00	187.060	185.460	4.6	182.46	3	N	624
04/22/1975 00:00	187.060	185.460	4.2	182.86	2.6	N	1
05/13/1975 00:00	187.060	185.460	4.3	182.76	2.7	N	624
05/22/1975 00:00	187.060	185.460	5	182.06	3.4	N	1
06/17/1975 00:00	187.060	185.460	4.7	182.36	3.1	N	624
07/03/1975 00:00	187.060	185.460	4.7	182.36	3.1	N	1
07/15/1975 00:00	187.060	185.460	5.1	181.96	3.5	N	624
08/11/1975 00:00	187.060	185.460	4.4	182.66	2.8	N	1
08/19/1975 00:00	187.060	185.460	3.8	183.26	2.2	N	624
09/15/1975 00:00	187.060	185.460	4.1	182.96	2.5	N	1
09/16/1975 00:00	187.060	185.460	3.9	183.16	2.3	N	624
10/15/1975 00:00	187.060	185.460	4	183.06	2.4	N	624
10/22/1975 00:00	187.060	185.460	4.5	182.56	2.9	N	1
11/13/1975 00:00	187.060	185.460	6	181.06	4.4	N	624
11/18/1975 00:00	187.060	185.460	6	181.06	4.4	N	1
12/10/1975 00:00	187.060	185.460	7	180.06	5.4	N	624
12/17/1975 00:00	187.060	185.460	7.3	179.76	5.7	N	1
01/20/1976 00:00	187.060	185.460	8.6	178.46	7	N	624
01/21/1976 00:00	187.060	185.460	8.7	178.36	7.1	N	1
02/18/1976 00:00	187.060	185.460	6.2	180.86	4.6	N	624
02/19/1976 00:00	187.060	185.460	6.4	180.66	4.8	N	1
03/08/1976 00:00	187.060	185.460	6.5	180.56	4.9	N	1
03/10/1976 00:00	187.060	185.460	6	181.06	4.4	N	624
04/12/1976 00:00	187.060	185.460	4.2	182.86	2.6	N	624
04/19/1976 00:00	187.060	185.460	4.8	182.26	3.2	N	1
05/17/1976 00:00	187.060	185.460	5.2	181.86	3.6	N	1
06/14/1976 00:00	187.060	185.460	5.1	181.96	3.5	N	624
06/22/1976 00:00	187.060	185.460	5.2	181.86	3.6	N	1
07/12/1976 00:00	187.060	185.460	5.2	181.86	3.6	N	624
07/19/1976 00:00	187.060	185.460	5	182.06	3.4	N	1
08/09/1976 00:00	187.060	185.460	4.8	182.26	3.2	N	624
08/16/1976 00:00	187.060	185.460	4.8	182.26	3.2	N	1
09/13/1976 00:00	187.060	185.460	3.8	183.26	2.2	N	624
09/20/1976 00:00	187.060	185.460	4.4	182.66	2.8	N	1
10/12/1976 00:00	187.060	185.460	4.5	182.56	2.9	N	624
10/31/1976 00:00	187.060	185.460	4.5	182.56	2.9	N	1
11/16/1976 00:00	187.060	185.460	5.9	181.16	4.3	N	624
11/24/1976 00:00	187.060	185.460	6.1	180.96	4.5	N	1
12/13/1976 00:00	187.060	185.460	5.8	181.26	4.2	N	624

12/22/1976 00:00	187.060	185.460	6	181.06	4.4	N	1
01/17/1977 00:00	187.060	185.460	5.8	181.26	4.2	N	624
01/26/1977 00:00	187.060	185.460	6.4	180.66	4.8	N	1
02/14/1977 00:00	187.060	185.460	7	180.06	5.4	N	624
02/24/1977 00:00	187.060	185.460	7	180.06	5.4	N	1
03/11/1977 00:00	187.060	185.460	6.2	180.86	4.6	N	1
03/14/1977 00:00	187.060	185.460	6.2	180.86	4.6	N	624
03/28/1977 00:00	187.060	185.460	6.2	180.86	4.6	N	1
04/19/1977 00:00	187.060	185.460	4.8	182.26	3.2	N	624
04/20/1977 00:00	187.060	185.460	4.5	182.56	2.9	N	1
05/17/1977 00:00	187.060	185.460	5.3	181.76	3.7	N	624
05/18/1977 00:00	187.060	185.460	5.5	181.56	3.9	N	1
06/13/1977 00:00	187.060	185.460	5.1	181.96	3.5	N	624
06/28/1977 00:00	187.060	185.460	5.5	181.56	3.9	N	1
07/11/1977 00:00	187.060	185.460	5.4	181.66	3.8	N	624
07/19/1977 00:00	187.060	185.460	5.8	181.26	4.2	N	1
08/16/1977 00:00	187.060	185.460	5.2	181.86	3.6	N	1
09/13/1977 00:00	187.060	185.460	5.7	181.36	4.1	N	624
09/20/1977 00:00	187.060	185.460	6	181.06	4.4	N	1
10/11/1977 00:00	187.060	185.460	5.3	181.76	3.7	N	624
10/19/1977 00:00	187.060	185.460	5.6	181.46	4	N	1
11/15/1977 00:00	187.060	185.460	6.8	180.26	5.2	N	1
12/13/1977 00:00	187.060	185.460	7.3	179.76	5.7	N	624
12/19/1977 00:00	187.060	185.460	6.2	180.86	4.6	N	1
01/18/1978 00:00	187.060	185.460	2.4	184.66	0.8	N	624
01/24/1978 00:00	187.060	185.460	2.9	184.16	1.3	N	1
02/13/1978 00:00	187.060	185.460	2.4	184.66	0.8	N	624
02/22/1978 00:00	187.060	185.460	3.3	183.76	1.7	N	1
03/13/1978 00:00	187.060	185.460	3	184.06	1.4	N	1
03/15/1978 00:00	187.060	185.460	3.2	183.86	1.6	N	624
04/18/1978 00:00	187.060	185.460	4.8	182.26	3.2	N	1
05/16/1978 00:00	187.060	185.460	5.5	181.56	3.9	N	624
05/23/1978 00:00	187.060	185.460	5.2	181.86	3.6	N	1
06/13/1978 00:00	187.060	185.460	5.4	181.66	3.8	N	624
06/19/1978 00:00	187.060	185.460	5.2	181.86	3.6	N	1
07/17/1978 00:00	187.060	185.460	4.8	182.26	3.2	N	624
07/18/1978 00:00	187.060	185.460	5	182.06	3.4	N	1
08/14/1978 00:00	187.060	185.460	4.8	182.26	3.2	N	624
08/22/1978 00:00	187.060	185.460	4.6	182.46	3	N	1
09/11/1978 00:00	187.060	185.460	4.7	182.36	3.1	N	624
09/19/1978 00:00	187.060	185.460	4.7	182.36	3.1	N	1
10/16/1978 00:00	187.060	185.460	4.5	182.56	2.9	N	624
10/23/1978 00:00	187.060	185.460	5	182.06	3.4	N	1
11/13/1978 00:00	187.060	185.460	5.9	181.16	4.3	N	624

11/15/1978 00:00	187.060	185.460	6	181.06	4.4	N	1
12/11/1978 00:00	187.060	185.460	6.8	180.26	5.2	N	624
12/19/1978 00:00	187.060	185.460	7.1	179.96	5.5	N	1
01/15/1979 00:00	187.060	185.460	3.8	183.26	2.2	N	624
01/16/1979 00:00	187.060	185.460	3.4	183.66	1.8	N	1
02/20/1979 00:00	187.060	185.460	2.3	184.76	0.7	N	624
02/21/1979 00:00	187.060	185.460	2.4	184.66	0.8	N	1
03/13/1979 00:00	187.060	185.460	3.6	183.46	2	N	624
03/14/1979 00:00	187.060	185.460	3.8	183.26	2.2	N	1
04/18/1979 00:00	187.060	185.460	4	183.06	2.4	N	1
04/24/1979 00:00	187.060	185.460	4.5	182.56	2.9	N	624
05/14/1979 00:00	187.060	185.460	4.1	182.96	2.5	N	624
06/18/1979 00:00	187.060	185.460	5.2	181.86	3.6	N	624
07/16/1979 00:00	187.060	185.460	5.5	181.56	3.9	N	624
08/13/1979 00:00	187.060	185.460	5.1	181.96	3.5	N	624
08/21/1979 00:00	187.060	185.460	5.5	181.56	3.9	N	1
09/17/1979 00:00	187.060	185.460	4.3	182.76	2.7	N	624
10/23/1979 00:00	187.060	185.460	5.8	181.26	4.2	N	1
10/26/1979 00:00	187.060	185.460	5.6	181.46	4	N	624
12/13/1979 00:00	187.060	185.460	5.8	181.26	4.2	N	624
02/14/1980 00:00	187.060	185.460	4.6	182.46	3	N	1
02/27/1980 00:00	187.060	185.460	3	184.06	1.4	N	624
03/17/1980 00:00	187.060	185.460	4.6	182.46	3	N	1
03/18/1980 00:00	187.060	185.460	4.1	182.96	2.5	N	624
04/10/1980 00:00	187.060	185.460	4.3	182.76	2.7	N	624
04/17/1980 00:00	187.060	185.460	4.4	182.66	2.8	N	1
05/16/1980 00:00	187.060	185.460	4.5	182.56	2.9	N	624
05/20/1980 00:00	187.060	185.460	4.5	182.56	2.9	N	1
06/17/1980 00:00	187.060	185.460	4.4	182.66	2.8	N	1
06/19/1980 00:00	187.060	185.460	4.3	182.76	2.7	N	624
07/16/1980 00:00	187.060	185.460	4.3	182.76	2.7	N	1
08/19/1980 00:00	187.060	185.460	5	182.06	3.4	N	1
09/17/1980 00:00	187.060	185.460	5.2	181.86	3.6	N	1
10/14/1980 00:00	187.060	185.460	5	182.06	3.4	N	1
10/15/1980 00:00	187.060	185.460	5	182.06	3.4	N	624
11/13/1980 00:00	187.060	185.460	6.1	180.96	4.5	N	624
11/18/1980 00:00	187.060	185.460	6.4	180.66	4.8	N	1
12/17/1980 00:00	187.060	185.460	6.4	180.66	4.8	N	1
01/15/1981 00:00	187.060	185.460	7.2	179.86	5.6	N	624
02/18/1981 00:00	187.060	185.460	3.4	183.66	1.8	N	1
03/09/1981 00:00	187.060	185.460	4.3	182.76	2.7	N	624
03/16/1981 00:00	187.060	185.460	4.6	182.46	3	N	1
04/16/1981 00:00	187.060	185.460	3.7	183.36	2.1	N	624
04/23/1981 00:00	187.060	185.460	4	183.06	2.4	N	1

05/14/1981 00:00	187.060	185.460	4.1	182.96	2.5	N	624
05/22/1981 00:00	187.060	185.460	4.4	182.66	2.8	N	1
06/19/1981 00:00	187.060	185.460	5.1	181.96	3.5	N	1
07/14/1981 00:00	187.060	185.460	4.5	182.56	2.9	N	624
07/22/1981 00:00	187.060	185.460	4.1	182.96	2.5	N	1
08/13/1981 00:00	187.060	185.460	3.7	183.36	2.1	N	624
09/10/1981 00:00	187.060	185.460	4	183.06	2.4	N	624
10/09/1981 00:00	187.060	185.460	4.8	182.26	3.2	N	624
11/18/1981 00:00	187.060	185.460	3.4	183.66	1.8	N	624
01/21/1982 00:00	187.060	185.460	2.9	184.16	1.3	N	624
02/18/1982 00:00	187.060	185.460	3.3	183.76	1.7	N	1
03/23/1982 00:00	187.060	185.460	3.4	183.66	1.8	N	624
04/22/1982 00:00	187.060	185.460	4.4	182.66	2.8	N	1
05/20/1982 00:00	187.060	185.460	4.6	182.46	3	N	624
06/24/1982 00:00	187.060	185.460	3.5	183.56	1.9	N	1
07/15/1982 00:00	187.060	185.460	3.5	183.56	1.9	N	624
08/19/1982 00:00	187.060	185.460	3.5	183.56	1.9	N	1
09/16/1982 00:00	187.060	185.460	3.6	183.46	2	N	624
10/07/1982 00:00	187.060	185.460	5.1	181.96	3.5	N	624
10/12/1982 00:00	187.060	185.460	5.2	181.86	3.6	N	1
12/15/1982 00:00	187.060	185.460	3.5	183.56	1.9	N	1
01/20/1983 00:00	187.060	185.460	3.2	183.86	1.6	N	1
02/15/1983 00:00	187.060	185.460	2.5	184.56	0.9	N	624
03/30/1983 00:00	187.060	185.460	2.1	184.96	0.5	N	624
04/27/1983 00:00	187.060	185.460	3.5	183.56	1.9	N	1
05/19/1983 00:00	187.060	185.460	3.9	183.16	2.3	N	624
07/21/1983 00:00	187.060	185.460	4.3	182.76	2.7	N	624
08/08/1983 00:00	187.060	185.460	4.4	182.66	2.8	N	1
09/16/1983 00:00	187.060	185.460	4.3	182.76	2.7	N	624
09/17/1983 00:00	187.060	185.460	4.7	182.36	3.1	N	1
10/11/1983 00:00	187.060	185.460	4.9	182.16	3.3	N	624
10/12/1983 00:00	187.060	185.460	4.9	182.16	3.3	N	624
11/14/1983 00:00	187.060	185.460	2.7	184.36	1.1	N	1
12/21/1983 00:00	187.060	185.460	2.6	184.46	1	N	624
01/17/1984 00:00	187.060	185.460	2.7	184.36	1.1	N	1
02/16/1984 00:00	187.060	185.460	3.2	183.86	1.6	N	624
03/14/1984 00:00	187.060	185.460	3.4	183.66	1.8	N	624
03/15/1984 00:00	187.060	185.460	3.4	183.66	1.8	N	624
04/24/1984 00:00	187.060	185.460	3.6	183.46	2	N	1
05/16/1984 00:00	187.060	185.460	3.8	183.26	2.2	N	624
07/17/1984 00:00	187.060	185.460	3.3	183.76	1.7	N	624
09/19/1984 00:00	187.060	185.460	4.3	182.76	2.7	N	624
10/10/1984 00:00	187.060	185.460	4.4	182.66	2.8	N	624
11/28/1984 00:00	187.060	185.460	2.1	184.96	0.5	N	1

12/12/1984 00:00	187.060	185.460	2	185.06	0.4	N	624
01/15/1985 00:00	187.060	185.460	3.6	183.46	2	N	1
02/20/1985 00:00	187.060	185.460	4	183.06	2.4	N	624
03/07/1985 00:00	187.060	185.460	3.8	183.26	2.2	N	624
04/16/1985 00:00	187.060	185.460	3.7	183.36	2.1	N	1
05/16/1985 00:00	187.060	185.460	4.3	182.76	2.7	N	624
06/05/1985 00:00	187.060	185.460	3.6	183.46	2	N	1
07/17/1985 00:00	187.060	185.460	3.2	183.86	1.6	N	624
08/27/1985 00:00	187.060	185.460	4	183.06	2.4	N	1
09/25/1985 00:00	187.060	185.460	5	182.06	3.4	N	624
11/14/1985 00:00	187.060	185.460	5.9	181.16	4.3	N	1
12/19/1985 00:00	187.060	185.460	4.2	182.86	2.6	N	624
01/21/1986 00:00	187.060	185.460	3.3	183.76	1.7	N	1
02/13/1986 00:00	187.060	185.460	2	185.06	0.4	N	624
03/10/1986 00:00	187.060	185.460	2.4	184.66	0.8	N	1
03/12/1986 00:00	187.060	185.460	2.3	184.76	0.7	N	624
04/21/1986 00:00	187.060	185.460	4.3	182.76	2.7	N	1
05/07/1986 00:00	187.060	185.460	4.7	182.36	3.1	N	624
06/16/1986 00:00	187.060	185.460	4	183.06	2.4	N	1
07/17/1986 00:00	187.060	185.460	4.2	182.86	2.6	N	624
08/21/1986 00:00	187.060	185.460	4	183.06	2.4	N	1
09/11/1986 00:00	187.060	185.460	4.4	182.66	2.8	N	624
10/07/1986 00:00	187.060	185.460	4.3	182.76	2.7	N	624
11/20/1986 00:00	187.060	185.460	5.8	181.26	4.2	N	624
12/16/1986 00:00	187.060	185.460	6.4	180.66	4.8	N	1
01/15/1987 00:00	187.060	185.460	7	180.06	5.4	N	1
02/13/1987 00:00	187.060	185.460	5.8	181.26	4.2	N	1
03/09/1987 00:00	187.060	185.460	4.2	182.86	2.6	N	624
04/15/1987 00:00	187.060	185.460	4.3	182.76	2.7	N	1
05/13/1987 00:00	187.060	185.460	4	183.06	2.4	N	624
06/16/1987 00:00	187.060	185.460	3.6	183.46	2	N	1
07/07/1987 00:00	187.060	185.460	3.3	183.76	1.7	N	624
08/14/1987 00:00	187.060	185.460	3.8	183.26	2.2	N	1
09/24/1987 00:00	187.060	185.460	4.1	182.96	2.5	N	624
11/05/1987 00:00	187.060	185.460	5.4	181.66	3.8	N	624
12/17/1987 00:00	187.060	185.460	2.5	184.56	0.9	N	1
01/12/1988 00:00	187.060	185.460	2.4	184.66	0.8	N	624
02/16/1988 00:00	187.060	185.460	3.9	183.16	2.3	N	1
03/07/1988 00:00	187.060	185.460	4.7	182.36	3.1	N	624
04/14/1988 00:00	187.060	185.460	4	183.06	2.4	N	1
05/12/1988 00:00	187.060	185.460	5.1	181.96	3.5	N	624
06/15/1988 00:00	187.060	185.460	4.5	182.56	2.9	N	1
07/08/1988 00:00	187.060	185.460	4.8	182.26	3.2	N	624
08/18/1988 00:00	187.060	185.460	4.5	182.56	2.9	N	1

09/28/1988 00:00	187.060	185.460	4.3	182.76	2.7	N	624
11/30/1988 00:00	187.060	185.460	4.7	182.36	3.1	N	624
12/15/1988 00:00	187.060	185.460	5.6	181.46	4	N	1
01/18/1989 00:00	187.060	185.460				N-7	624
02/15/1989 00:00	187.060	185.460	5.6	181.46	4	N	1
03/15/1989 00:00	187.060	185.460	3.8	183.26	2.2	N	624
04/14/1989 00:00	187.060	185.460	5.3	181.76	3.7	N	1
05/08/1989 00:00	187.060	185.460	5	182.06	3.4	N	624
06/14/1989 00:00	187.060	185.460	3.9	183.16	2.3	N	1
07/05/1989 00:00	187.060	185.460	3.5	183.56	1.9	N	624
08/16/1989 00:00	187.060	185.460	3.8	183.26	2.2	N	1
09/14/1989 00:00	187.060	185.460	4.1	182.96	2.5	N	624
10/16/1989 00:00	187.060	185.460	5	182.06	3.4	N	1
11/30/1989 00:00	187.060	185.460	5.3	181.76	3.7	N	624
12/18/1989 00:00	187.060	185.460	6.2	180.86	4.6	N	1
01/18/1990 00:00	187.060	185.460	4	183.06	2.4	N	624
02/14/1990 00:00	187.060	185.460	6.5	180.56	4.9	N	624
02/15/1990 00:00	187.060	185.460	5.7	181.36	4.1	N	1
03/14/1990 00:00	187.060	185.460	6.3	180.76	4.7	N	1
04/12/1990 00:00	187.060	185.460	4.8	182.26	3.2	N	624
05/15/1990 00:00	187.060	185.460	4.2	182.86	2.6	N	624
06/11/1990 00:00	187.060	185.460	4.6	182.46	3	N	624
07/16/1990 00:00	187.060	185.460	4.4	182.66	2.8	N	624
08/14/1990 00:00	187.060	185.460	4.4	182.66	2.8	N	624
09/12/1990 00:00	187.060	185.460	4.1	182.96	2.5	N	624
10/17/1990 00:00	187.060	185.460	4.9	182.16	3.3	N	624
11/15/1990 00:00	187.060	185.460	5.8	181.26	4.2	N	624
12/13/1990 00:00	187.060	185.460	6.5	180.56	4.9	N	624
03/11/1991 00:00	187.060	185.460	6.7	180.36	5.1	N	624
03/15/1991 00:00	187.060	185.460	4.2	182.86	2.6	N	624
04/01/1991 00:00	187.060	185.460	5.5	181.56	3.9	N	624
04/15/1991 00:00	187.060	185.460	3.5	183.56	1.9	N	624
06/17/1991 00:00	187.060	185.460	4.6	182.46	3	N	624
08/15/1991 00:00	187.060	185.460	4.2	182.86	2.6	N	624
10/01/1991 00:00	187.060	185.460	4.3	182.76	2.7	N	624
12/16/1991 00:00	187.060	185.460	4.3	182.76	2.7	N	624
02/14/1992 00:00	187.060	185.460	6.4	180.66	4.8	N	624
03/02/1992 00:00	187.060	185.460	3.4	183.66	1.8	N	624
03/19/1992 00:00	187.060	185.460	3.1	183.96	1.5	N	624
04/14/1992 00:00	187.060	185.460	4.4	182.66	2.8	N	1
05/12/1992 00:00	187.060	185.460	4.3	182.76	2.7	N	1
06/15/1992 00:00	187.060	185.460	4.5	182.56	2.9	N	1
09/15/1992 00:00	187.060	185.460	4.9	182.16	3.3	N	1
10/06/1992 00:00	187.060	185.460	5.4	181.66	3.8	N	1

11/16/1992 00:00	187.060	185.460	5.2	181.86	3.6	N	624
12/14/1992 00:00	187.060	185.460	5.4	181.66	3.8	N	624
01/19/1993 00:00	187.060	185.460	2.5	184.56	0.9	N	624
02/16/1993 00:00	187.060	185.460	2.7	184.36	1.1	N	624
03/16/1993 00:00	187.060	185.460	3.6	183.46	2	N	1
04/15/1993 00:00	187.060	185.460	5	182.06	3.4	N	1
05/20/1993 00:00	187.060	185.460	3.5	183.56	1.9	N	1
06/15/1993 00:00	187.060	185.460	4.3	182.76	2.7	N	1
07/09/1993 00:00	187.060	185.460	3.9	183.16	2.3	N	624
08/16/1993 00:00	187.060	185.460	3.9	183.16	2.3	N	1
09/14/1993 00:00	187.060	185.460	4.5	182.56	2.9	N	624
10/05/1993 00:00	187.060	185.460	4.5	182.56	2.9	N	1
11/19/1993 00:00	187.060	185.460	4.2	182.86	2.6	N	624
12/16/1993 00:00	187.060	185.460	5.9	181.16	4.3	N	624
01/13/1994 00:00	187.060	185.460	5.8	181.26	4.2	N	1
02/14/1994 00:00	187.060	185.460	3.7	183.36	2.1	N	624
03/15/1994 00:00	187.060	185.460	4.1	182.96	2.5	N	1
04/12/1994 00:00	187.060	185.460	3.2	183.86	1.6	N	624
05/19/1994 00:00	187.060	185.460	4.7	182.36	3.1	N	624
06/16/1994 00:00	187.060	185.460	4.1	182.96	2.5	N	624
07/15/1994 00:00	187.060	185.460	3.8	183.26	2.2	N	1
08/15/1994 00:00	187.060	185.460	4.5	182.56	2.9	Q-2	1
09/15/1994 00:00	187.060	185.460	4.7	182.36	3.1	N	1
10/18/1994 00:00	187.060	185.460	5.1	181.96	3.5	N	1
03/07/1995 00:00	187.060	185.460	3.8	183.26	2.2	N	1
03/31/1995 00:00	187.060	185.460	3.2	183.86	1.6	N	1
04/18/1995 00:00	187.060	185.460	4.2	182.86	2.6	N	1
07/26/1995 00:00	187.060	185.460	4.4	182.66	2.8	N	1
10/03/1995 00:00	187.060	185.460	4.4	182.66	2.8	N	1
01/17/1996 00:00	187.060	185.460	3.7	183.36	2.1	N	1
01/17/1996 00:00	187.060	185.460	2.9	184.16	1.3	N	1
03/27/1996 00:00	187.060	185.460	3.7	183.36	2.1	N	1
07/22/1996 00:00	187.060	185.460	3.1	183.96	1.5	N	1
10/08/1996 00:00	187.060	185.460	3.6	183.46	2	N	1
03/04/1997 00:00	187.060	185.460	4.2	182.86	2.6	N	1
07/15/1997 00:00	187.060	185.460	3.3	183.76	1.7	N	1
10/07/1997 00:00	187.060	185.460	4.2	182.86	2.6	N	624
01/13/1998 00:00	187.060	185.460	2.3	184.76	0.7	N	1
03/11/1998 00:00	187.060	185.460	2.9	184.16	1.3	N	624
06/01/1998 00:00	187.060	185.460	3.6	183.46	2	N	1
10/08/1998 00:00	187.060	185.460	5.3	181.76	3.7	N	1
03/16/1999 00:00	187.060	185.460	5	182.06	3.4	N	1
08/05/1999 00:00	187.060	185.460	3.9	183.16	2.3	N	1
10/04/1999 00:00	187.060	185.460	5.1	181.96	3.5	N	1

03/23/2000 00:00	187.060	185.460	3.8	183.26	2.2	N	1
10/04/2000 00:00	187.060	185.460	4	183.06	2.4	N	1
03/20/2001 00:00	187.060	185.460	3.5	183.56	1.9	N	1
07/19/2001 00:00	187.060	185.460	3.6	183.46	2	N	1
08/01/2001 00:00	187.060	185.460	2.8	184.26	1.2	N	1
08/16/2001 00:00	187.060	185.460				N-9	1
09/04/2001 00:00	187.060	185.460	2.3	184.76	0.7	N	1
10/09/2001 00:00	187.060	185.460	4.9	182.16	3.3	N	1
11/09/2001 00:00	187.060	185.460	6.5	180.56	4.9	N	1
12/13/2001 00:00	187.060	185.460	3.6	183.46	2	N	1
02/05/2002 00:00	187.060	185.460	3.8	183.26	2.2	N	1
02/28/2002 00:00	187.060	185.460	3.7	183.36	2.1	N	1
03/19/2002 00:00	187.060	185.460	4.9	182.16	3.3	N	1
04/26/2002 00:00	187.060	185.460	5.4	181.66	3.8	N	1
05/14/2002 00:00	187.060	185.460	3.8	183.26	2.2	N	1
06/27/2002 00:00	187.060	185.460	3.4	183.66	1.8	N	1
08/19/2002 00:00	187.060	185.460	3.6	183.46	2	N	1
09/17/2002 00:00	187.060	185.460	2.8	184.26	1.2	N	1
10/16/2002 00:00	187.060	185.460	4.9	182.16	3.3	N	1
11/20/2002 00:00	187.060	185.460	6.6	180.46	5	N	1
02/18/2003 00:00	187.060	185.460	2.4	184.66	0.8	N	1
03/13/2003 00:00	187.060	185.460	3.9	183.16	2.3	N	1
04/09/2003 00:00	187.060	185.460	4.4	182.66	2.8	N	1
05/28/2003 00:00	187.060	185.460	3.8	183.26	2.2	N	1
06/19/2003 00:00	187.060	185.460	3.1	183.96	1.5	N	1
07/30/2003 00:00	187.060	185.460	3.4	183.66	1.8	N	1
09/22/2003 00:00	187.060	185.460	3.9	183.16	2.3	N	1
10/21/2003 00:00	187.060	185.460	5.7	181.36	4.1	N	1
11/25/2003 00:00	187.060	185.460	6.9	180.16	5.3	N	1
12/16/2003 00:00	187.060	185.460	4.3	182.76	2.7	N	1
02/10/2004 00:00	187.060	185.460	2.7	184.36	1.1	N	1
04/01/2004 00:00	187.060	185.460	4.1	182.96	2.5	N	1
04/26/2004 00:00	187.060	185.460	4.4	182.66	2.8	N	1
05/21/2004 00:00	187.060	185.460	3.7	183.36	2.1	N	1
06/21/2004 00:00	187.060	185.460	3.7	183.36	2.1	N	1
07/27/2004 00:00	187.060	185.460	3.4	183.66	1.8	N	1
08/24/2004 00:00	187.060	185.460	3.4	183.66	1.8	N	1
09/21/2004 00:00	187.060	185.460	4.3	182.76	2.7	N	1
10/19/2004 00:00	187.060	185.460	5.2	181.86	3.6	N	1
11/22/2004 00:00	187.060	185.460	5.6	181.46	4	N	1
03/31/2005 00:00	187.060	185.460	3.5	183.56	1.9	N	1
04/28/2005 00:00	187.060	185.460	4.9	182.16	3.3	N	1
05/25/2005 00:00	187.060	185.460	4.7	182.36	3.1	N	1
06/24/2005 00:00	187.060	185.460	2.9	184.16	1.3	N	1

07/27/2005 00:00	187.060	185.460	3.2	183.86	1.6	N	1
08/24/2005 00:00	187.060	185.460	3.6	183.46	2	N	1
09/30/2005 00:00	187.060	185.460	5.2	181.86	3.6	N	1
10/19/2005 00:00	187.060	185.460	6.5	180.56	4.9	N	1
03/28/2006 00:00	187.060	185.460	2.5	184.56	0.9	N	1
05/18/2006 00:00	187.060	185.460	4.7	182.36	3.1	N	1
08/02/2006 00:00	187.060	185.460	5.1	181.96	3.5	N	1
10/10/2006 00:00	187.060	185.460	5.8	181.26	4.2	N	1
03/19/2007 00:00	187.060	185.460	6.84	180.22	5.24	N	1
08/06/2007 00:00	187.060	185.460	4.09	182.97	2.49	N	1
01/16/2008 00:00	187.060	185.460	3.54	183.52	1.94	N	1
03/10/2008 00:00	187.060	185.460	3.9	183.16	2.3	N	1
08/04/2008 00:00	187.060	185.460				N-0	1

All elevation and depth measurements are in feet. The vertical datum for recent measurements is NAVD88.

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1 WELLS IN THIS CLUSTER - EXPORT TO EXCEL

<u>NATIVE DATA - EXCEEDING COMPARISON CONCENTRATION</u>	<u>WELL NAME</u>	<u>DATASET CATEGORY</u>	<u>DATASET</u>	<u>COUNTY</u>	<u>REGIONAL BOARD</u>	<u>GW BASIN NAME</u>	<u>ASSEMBLY</u>	<u>SENATE</u>
	20N04W02Q001M	WATER SUPPLY (WELLS)	DWR	GLENN	5	SACRAMENTO VALLEY - COLUSA (5-21.52)	3	04

# DWR Data Display

- VIEW ALL NATIVE DATA FOR THIS WELL

24 record(s) retrieved. - EXPORT TO EXCEL

Station Name	Sample Code	Sample date	Sample Depth	Depth Units	Analyte Name	Analytical Result	Result Reporting Limit	Result Units	Analytical Method
20N04W02Q001M	WDIS_0706895	1/15/1957		Feet	Dissolved Nitrate	17	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706896	7/30/1958		Feet	Dissolved Nitrate	19	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706897	6/18/1959		Feet	Dissolved Nitrate	21	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706898	6/17/1960		Feet	Dissolved Nitrate	23	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706899	8/30/1961 1:30:00 PM		Feet	Dissolved Nitrate	20	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706900	7/10/1962		Feet	Dissolved Nitrate	21	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706903	8/6/1965		Feet	Dissolved Nitrate	18	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706904	7/7/1966		Feet	Dissolved Nitrate	19	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706906	7/29/1970 3:35:00 PM		Feet	Dissolved Nitrate	20	0.1	mg/L	Std Method 12th Ed Nitrate
20N04W02Q001M	WDIS_0706910	7/18/1973 3:40:00 PM		Feet	Dissolved Nitrate	19	0.1	mg/L	EPA 352.1 (DWR Mod, Unpres)
20N04W02Q001M	WDIS_0706914	8/2/1977 2:55:00 PM		Feet	Dissolved Nitrate	23	0.1	mg/L	EPA 352.1 (DWR Mod, Unpres)
20N04W02Q001M	WDIS_0706917	8/4/1980 2:55:00 PM		Feet	Dissolved Nitrate	22	0.1	mg/L	EPA 352.1 (DWR Mod, Unpres)
20N04W02Q001M	WDIS_0706921	7/18/1984 3:05:00 PM		Feet	Dissolved Nitrate	25	0.1	mg/L	EPA 353.2 (DWR Mod, Unpres)
20N04W02Q001M	WDIS_0706926	8/9/1989 8:35:00 AM		Feet	Dissolved Nitrate	26	0.1	mg/L	EPA 353.2 (DWR Mod, Unpres)
20N04W02Q001M	WDIS_0706927	6/20/1990		Feet	Dissolved Nitrate	22	0.1	mg/L	UnkMod Nitrate
20N04W02Q001M	NA1200B0632	12/29/2000 12:45:00 PM	1	Meters	Dissolved Nitrate	25	0.1	mg/L	EPA 300.0 28d Hold
20N04W02Q001M	NB0906B4832	9/13/2006 10:45:00 AM	0	Meters	Dissolved Nitrate	23.2	0.1	mg/L	EPA 300.0 28d Hold
20N04W02Q001M	NB0906B4832	9/13/2006 10:45:00 AM	0	Meters	Dissolved Zinc	98.9	0.1	mg/L	EPA 1638 (D)
20N04W02Q001M	NB0906B4832	9/13/2006 10:45:00 AM	0	Meters	Total Zinc	115	0.1	mg/L	EPA 1638 (T)
20N04W02Q001M	WDIS_0706902	8/19/1964		Feet	pH	8.9	0.1	pH Units	EPA 150.1
20N04W02Q001M	WDIS_0706914	8/2/1977 2:55:00 PM		Feet	pH	8.5	0.1	pH Units	EPA 150.1
20N04W02Q001M	WDIS_0706917	8/4/1980 2:55:00 PM		Feet	pH	8.4	0.1	pH Units	EPA 150.1
20N04W02Q001M	WDIS_0706921	7/18/1984 3:05:00 PM		Feet	pH	8.4	0.1	pH Units	EPA 150.1
20N04W02Q001M	WDIS_0706926	8/9/1989 8:35:00 AM		Feet	pH	8.4	0.1	pH Units	EPA 150.1

1 WELLS IN THIS CLUSTER - EXPORT TO EXCEL

<u>NATIVE DATA - EXCEEDING COMPARISON CONCENTRATION</u>	<u>WELL NAME</u>	<u>DATASET CATEGORY</u>	<u>DATASET</u>	<u>COUNTY</u>	<u>REGIONAL BOARD</u>	<u>GW BASIN NAME</u>	<u>ASSEMBLY</u>	<u>SENATE</u>
	21N03W32M001M	WATER SUPPLY (WELLS)	DWR	GLENN	5	SACRAMENTO VALLEY - COLUSA (5-21.52)	3	04

## DWR Data Display

- [VIEW ALL NATIVE DATA FOR THIS WELL](#)

1 record(s) retrieved. - [EXPORT TO EXCEL](#)

<u>Station Name</u>	<u>Sample Code</u>	<u>Sample date</u>	<u>Sample Depth</u>	<u>Depth Units</u>	<u>Analyte Name</u>	<u>Analytical Result</u>	<u>Result Reporting Limit</u>	<u>Result Units</u>	<u>Analytical Method</u>
21N03W32M001M	WDIS_0707026	8/21/1952		Feet	Dissolved Nitrate	121	0.1	mg/L	UnkH Nitrate

1 WELLS IN THIS CLUSTER - EXPORT TO EXCEL

<u>WELL NAME</u>	<u>DATASET CATEGORY</u>	<u>DATASET</u>	<u>COUNTY</u>	<u>REGIONAL BOARD</u>	<u>GW BASIN NAME</u>	<u>ASSEMBLY</u>	<u>SENATE</u>
<u>INATIVE DATA - EXCEEDING COMPARISON CONCENTRATION</u>	111861	WATER SUPPLY (WELLS)	DPR	GLENN	5	SACRAMENTO VALLEY - COLUSA (5-21.52)	3 04

## DPR Data Display

- [VIEW ALL NATIVE DATA FOR THIS WELL](#)

1 record(s) retrieved. - [EXPORT TO EXCEL](#)

WELL KEY	COMTRS	NCHEM	CHNAME	CONC	MDL	AGENCY	SDATE	SYPE	STATUS	RESIDUE SOURCE	LAB	ADATE	APFILE	COUNTY NAME	WELLCODE	WELLTYPE	DEPTH
111861	11M20N04W01	4051	DEETHYL- ATRAZINE (DEA)	0.73	0.05	4323	6/10/2014	V	V	N	4323	6/13/2014	Z583	Glenn	D	DOMESTIC (PRIVATE RESIDENCE)	

1 WELLS IN THIS CLUSTER - EXPORT TO EXCEL

<u>INATIVE DATA - EXCEEDING COMPARISON CONCENTRATION</u>	<u>WELL NAME</u>	<u>DATASET CATEGORY</u>	<u>DATASET</u>	<u>COUNTY</u>	<u>REGIONAL BOARD</u>	<u>GW BASIN NAME</u>	<u>ASSEMBLY</u>	<u>SENATE</u>
	USGS-393646122163501	WATER SUPPLY (WELLS)	USGSNEW	GLENN	5	SACRAMENTO VALLEY - COLUSA (5-21.52)	3	04

ORGANIZATIONFORMALNAME	ACTIDENTIFIER	ACTTYPECODE	ACTMEDIANAME	ACTMEDIASUBDIVISIONNAME
USGS California Water Science Center	nwisca.01.95902224	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96002325	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96103764	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96603988	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96002325	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.95702123	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.95802417	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.95902224	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96002325	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96103764	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96203979	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96503646	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96603988	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.97002669	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.97307690	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.97510089	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.97607391	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96002325	Sample-Routine	Water	Groundwater
USGS California Water Science Center	nwisca.01.96403680	Sample-Routine	Water	Groundwater

ACTSTARTDATE	PROJECTIDENTIFIER	ACTCONDUCTINGOTXT	MONITORINGLOCATIONIDENTIFIER
6/18/1959	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
6/17/1960	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
8/30/1961	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/7/1966	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
6/17/1960	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
1/15/1957	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/30/1958	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
6/18/1959	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
6/17/1960	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
8/30/1961	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/10/1962	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
8/6/1965	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/7/1966	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/29/1970	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/18/1973	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/28/1975	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
7/26/1976	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
6/17/1960	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501
8/19/1964	USGS	Organization other than U.S. Geological Survey	USGS-393646122163501

HYDROLOGICEVENT	SCM_METHODIDENTIFIER	SCM_METHODIDENTIFIERCONTEXT	SCM_METHODNAME	CHARACTERISTICNAME
Routine sample	USGS	USGS	USGS	Boron
Routine sample	USGS	USGS	USGS	Boron
Routine sample	USGS	USGS	USGS	Boron
Routine sample	USGS	USGS	USGS	Boron
Routine sample	USGS	USGS	USGS	Iron
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Nitrate
Routine sample	USGS	USGS	USGS	Temperature, water
Routine sample	USGS	USGS	USGS	Temperature, water
Routine sample	USGS	USGS	USGS	Zinc
Routine sample	USGS	USGS	USGS	pH

RESULTSAMPLEFRACTIONTEXT	RESULTMEASVALUE	RESULTMEAS_MEASUNITCODE	ORGANIZATIONIDENTIFIER
Dissolved	60	ug/l	USGS-CA
Dissolved	50	ug/l	USGS-CA
Dissolved	70	ug/l	USGS-CA
Dissolved	100	ug/l	USGS-CA
Dissolved	1400	ug/l	USGS-CA
Total	17	mg/l	USGS-CA
Total	19	mg/l	USGS-CA
Total	21	mg/l	USGS-CA
Total	23	mg/l	USGS-CA
Total	20	mg/l	USGS-CA
Total	21	mg/l	USGS-CA
Total	18	mg/l	USGS-CA
Total	19	mg/l	USGS-CA
Total	20	mg/l	USGS-CA
Total	19	mg/l	USGS-CA
	27.2	deg C	USGS-CA
	25.6	deg C	USGS-CA
Dissolved	170	ug/l	USGS-CA
Total	8.9	std units	USGS-CA

RESULTSTATUSIDENTIFIER	RESULTVALUETYPE	NAME	USGSPCODE	ACTSTARTDATE_FIXED
Historical	Actual		1020	6/18/1959 0:00
Historical	Actual		1020	6/17/1960 0:00
Historical	Actual		1020	8/30/1961 0:00
Historical	Actual		1020	7/7/1966 0:00
Historical	Actual		1046	6/17/1960 0:00
Historical	Actual		71850	1/15/1957 0:00
Historical	Actual		71850	7/30/1958 0:00
Historical	Actual		71850	6/18/1959 0:00
Historical	Actual		71850	6/17/1960 0:00
Historical	Actual		71850	8/30/1961 0:00
Historical	Actual		71850	7/10/1962 0:00
Historical	Actual		71850	8/6/1965 0:00
Historical	Actual		71850	7/7/1966 0:00
Historical	Actual		71850	7/29/1970 0:00
Historical	Actual		71850	7/18/1973 0:00
Historical	Actual		10	7/28/1975 0:00
Historical	Actual		10	7/26/1976 0:00
Historical	Actual		1090	6/17/1960 0:00
Historical	Actual		400	8/19/1964 0:00

1 WELLS IN THIS CLUSTER - EXPORT TO EXCEL

<u>NATIVE DATA - EXCEEDING COMPARISON CONCENTRATION</u>	<u>WELL_NAME</u>	<u>DATASET CATEGORY</u>	<u>DATASET</u>	<u>COUNTY</u>	<u>REGIONAL BOARD</u>	<u>GW BASIN NAME</u>	<u>ASSEMBLY</u>	<u>SENATE</u>
	111853	WATER SUPPLY (WELLS)	DPR	GLENN	5	SACRAMENTO VALLEY - COLUSA (5-21.52)	3	04

## DPR Data Display

- [VIEW ALL NATIVE DATA FOR THIS WELL](#)

1 record(s) retrieved. - [EXPORT TO EXCEL](#)

<u>WELL KEY</u>	<u>COMTRS</u>	<u>NCHEM</u>	<u>CHNAME</u>	<u>CONC</u>	<u>MDL</u>	<u>AGENCY</u>	<u>SDATE</u>	<u>STYPE</u>	<u>STATUS</u>	<u>RESIDUE SOURCE</u>	<u>LAB</u>	<u>ADATE</u>	<u>APFILE</u>	<u>COUNTY NAME</u>	<u>WELLCODE</u>	<u>WELLTYPE</u>	<u>DEPTH</u>
111853	11M20N04W12	4051	DEETHYL- ATRAZINE (DEA)	0.059	0.05	4323	6/10/2014	V	V	N	4323	6/13/2014	Z583	Glenn	Y	INDUSTRIAL	375





# Materials Testing, Inc.

8798 Airport Road  
Redding, California 96002  
(530) 222-1116, fax 222-1611

865 Cotting Lane, Suite A  
Vacaville, California 95688  
(707) 447-4025, fax 447-4143

## TRANSMITTAL

To: VESTRA Resources, Inc.  
5300 Aviation Drive  
Redding, California 96002

Client No: 2615  
Date: 02/14/17

Subject: California Olive Ranch  
Chico, California

RECEIVED  
FEB 17 2017

BY:.....

COPIES	DATE	ITEM
(1)	01/04/17	(4) Hydraulic Conductivity Test Reports remolded @ 90% as performed by Sierra Testing Laboratories, Inc.
(1)	01/30/17	(4) Hydraulic Conductivity Test Reports as performed by Sierra Testing Laboratories, Inc.

Remarks:

If material received is not as listed  
above, please notify us at once.

BY:   
Andrew L. King, P.E.  
Principal Engineer

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: Sample 4, NW Corner

Sample Depth, ft.: N/A

Lab No.: S44427

Location: 0

Sample Type: Remolded

Remarks: 90% RC @ opt MC

## TEST RESULTS

Permeability, cm/sec.: 5.06E-07

Average Hydraulic Gradient: 7.3

Effective Confining Pressure, psi: 5

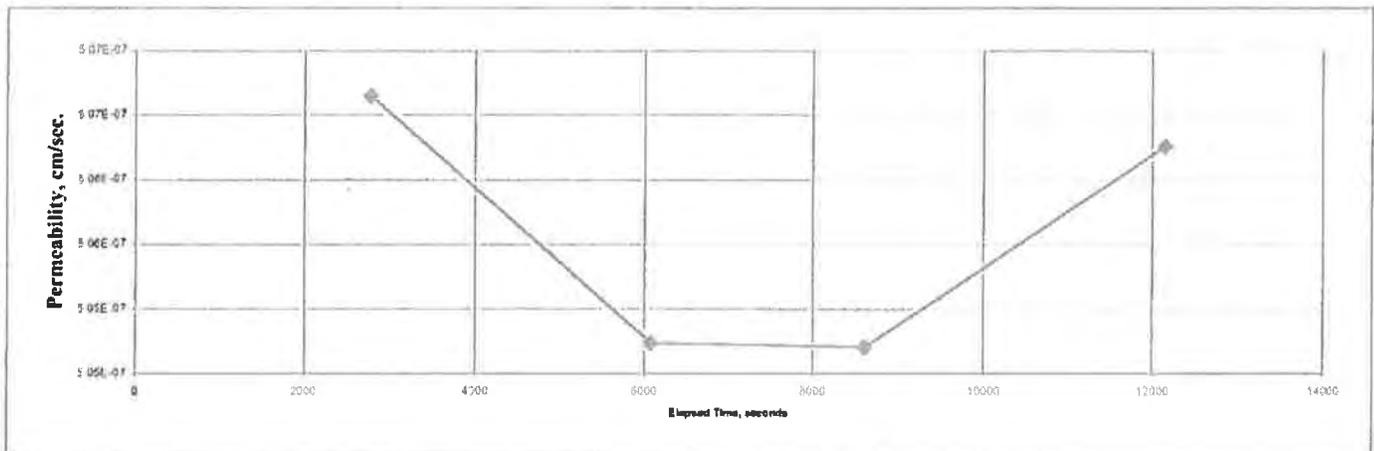
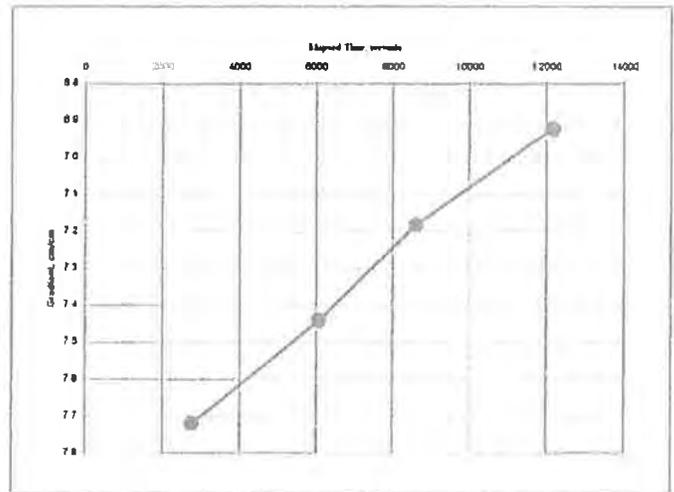
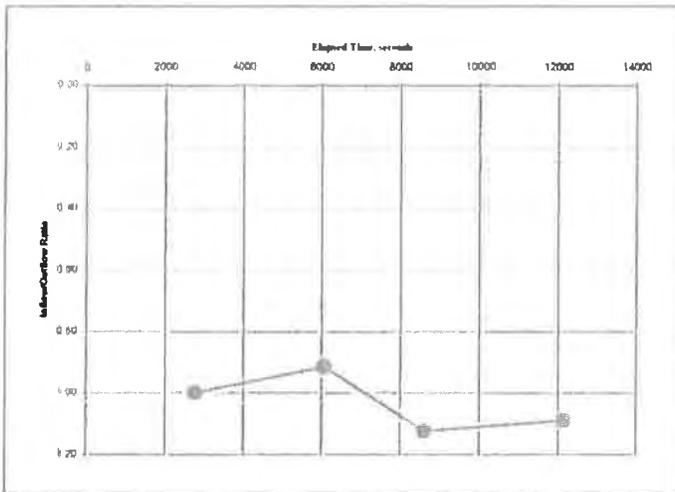
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 91.9  
 Moisture Content, % 15.4

### After Test

Specimen Height, cm: 7.72  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 116.6  
 Moisture Content, % 21.2



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 4, 2017

SIERRA TESTING LABORATORIES, INC.  
 CHEMICAL AND PHYSICAL TESTING SERVICES

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: Sample 3, NE Pad

Sample Depth, ft.: N/A

Lab No.: S44426

Location: 0

Sample Type: Remolded

Remarks: 90% RC @ opt MC

## TEST RESULTS

Permeability, cm/sec.: 8.62E-07

Average Hydraulic Gradient: 7.0

Effective Confining Pressure, psi: 5

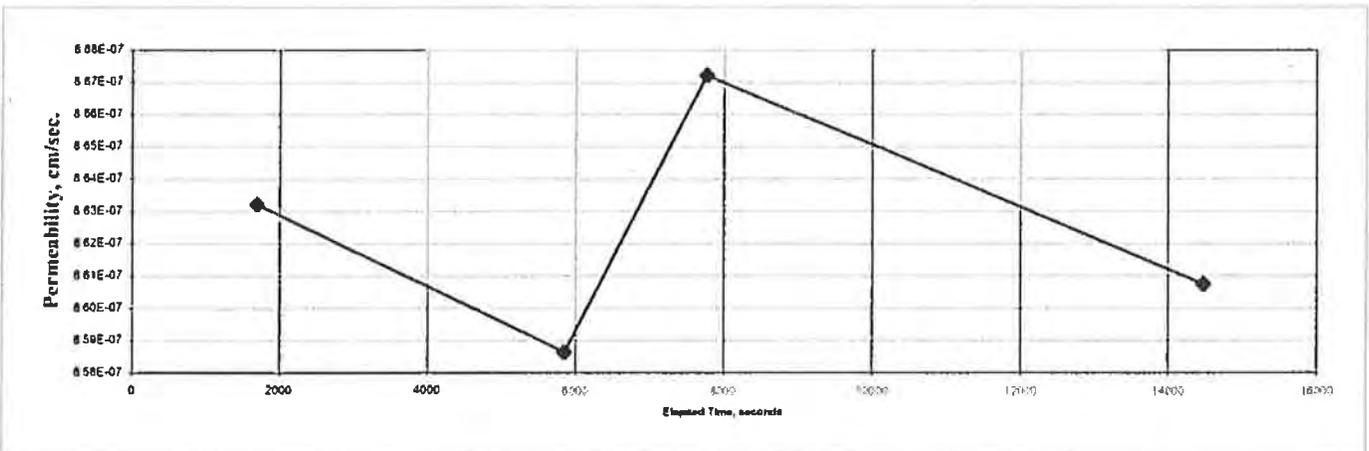
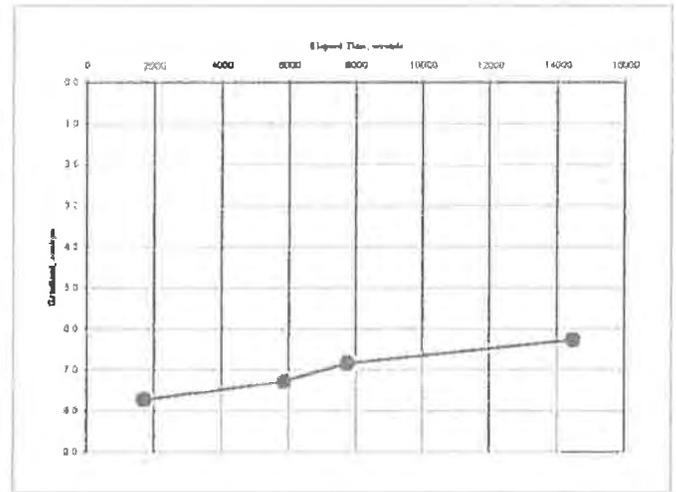
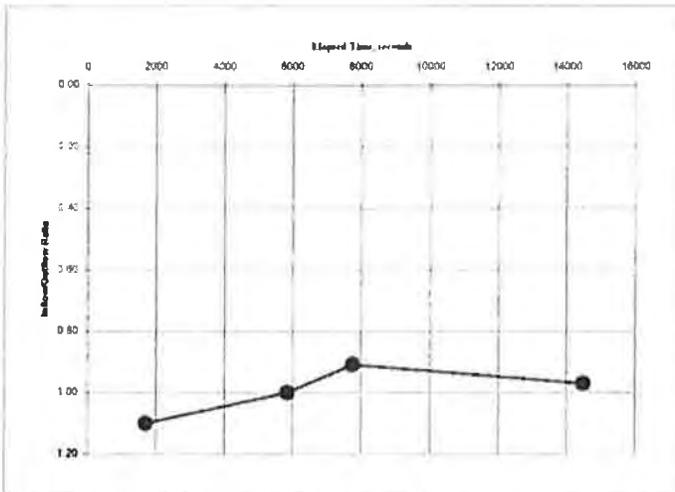
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 92.3  
 Moisture Content, % 18.2

### After Test

Specimen Height, cm: 7.77  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 102.3  
 Moisture Content, % 26.1



Test Method: ASTM D5084 Method C

PROJECT NUMBER:

17-001

January 4, 2017

**SIERRA TESTING LABORATORIES, INC.**  
 14111 SIERRA AVENUE, SUITE 100, PLACERVILLE, CA 95667

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: Sample 2, SW

Sample Depth, ft.: N/A

Lab No.: S44425

Location: 0

Sample Type: Remolded

Remarks: 90% RC @ opt MC

## TEST RESULTS

Permeability, cm/sec.:  $3.54E-07$

Average Hydraulic Gradient: 7.6

Effective Confining Pressure, psi: 5

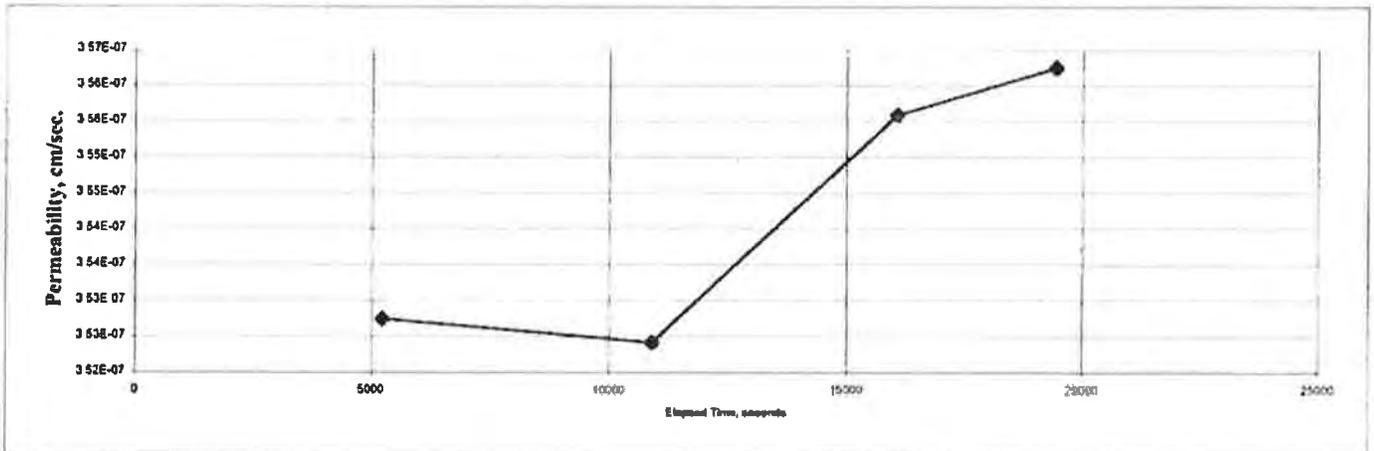
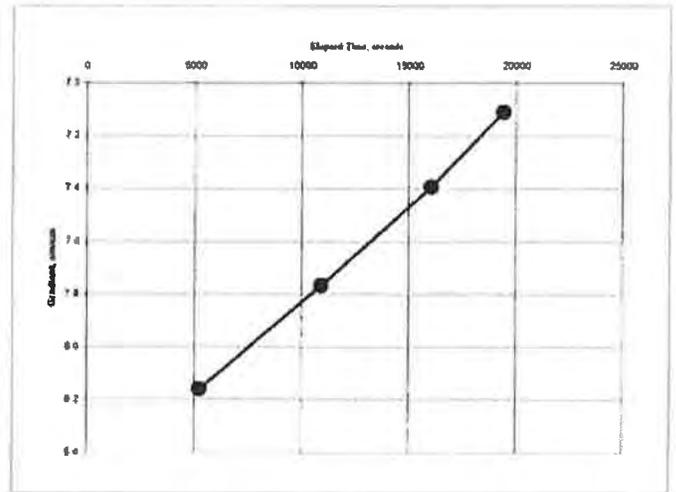
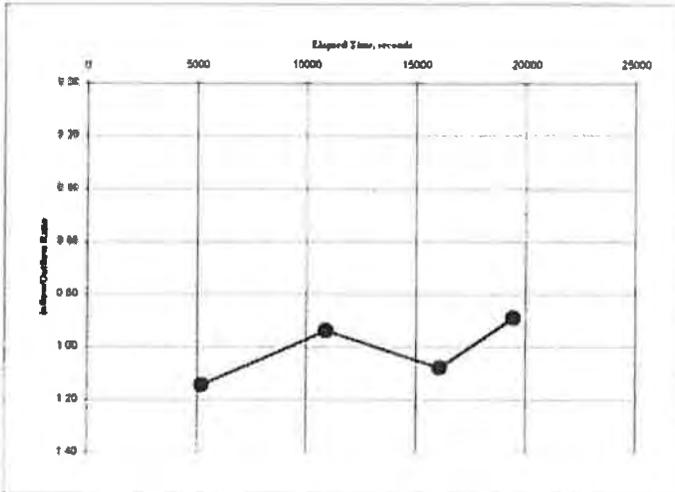
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 93.8  
 Moisture Content, % 17.6

### After Test

Specimen Height, cm: 7.77  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 104.1  
 Moisture Content, % 23.9



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 4, 2017

**SICRA TESTING LABORATORIES, INC.**  
 CIVIL, GEOTECHNICAL AND MATERIALS TESTING SERVICES

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: Sample 1 SE 120  
 Location: 0  
 Remarks: 90% RC @ opt. MC

Sample Depth, ft.: N/A  
 Sample Type: Remolded

Lab No.: S44424

## TEST RESULTS

Permeability, cm/sec.: 3.77E-07

Average Hydraulic Gradient: 7.9

Effective Confining Pressure, psi: 5

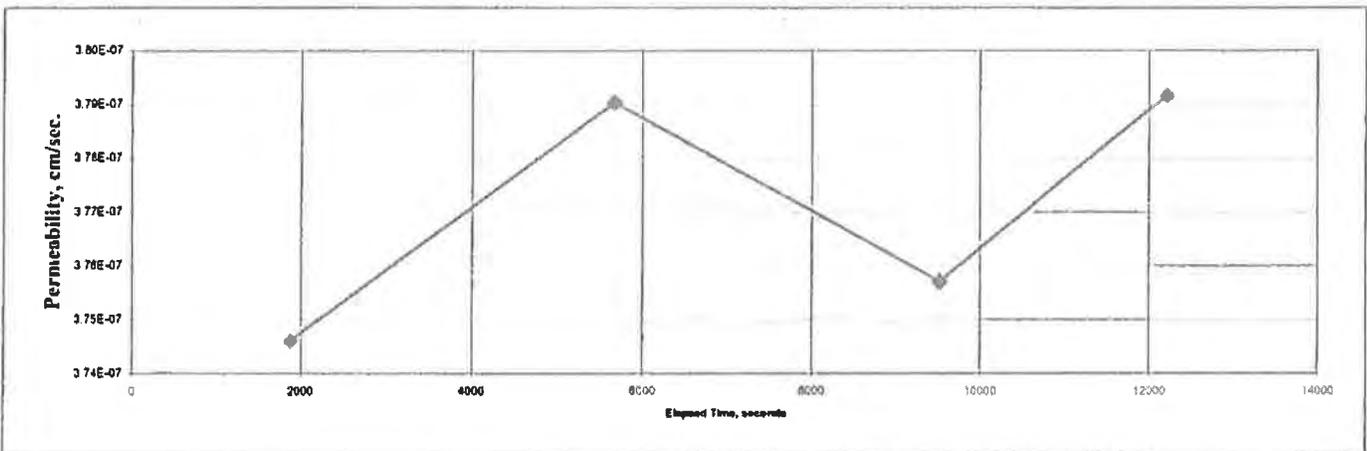
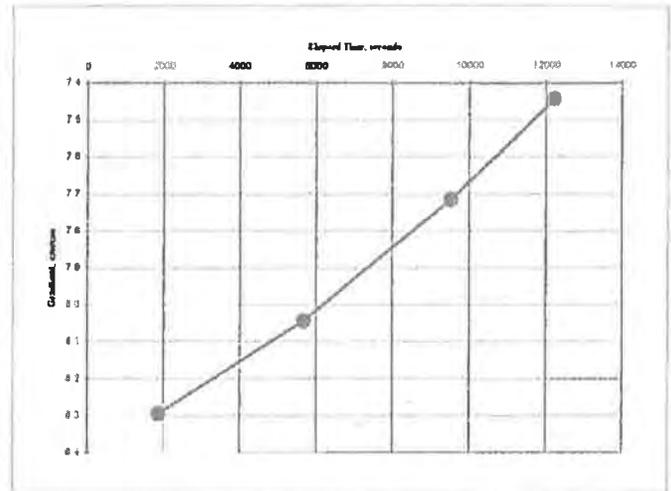
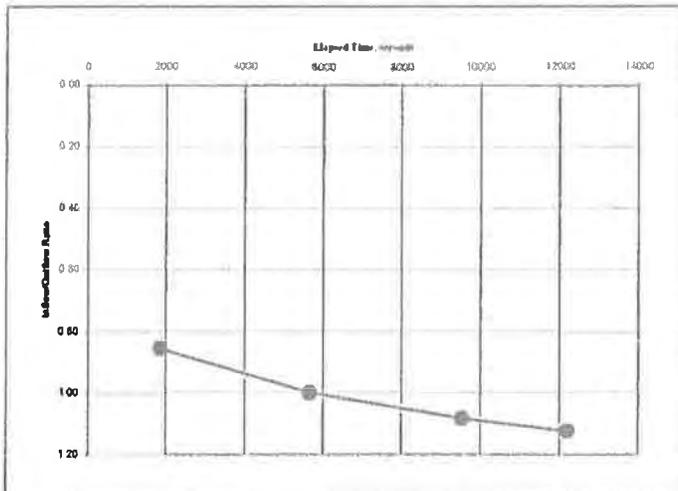
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 93.8  
 Moisture Content, % 16.8

### After Test

Specimen Height, cm: 7.77  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 101.9  
 Moisture Content, % 22.3



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 4, 2017

SIERRA TESTING LABORATORIES, INC.

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: TP-4

Sample Depth, ft.: 3.5-4.0

Lab No.: S44444

Location: 0

Sample Type: Liner

Remarks:

## TEST RESULTS

Permeability, cm/sec.: 4.80E-07

Average Hydraulic Gradient: 8.4

Effective Confining Pressure, psi: 5

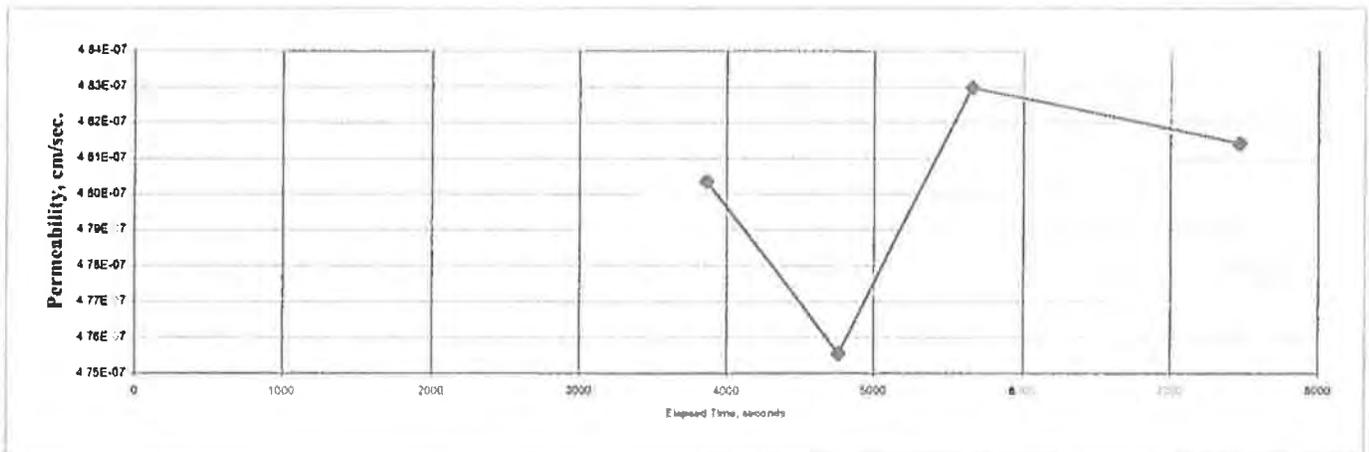
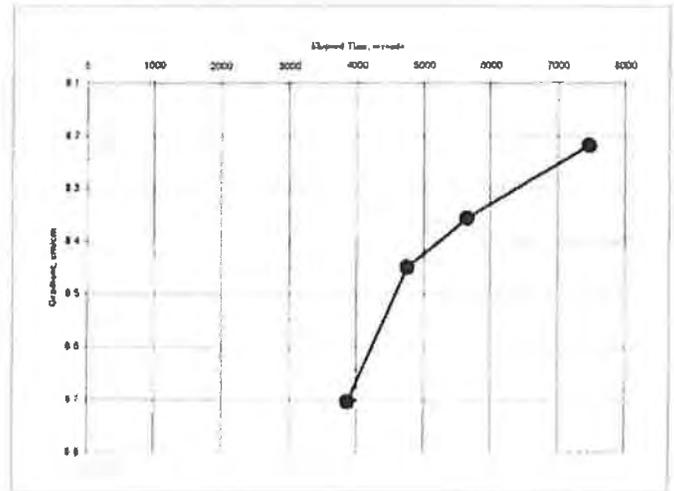
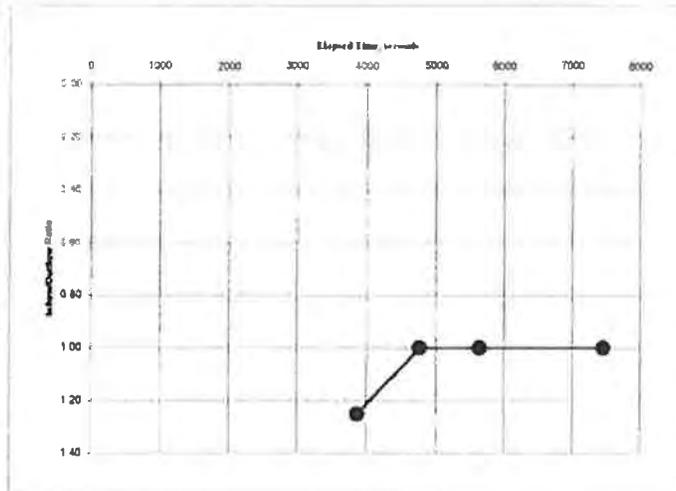
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 5.08  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 101.4  
 Moisture Content, % 26.1

### After Test

Specimen Height, cm: 4.32  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 112.1  
 Moisture Content, % 21.1



Test Method ASTM D5084 Method C

**PROJECT NUMBER: 17-001**

January 30, 2017

**SIERRA TESTING LABORATORIES, INC.**  
 2010 UNIVERSITY AVENUE, SUITE 100, PLACERVILLE, CA 95677

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

**California Olive Ranch**

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: TP-1  
 Location: 0  
 Remarks:

Sample Depth, ft.: 3.0-3.5  
 Sample Type: Liner

Lab No.: S44441

## TEST RESULTS

Permeability, cm/sec.: 1.59E-07

Average Hydraulic Gradient: 12.3

Effective Confining Pressure, psi: 5

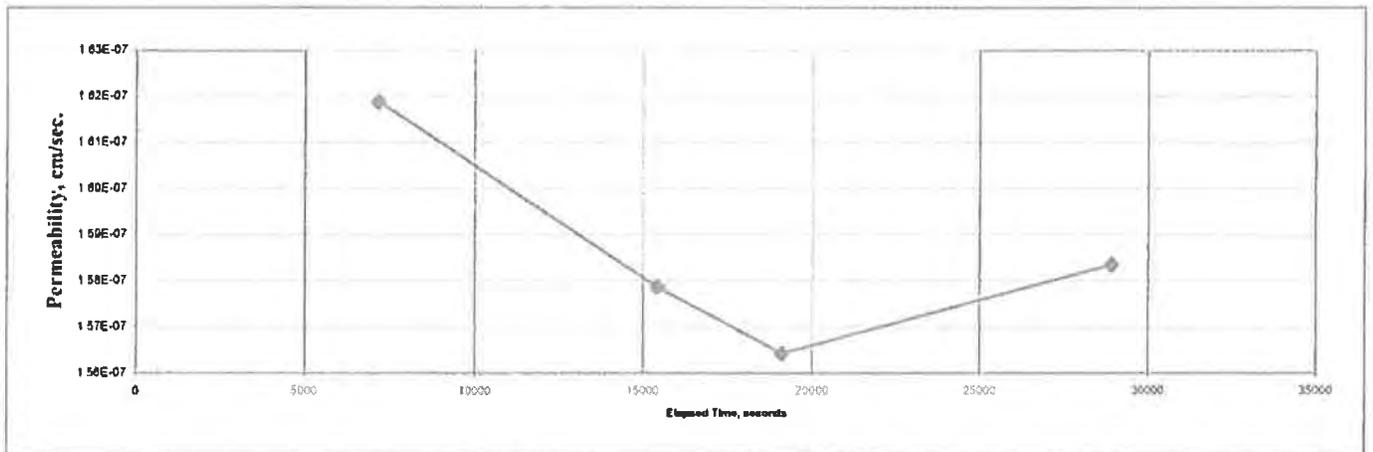
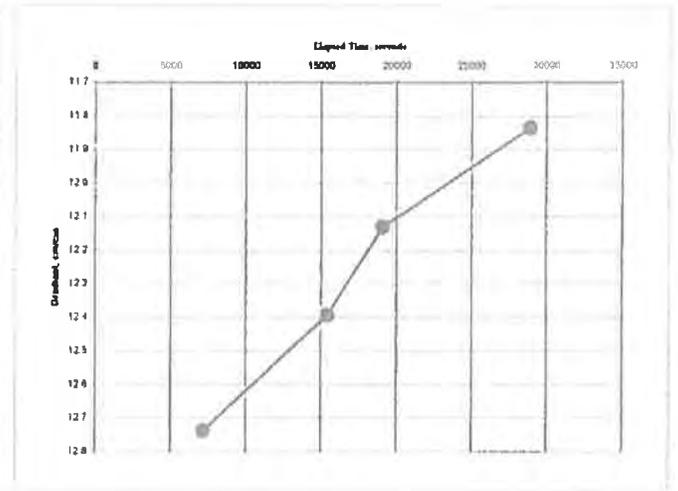
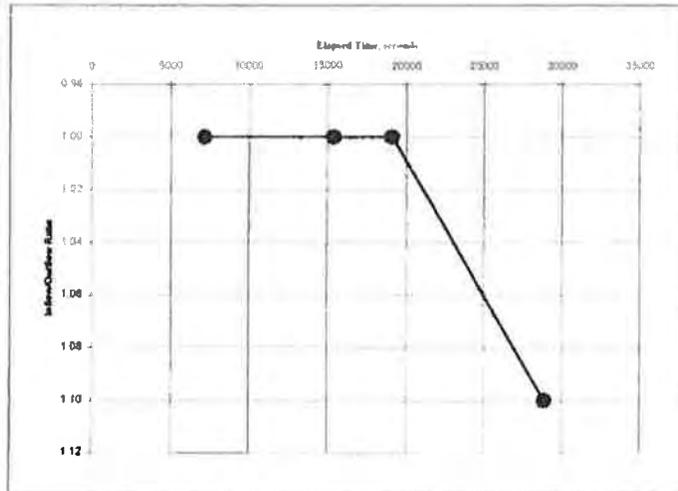
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 5.08  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 123.8  
 Moisture Content, % 13.7

### After Test

Specimen Height, cm: 4.93  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 119.4  
 Moisture Content, % 16.2



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 30, 2017

**SIERRA TESTING LABORATORIES, INC.**  
 485 PIERROZ RD., UNIT D, PLACERVILLE, CA 95667

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: TP-2  
 Location: 0  
 Remarks:

Sample Depth, ft.: 3.5-4.0  
 Sample Type: Liner

Lab No.: S44442

## TEST RESULTS

Permeability, cm/sec.: 1.74E-07

Average Hydraulic Gradient: 11.9

Effective Confining Pressure, psi: 5

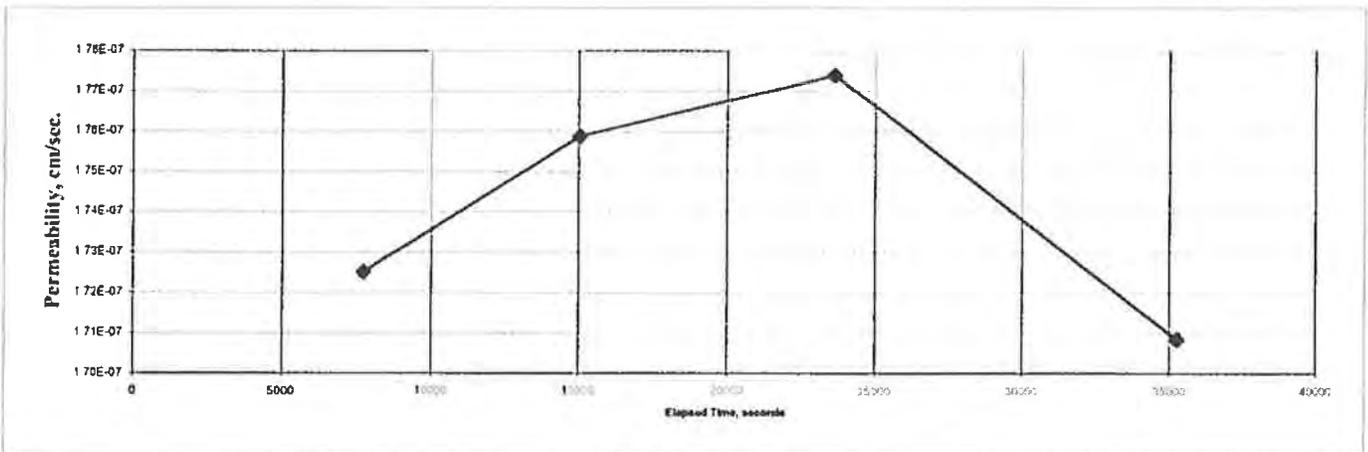
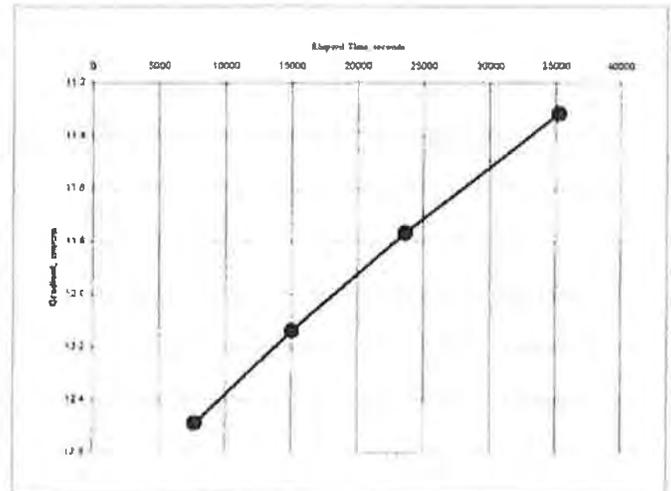
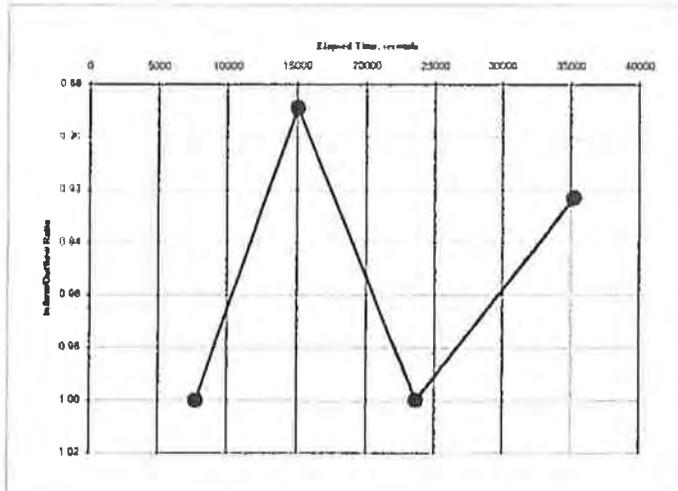
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 5.08  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 106.9  
 Moisture Content, % 21.7

### After Test

Specimen Height, cm: 4.98  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 115.7  
 Moisture Content, % 19.3



Test Method ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 30, 2017

SIERRA TESTING LABORATORIES, INC.  
 GEOTECHNICAL AND MATERIAL TESTING SERVICES

California Olive Ranch

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: TP-3  
 Location: 0  
 Remarks:

Sample Depth, ft.: 3.5-4.0  
 Sample Type: Liner

Lab No.: S44443

## TEST RESULTS

Permeability, cm/sec.: 1.70E-07

Average Hydraulic Gradient: 14.1

Effective Confining Pressure, psi: 5

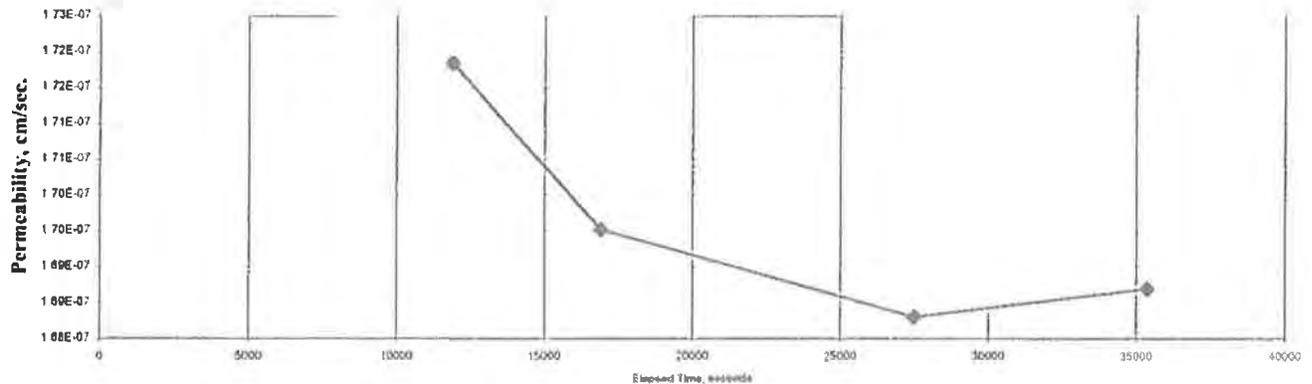
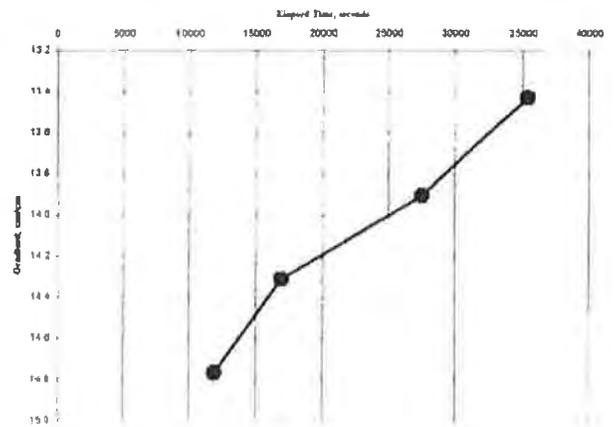
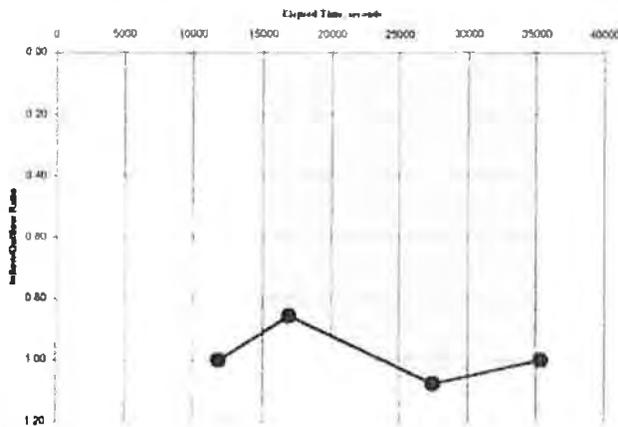
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 4.98  
 Specimen Diameter, cm: 4.80  
 Dry Unit Weight, pcf: 111.6  
 Moisture Content, % 19.3

### After Test

Specimen Height, cm: 4.93  
 Specimen Diameter, cm: 4.80  
 Dry Unit Weight, pcf: 117.8  
 Moisture Content, % 19.0



Test Method ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 30, 2017

SIERRA TESTING LABORATORIES, INC.  
 485 PIERROZ RD., PLACERVILLE, CA 95667

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch



# Materials Testing, Inc.

8798 Airport Road  
Redding, California 96002  
(530) 222-1116, fax 222-1611

865 Cotting Lane, Suite A  
Vacaville, California 95688  
(707) 447-4025, fax 447-4143

## TRANSMITTAL

To: VESTRA Resources, Inc.  
5300 Aviation Drive  
Redding, California 96002

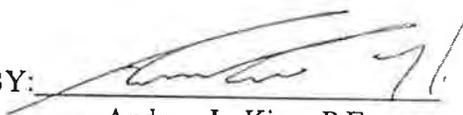
Client No: 2615  
Date: 01/30/17

Subject: California Olive Ranch  
Chico, California

COPIES	DATE	ITEM
		(4) Compaction Test Reports
		(4) Hydraulic Conductivity Test Reports for material remolded to 95% of max dry density at optimum moisture.

Remarks:

If material received is not as listed above, please notify us at once.

BY:   
Andrew L. King, P.E.  
Principal Engineer

# COMPACTION TEST REPORT

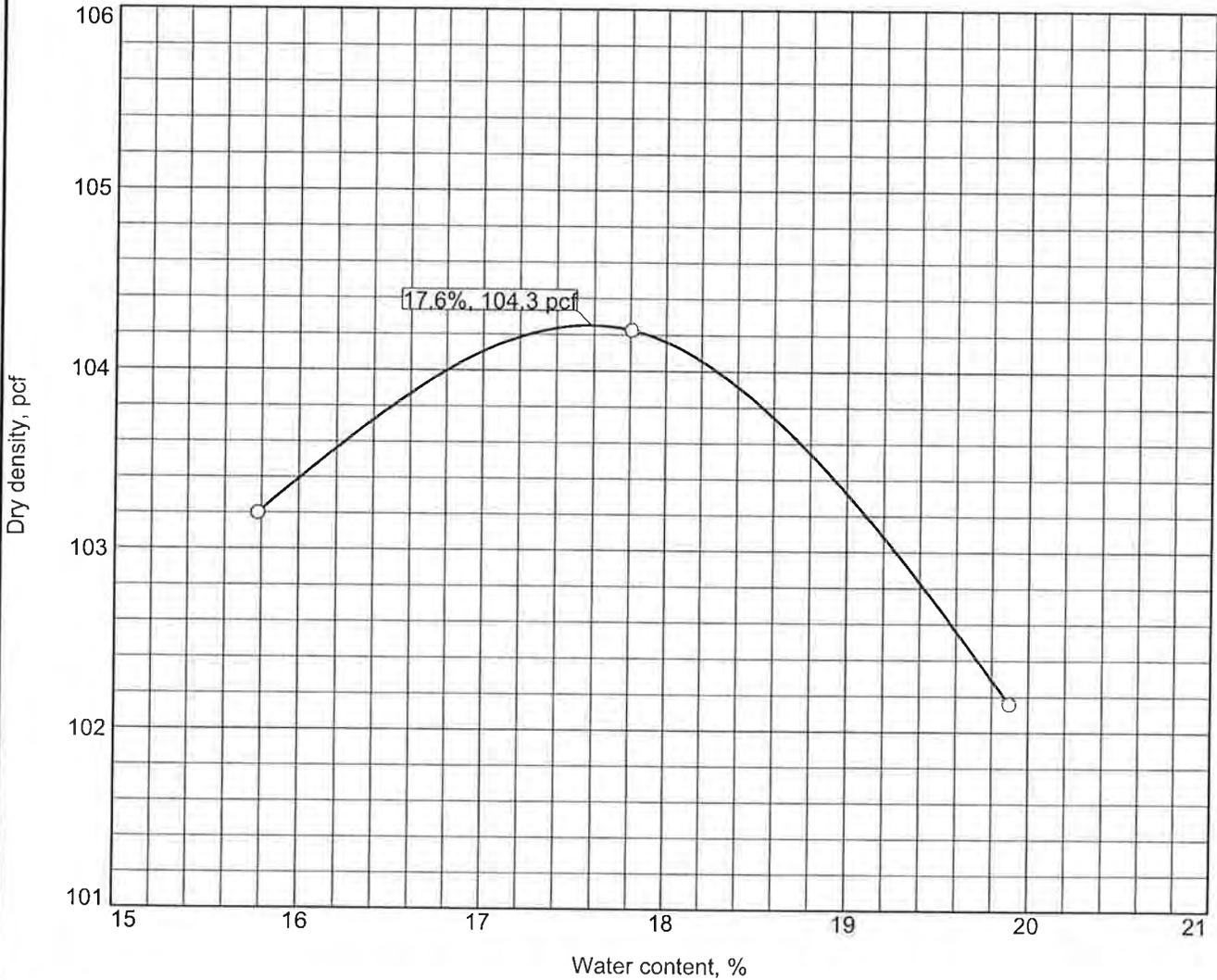


Test specification: ASTM D1557-12 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
							0.11	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 104.3 pcf Optimum moisture = 16.8 %	Brown Sandy Clay (visual)
<b>Project No.</b> 2615-001 <b>Client:</b> VESTRA Resources, Inc. <b>Project:</b> California Olive Ranch Chico, California <b>Location:</b> South East 120 <b>Sample Number:</b> 1	<b>Remarks:</b> Curve #1 01/05/17
 Materials Testing, Inc.	

# COMPACTION TEST REPORT



Test specification: ASTM D1557-12 Method A Modified

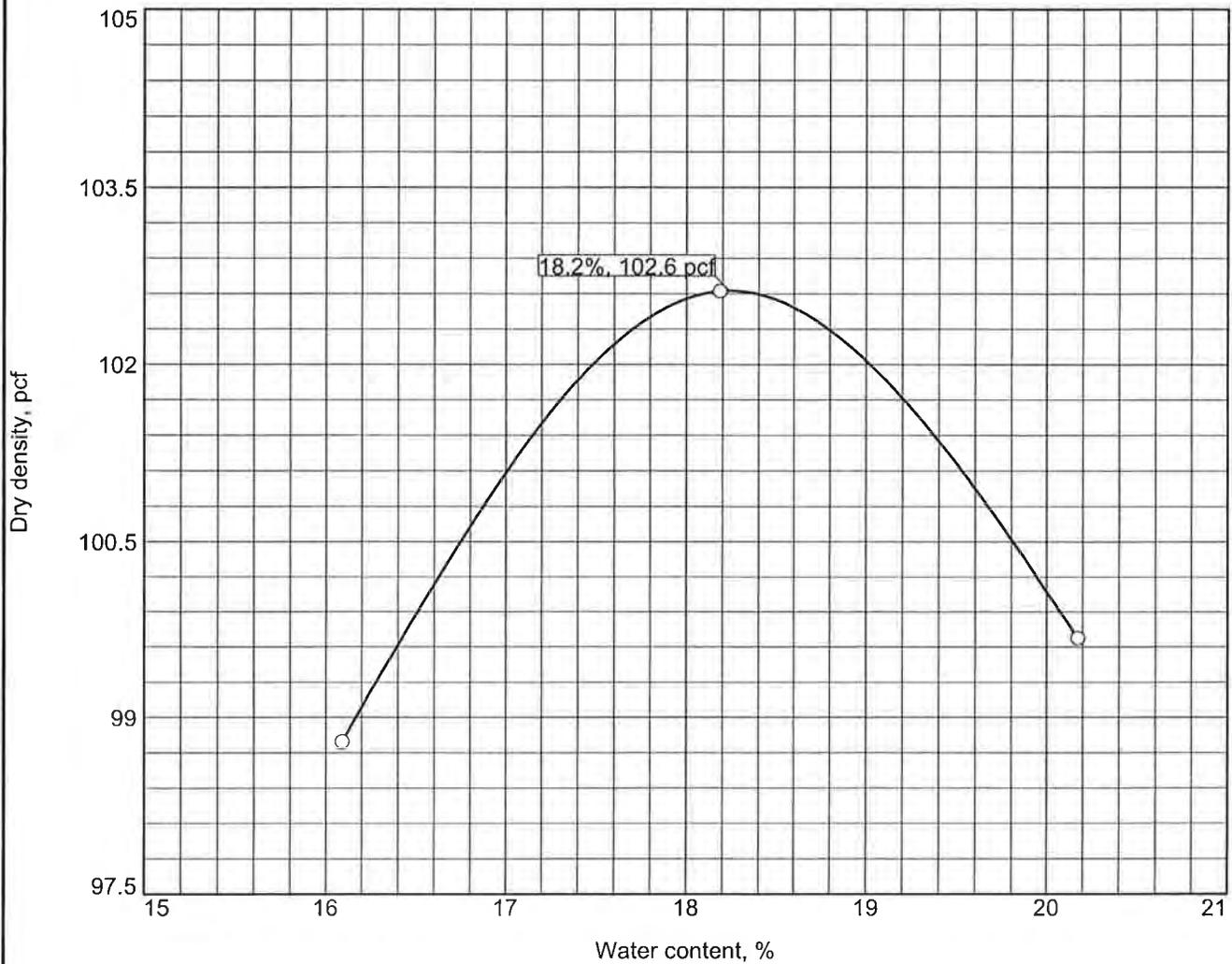
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
							0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 104.3 pcf	Brown Sandy Clay (visual)
Optimum moisture = 17.6 %	

<b>Project No.</b> 2615-001 <b>Client:</b> VESTRA Resources, Inc. <b>Project:</b> California Olive Ranch Chico, California <b>Location:</b> South West <b>Sample Number:</b> 2	<b>Remarks:</b> Curve #2 01/05/17
---	---



# COMPACTION TEST REPORT



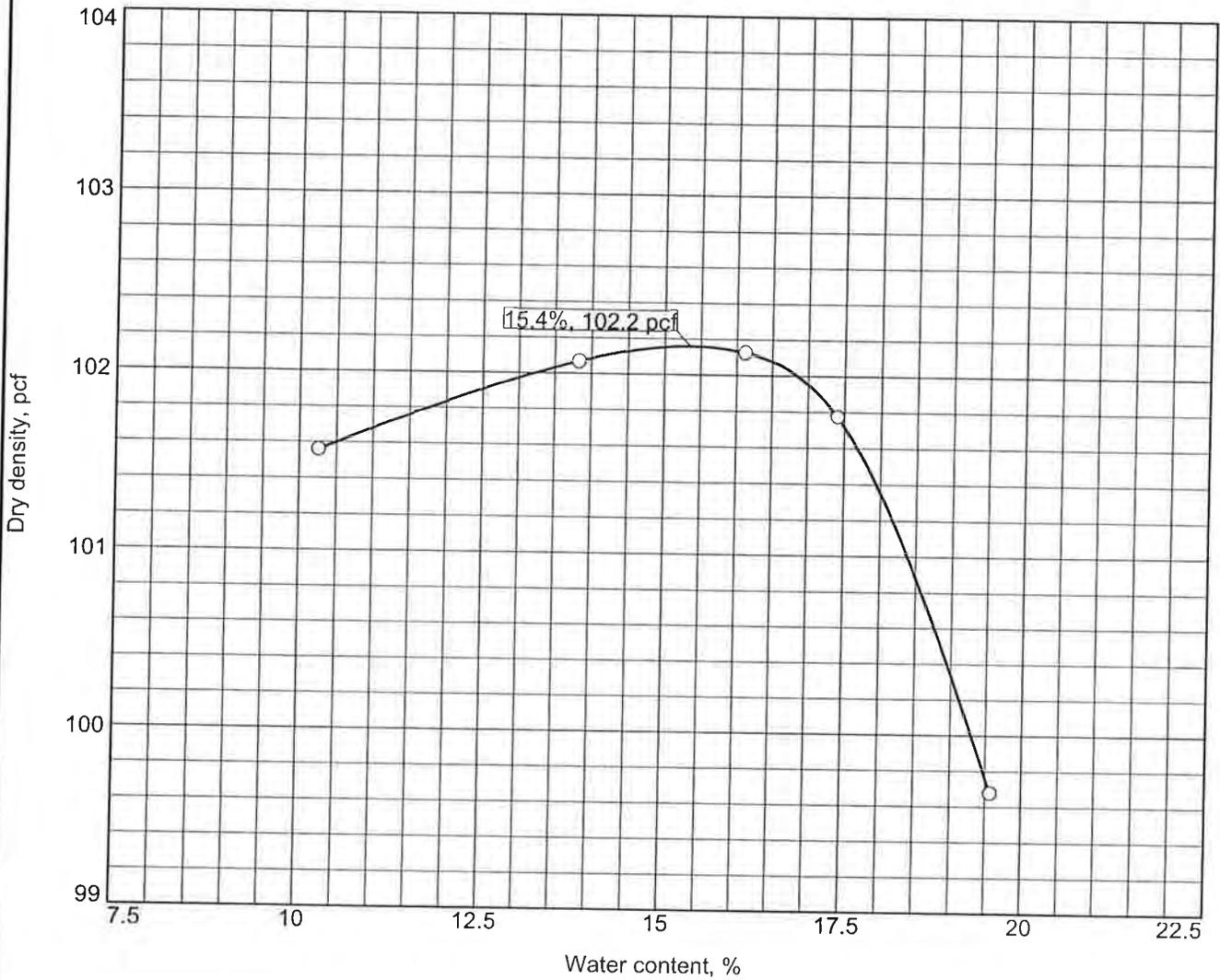
Test specification: ASTM D1557-12 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
							0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 102.6 pcf Optimum moisture = 18.2 %	Brown Sandy Clay (visual)
<b>Project No.</b> 2615-001 <b>Client:</b> VESTRA Resources, Inc. <b>Project:</b> California Olive Ranch Chico, California <b>Location:</b> North East on Pad <b>Sample Number:</b> 3	<b>Remarks:</b> Curve #3 01/05/17
 Materials Testing, Inc.	

Figure 0300-003

# COMPACTION TEST REPORT



Test specification: ASTM D1557-12 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	SC						0	

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 102.2 pcf Optimum moisture = 15.4 %	Brown Sandy Clay (visual)

<b>Project No.</b> 2615-001 <b>Client:</b> VESTRA Resources, Inc. <b>Project:</b> California Olive Ranch Chico, California <b>Location:</b> North West Corner <b>Sample Number:</b> 4	<b>Remarks:</b> Curve #4 01/05/17
 Materials Testing, Inc.	

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: Sample 1 SE 120

Sample Depth, ft.: N/A

Lab No.: S44424

Location: 0

Sample Type: Remolded

Remarks:

## TEST RESULTS

Permeability, cm/sec.:  $2.92E-07$

Average Hydraulic Gradient: 7.9

Effective Confining Pressure, psi: 5

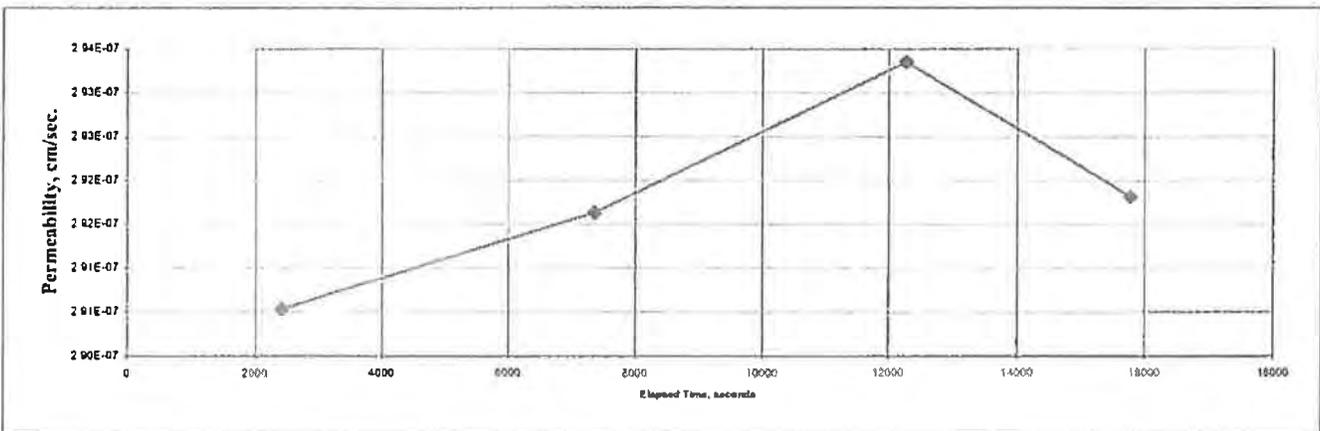
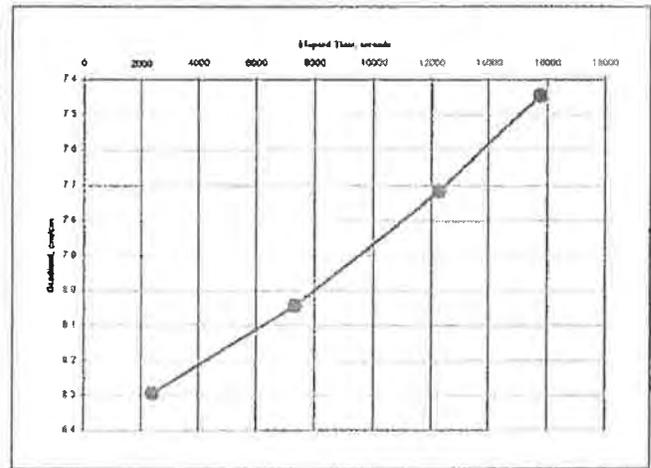
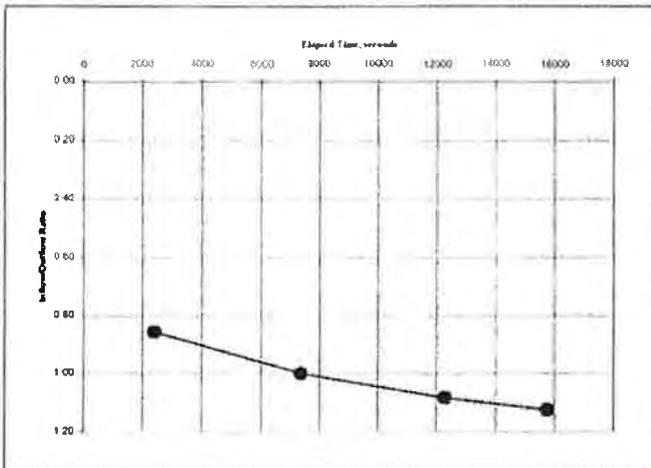
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 99.0  
 Moisture Content, % 16.8

### After Test

Specimen Height, cm: 7.77  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 106.1  
 Moisture Content, % 21.6



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 4, 2017

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CREATING THE FUTURE OF TESTING

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-822-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: **Sample 2, SW**  
 Location: 0  
 Remarks:

Sample Depth, ft.: N/A  
 Lab No.: S44425  
 Sample Type: Remolded

## TEST RESULTS

Permeability, cm/sec.: **2.35E-07**  
 Average Hydraulic Gradient: **7.7**  
 Effective Confining Pressure, psi: 5

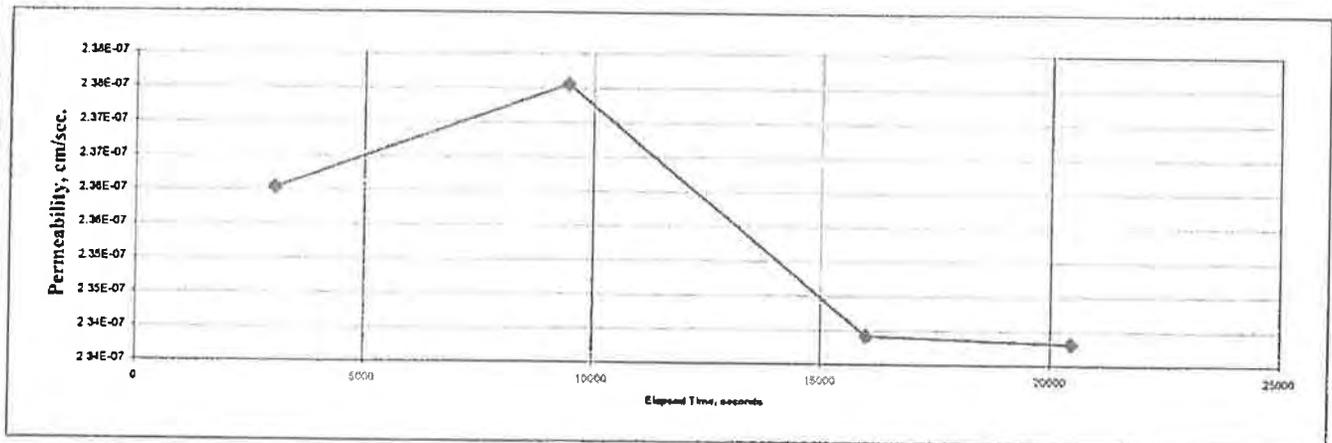
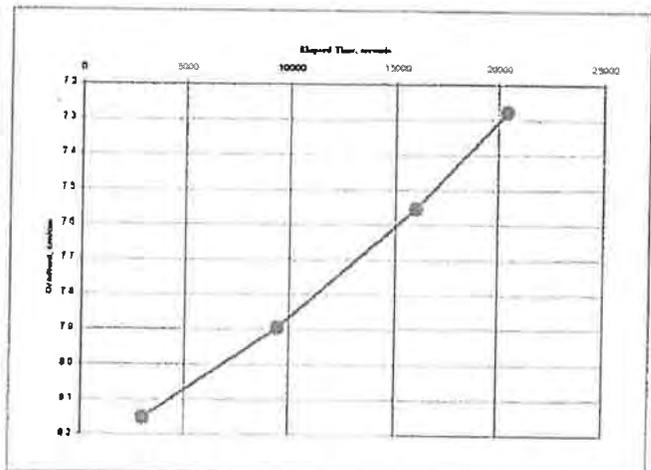
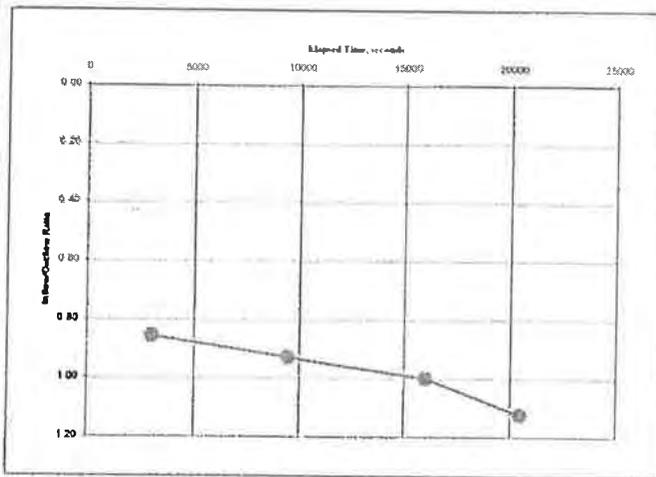
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 99.0  
 Moisture Content, % 17.6

### After Test

Specimen Height, cm: 7.77  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 104.6  
 Moisture Content, % 23.4



Test Method: ASTM D5084 Method C

**PROJECT NUMBER: 17-001**      **January 4, 2017**

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**California Olive Ranch**

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: Sample 3, NE Pad

Sample Depth, ft.: N/A

Lab No.: S44426

Location: 0

Sample Type: Remolded

Remarks:

## TEST RESULTS

Permeability, cm/sec.: 3.42E-07

Average Hydraulic Gradient: 7.3

Effective Confining Pressure, psi: 5

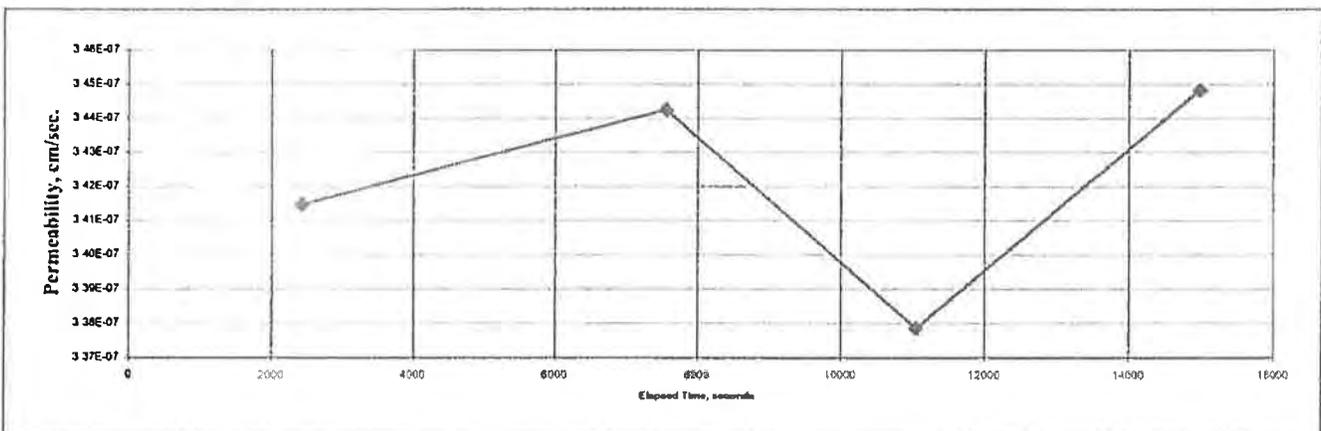
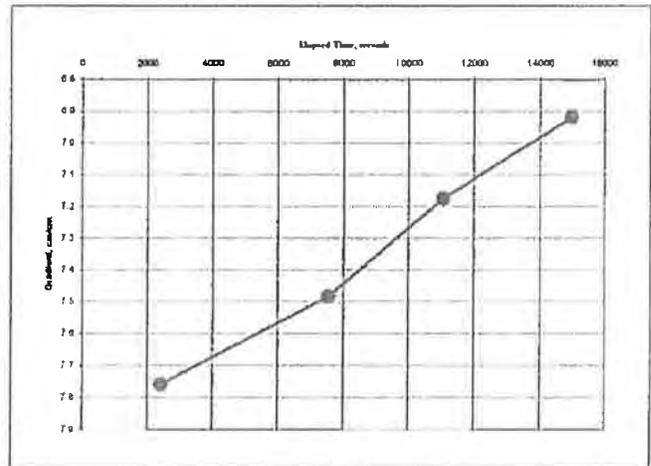
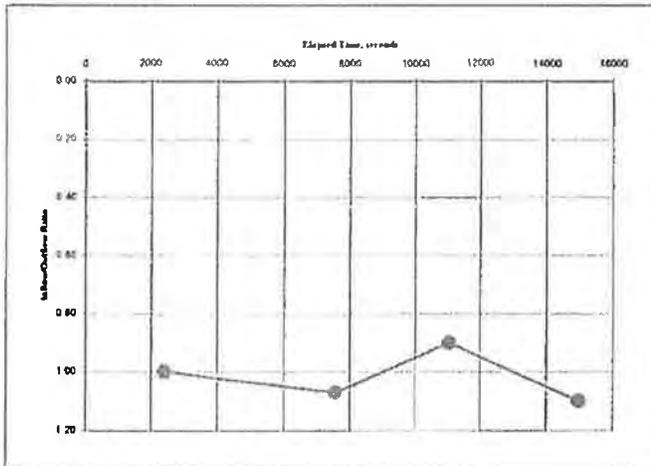
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 97.5  
 Moisture Content, % 18.2

### After Test

Specimen Height, cm: 7.77  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 101.7  
 Moisture Content, % 26.9



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 4, 2017

SIERRA TESTING LABORATORIES, INC.  
 485 PIERROZ RD. UNIT D, PLACERVILLE, CA 95667

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: Sample 4, NW Corner  
 Location: 0  
 Remarks:

Sample Depth, ft.: N/A  
 Sample Type: Remolded

Lab No.: S44427

## TEST RESULTS

Permeability, cm/sec.: 5.31E-07

Average Hydraulic Gradient: 7.6

Effective Confining Pressure, psi: 5

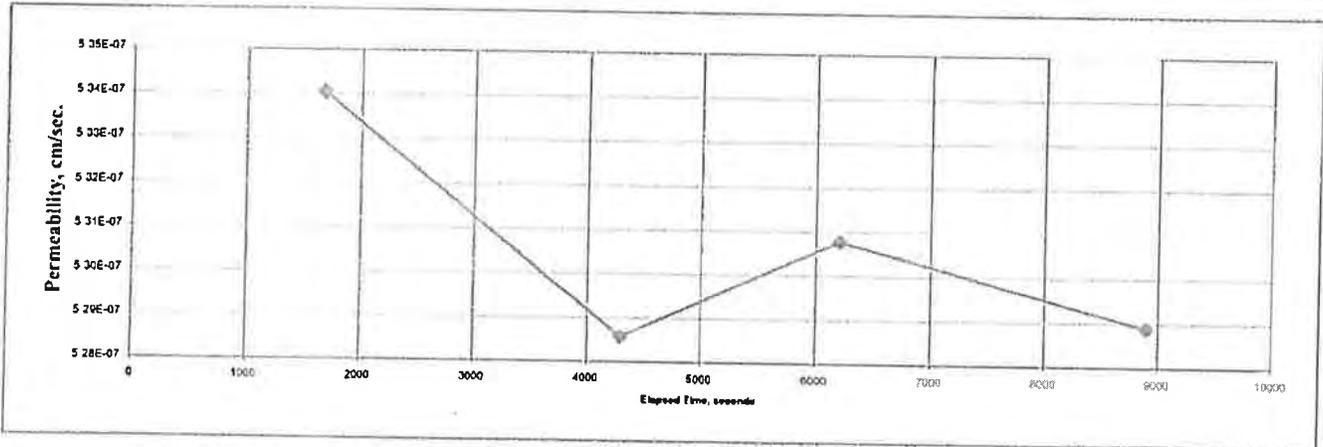
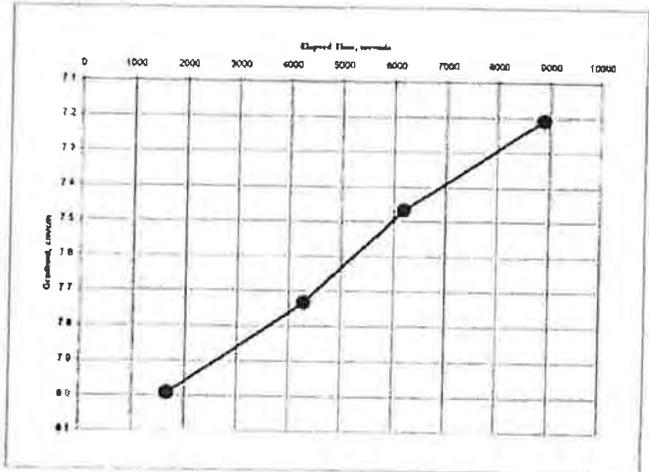
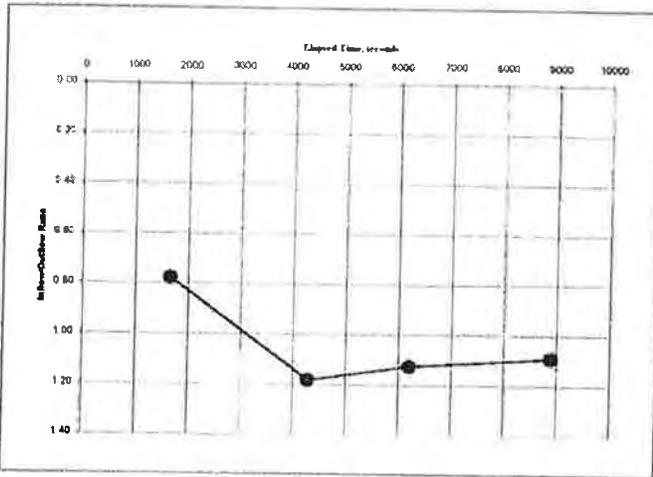
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 7.62  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 97.1  
 Moisture Content, % 15.4

### After Test

Specimen Height, cm: 7.72  
 Specimen Diameter, cm: 6.17  
 Dry Unit Weight, pcf: 114.9  
 Moisture Content, % 23.0



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 4, 2017

SIERRA TESTING LABORATORIES, INC.  
 3000 UNIVERSITY AVENUE, SUITE 100, PLACERVILLE, CA 95667

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: TP-1

Sample Depth, ft.: 3.0-3.5

Lab No.: S44441

Location: 0

Sample Type: Liner

Remarks:

## TEST RESULTS

Permeability, cm/sec.: 1.59E-07

Average Hydraulic Gradient: 12.3

Effective Confining Pressure, psi: 5

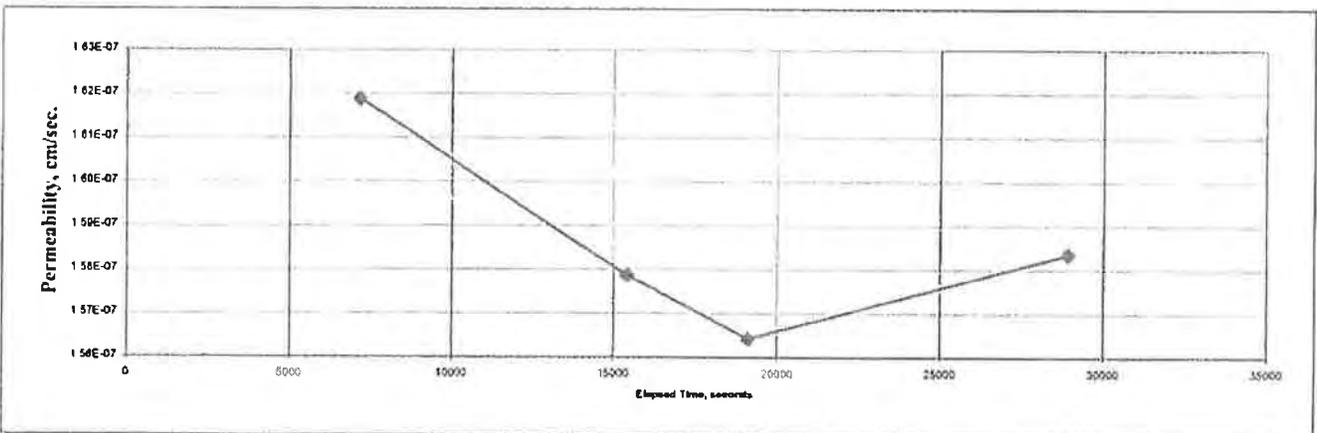
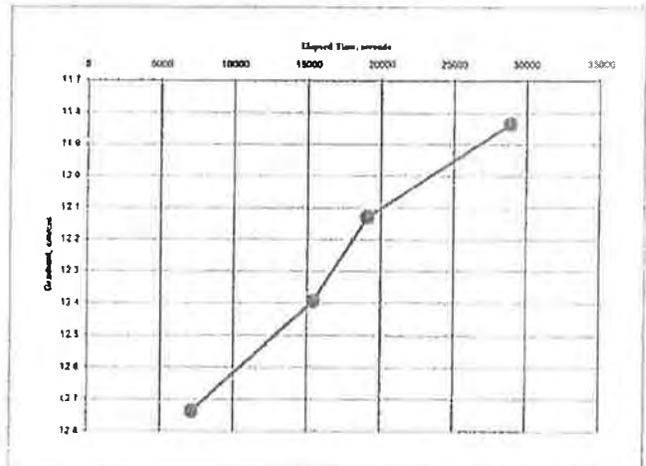
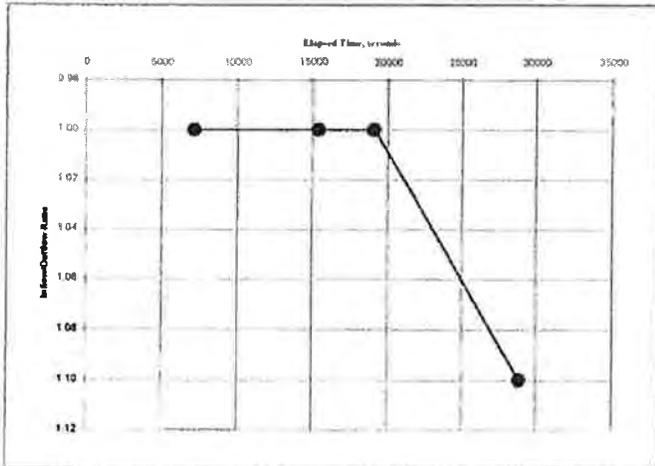
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 5.08  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 123.8  
 Moisture Content, % 13.7

### After Test

Specimen Height, cm: 4.93  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 119.4  
 Moisture Content, % 16.2



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 30, 2017

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 GEOTECHNICAL AND ENVIRONMENTAL TESTING LABORATORIES

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: TP-2  
 Location: 0  
 Remarks:

Sample Depth, ft.: 3.5-4.0      Lab No.: S44442  
 Sample Type: Liner

## TEST RESULTS

Permeability, cm/sec.: 1.74E-07      Average Hydraulic Gradient: 11.9  
 Effective Confining Pressure, psi: 5

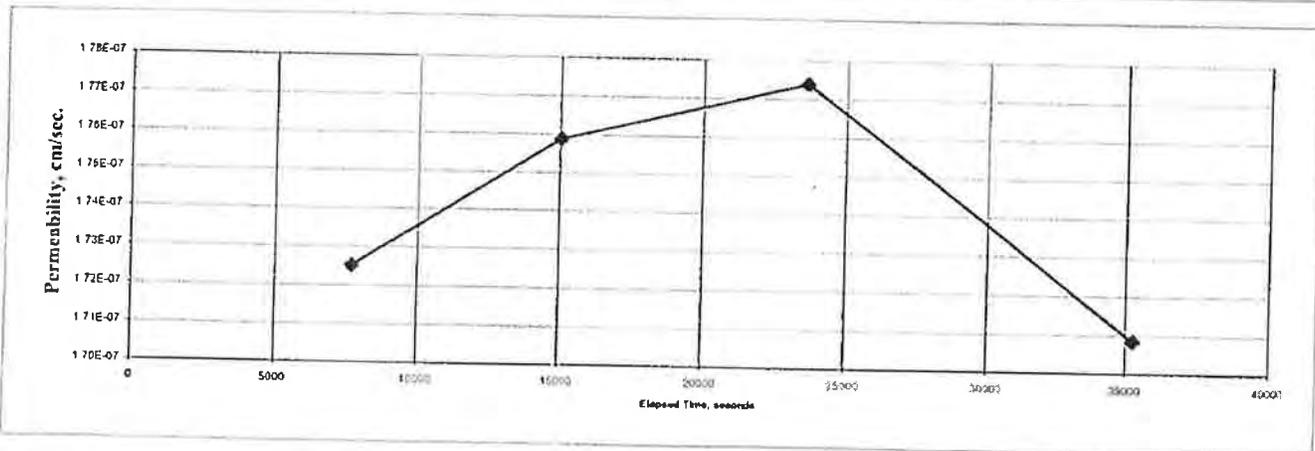
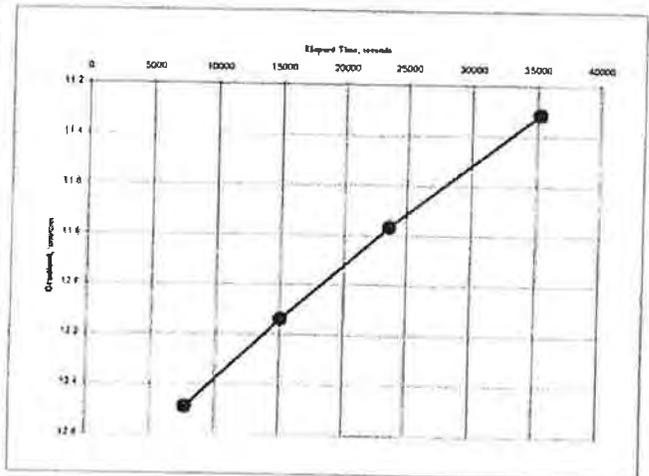
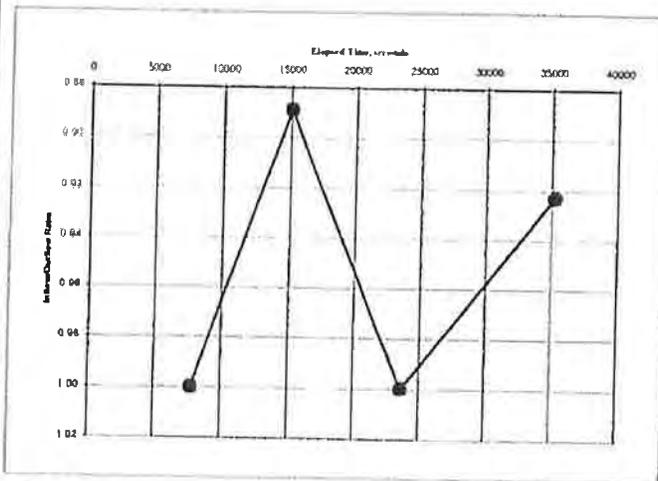
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 5.08  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 106.9  
 Moisture Content, % 21.7

### After Test

Specimen Height, cm: 4.98  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 115.7  
 Moisture Content, % 19.3



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001      January 30, 2017

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Ph 530-622-1101      Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: TP-3

Sample Depth, ft.: 3.5-4.0

Lab No.: S44443

Location: 0

Sample Type: Liner

Remarks:

## TEST RESULTS

Permeability, cm/sec.: 1.70E-07

Average Hydraulic Gradient: 14.1

Effective Confining Pressure, psi: 5

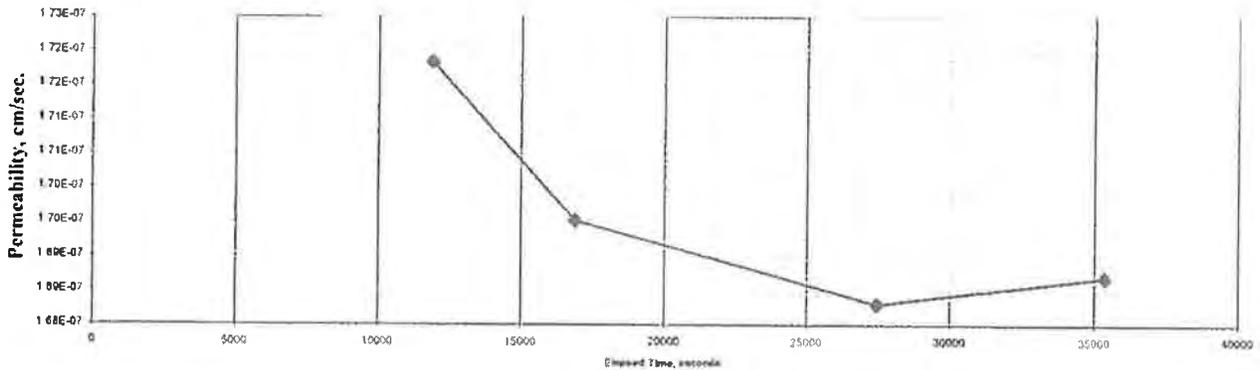
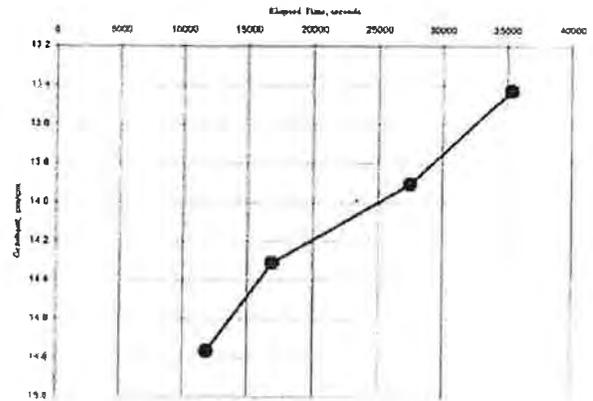
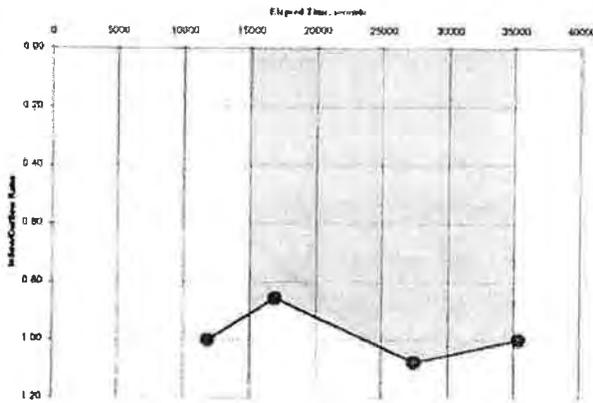
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 4.98  
 Specimen Diameter, cm: 4.80  
 Dry Unit Weight, pcf: 111.6  
 Moisture Content, % 19.3

### After Test

Specimen Height, cm: 4.93  
 Specimen Diameter, cm: 4.80  
 Dry Unit Weight, pcf: 117.8  
 Moisture Content, % 19.0



Test Method ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 30, 2017

SIERRA TESTING LABORATORIES, INC.  
 GEOTECHNICAL AND MATERIALS TESTING SERVICES

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 Ph 530-622-1101 Fax 530-622-1191

California Olive Ranch

# HYDRAULIC CONDUCTIVITY TEST REPORT

## SAMPLE DATA

Sample Identification: **TP-4**

Sample Depth, ft.: 3.5-4.0

Lab No.: S44444

Location: 0

Sample Type: Liner

Remarks:

## TEST RESULTS

Permeability, cm/sec.: 4.80E-07

Average Hydraulic Gradient: 8.4

Effective Confining Pressure, psi: 5

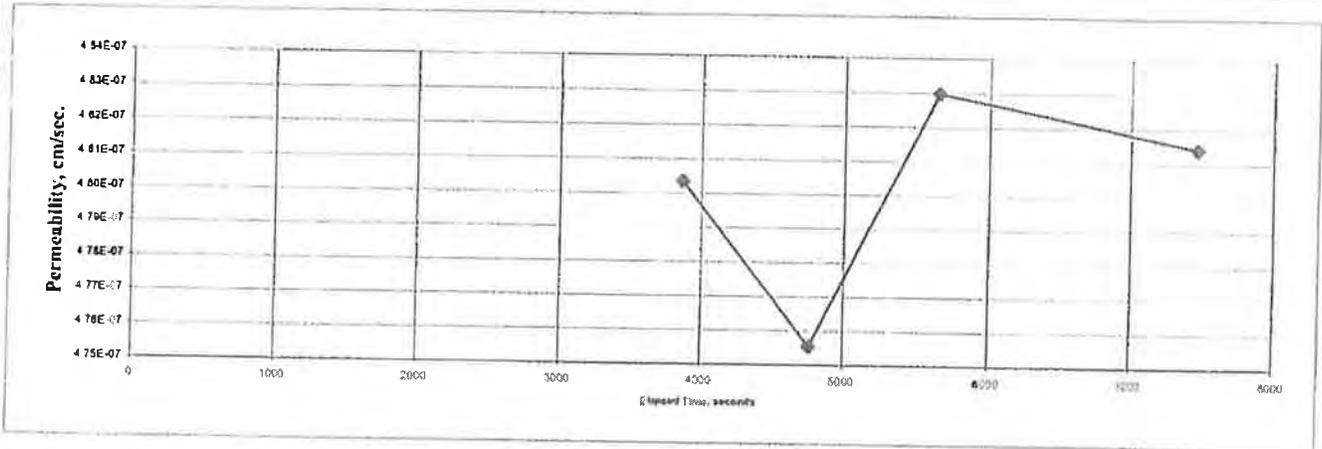
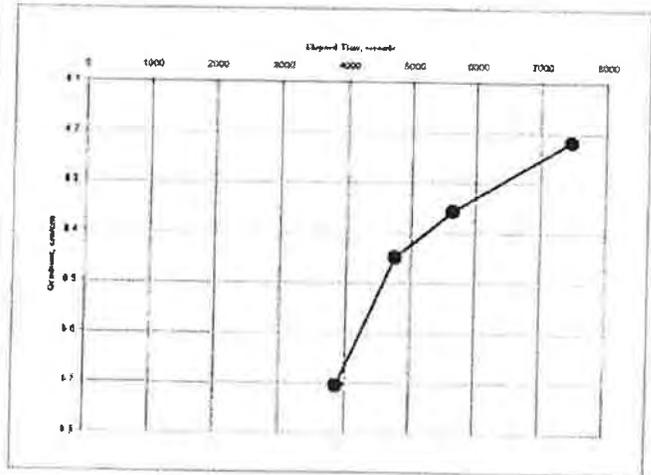
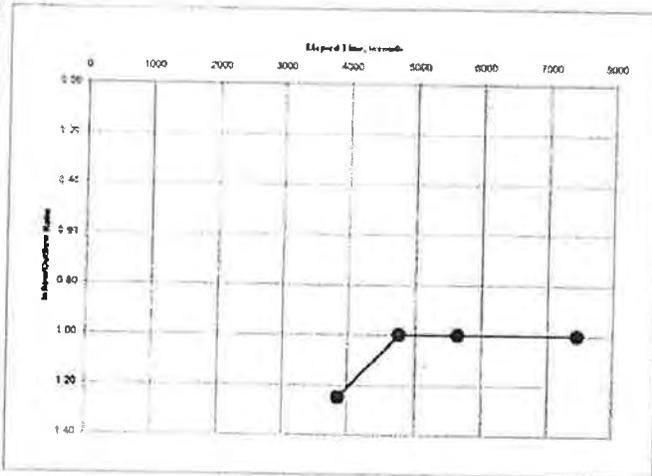
## TEST SAMPLE DATA

### Before Test

Specimen Height, cm: 5.08  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 101.4  
 Moisture Content, % 26.1

### After Test

Specimen Height, cm: 4.32  
 Specimen Diameter, cm: 4.85  
 Dry Unit Weight, pcf: 112.1  
 Moisture Content, % 21.1



Test Method: ASTM D5084 Method C

PROJECT NUMBER: 17-001

January 30, 2017

SIERRA TESTING LABORATORIES, INC.  
 11111 BURNING OAK ROAD, SUITE 100, PLACERVILLE, CA 95667

485 Pierroz Rd, Unit D, Placerville, CA 95667  
 Ph 530-622-1101 Fax 530-622-1191

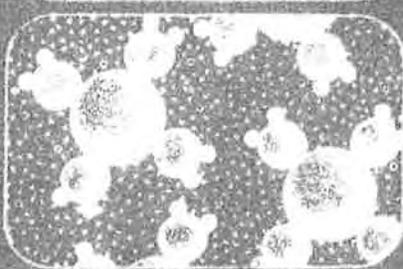
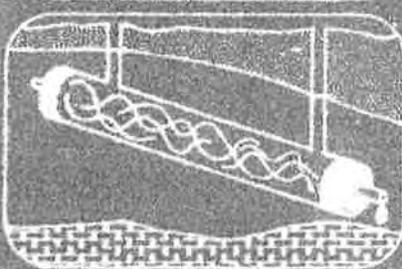
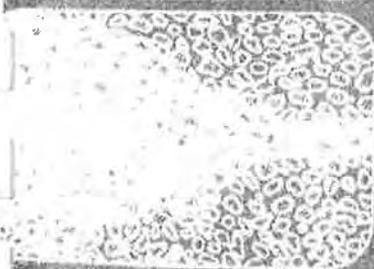
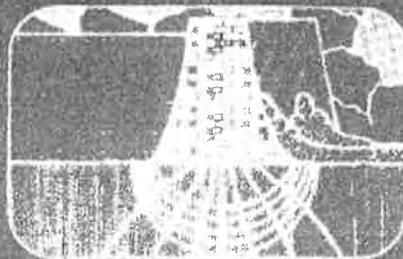
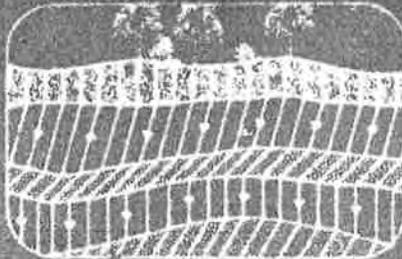
California Olive Ranch

**EFFECTIVE CONDUCTIVITY OF LAYER MEDIA**  
**VERTICAL CONDITION**  
**CALIFORNIA OLIVE RANCH PROPOSED COMPOST AREA**  
**Feb-17**

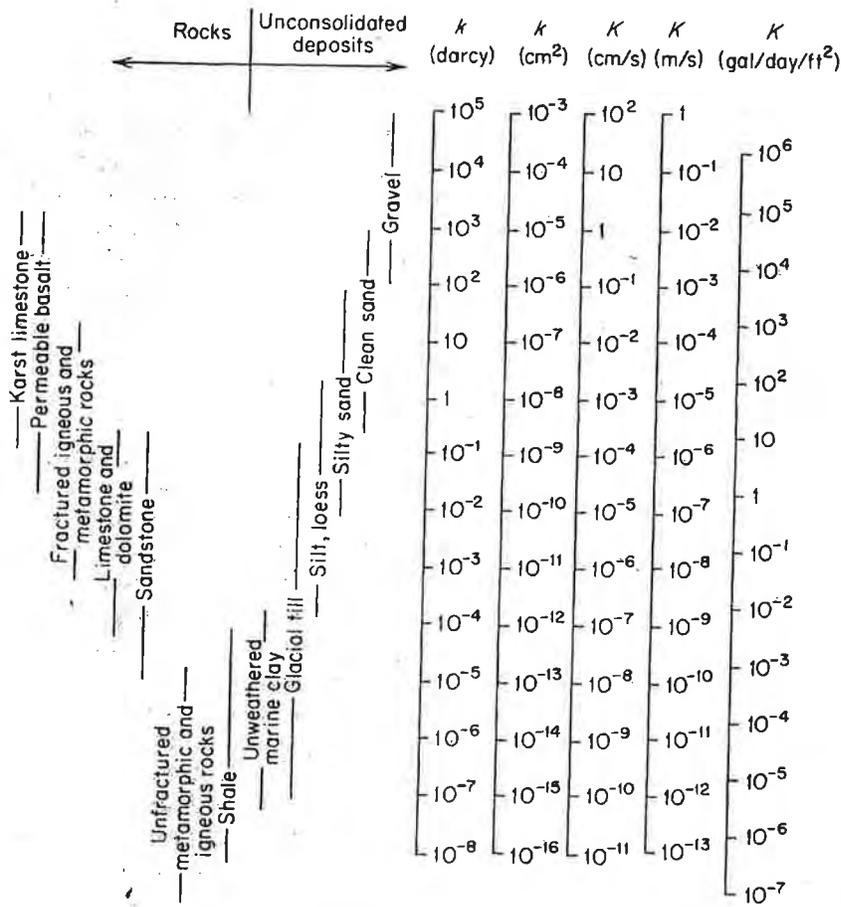
	Depth Interval	Thickness (b in feet)	Lithology	Hydraulic Conductivity (K in cm/sec)	b/K	
TP-1	1	2	clayey sand	1.00E-05	200000	
	2	3.5	gravelly sandy clay	1.59E-07	22012578.62	
	3	1.5	gravelly sand	0.01	150	
	Total Depth	7				
	K effective				3.15E-07	cm/sec
	Depth Interval					b/hc
TP-2	1	2.2	sandy clay	1.00E-05	220000	
	2	4.8	silty clay	1.74E-07	27586206.9	
	3					
	Total Depth	7				
	K effective				2.52E-07	cm/sec
	Depth Interval					b/hc
TP-3	1	2.4	sandy clay	1.00E-05	240000	
	2	4.6	silty clay	1.70E-07	27058823.53	
	3					
	Total Depth	7				
	K effective				2.56E-07	cm/sec
	Depth Interval					b/hc
TP-4	1	2	clayey sand	1.00E-05	200000	
	2	3	sandy clay	4.80E-07	6250000	
	3	1.5	gravelly sand	0.01	150	
	Total Depth	6.5				
	K effective				1.01E-06	cm/sec
	Laboratory result from undisturbed field sample					
	Estimate based on lithology from Freeze and Cherry, 1979, page 29					
	Average K effective				4.58E-07	cm/sec

# GROUNDWATER

R. Allan Freeze / John A. Cherry



**Table 2.2 Range of Values of Hydraulic Conductivity and Permeability**



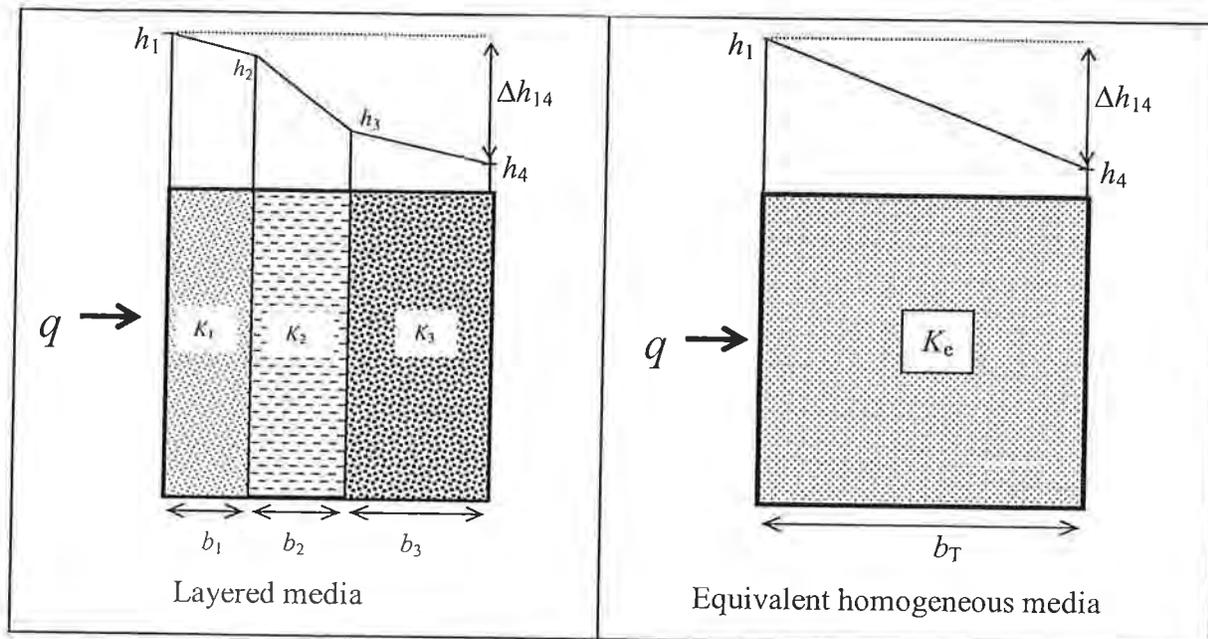
**Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units**

	Permeability, <i>k</i> *			Hydraulic conductivity, <i>K</i>		
	cm <sup>2</sup>	ft <sup>2</sup>	darcy	m/s	ft/s	U.S. gal/day/ft <sup>2</sup>
cm <sup>2</sup>	1	1.08 × 10 <sup>-3</sup>	1.01 × 10 <sup>8</sup>	9.80 × 10 <sup>2</sup>	3.22 × 10 <sup>3</sup>	1.85 × 10 <sup>9</sup>
ft <sup>2</sup>	9.29 × 10 <sup>2</sup>	1	9.42 × 10 <sup>10</sup>	9.11 × 10 <sup>5</sup>	2.99 × 10 <sup>6</sup>	1.71 × 10 <sup>12</sup>
darcy	9.87 × 10 <sup>-9</sup>	1.06 × 10 <sup>-11</sup>	1	9.66 × 10 <sup>-6</sup>	3.17 × 10 <sup>-5</sup>	1.82 × 10 <sup>1</sup>
m/s	1.02 × 10 <sup>-3</sup>	1.10 × 10 <sup>-6</sup>	1.04 × 10 <sup>5</sup>	1	3.28	2.12 × 10 <sup>6</sup>
ft/s	3.11 × 10 <sup>-4</sup>	3.35 × 10 <sup>-7</sup>	3.15 × 10 <sup>4</sup>	3.05 × 10 <sup>-1</sup>	1	6.46 × 10 <sup>5</sup>
U.S. gal/day/ft <sup>2</sup>	5.42 × 10 <sup>-10</sup>	5.83 × 10 <sup>-13</sup>	5.49 × 10 <sup>-2</sup>	4.72 × 10 <sup>-7</sup>	1.55 × 10 <sup>-6</sup>	1

\*To obtain *k* in ft<sup>2</sup>, multiply *k* in cm<sup>2</sup> by 1.08 × 10<sup>-3</sup>.

# Effective Hydraulic Conductivity of Layered Media

## Effective Conductivity Normal to Layers



According to Darcy's Law, the flux through each layer is

$$q_1 = -K_1 \frac{h_2 - h_1}{b_1} = -K_1 \frac{\Delta h_{12}}{b_1}; \quad \text{or} \quad \Delta h_{12} = -q_1 \frac{b_1}{K_1}$$

$$q_2 = -K_2 \frac{h_3 - h_2}{b_2} = -K_2 \frac{\Delta h_{23}}{b_2}; \quad \text{or} \quad \Delta h_{23} = -q_2 \frac{b_2}{K_2}$$

$$q_3 = -K_3 \frac{h_4 - h_3}{b_3} = -K_3 \frac{\Delta h_{34}}{b_3}; \quad \text{or} \quad \Delta h_{34} = -q_3 \frac{b_3}{K_3}$$

and

$$q_e = -K_e \frac{h_4 - h_1}{b_T} = -K_e \frac{\Delta h_{14}}{b_T}; \quad \text{or} \quad \Delta h_{14} = -q_e \frac{b_T}{K_e}$$

where  $\Delta h_{23}$  is shorthand for the head drop across layer 2, etc. Assuming that the head drop across the equivalent media is the same as the total drop across the layers

$$\Delta h_{14} = \Delta h_{12} + \Delta h_{23} + \Delta h_{34}; \quad \text{or} \quad q_e \frac{b_T}{K_e} = q_1 \frac{b_1}{K_1} + q_2 \frac{b_2}{K_2} + q_3 \frac{b_3}{K_3}$$

But the flux through each layer is the same, and they are equal to the flux through the equivalent layer, so

$$K_e = \frac{b_T}{\left[ \frac{b_1}{K_1} + \frac{b_2}{K_2} + \frac{b_3}{K_3} \right]} \quad \text{or for } n \text{ layers} \quad K_e = \frac{b_T}{\sum_{i=1}^n \left[ \frac{b_i}{K_i} \right]}$$

NE SITE 21N03W-31 396252N, 1222351W

#1000021E

REGION 5  
 COUNTY Glenn  
 NEAR Artois

STATE OF CALIFORNIA  
 DEPARTMENT OF WATER RESOURCES

DRAIN Sacramento Valley  
 DWR No. 21/3W-31R2-31R5  
 OTHER Nos.

WELL LOG

\* each piezometer has separate well no.

LOCATION 40'N, 60'W of SE Corner Section 31

OWNER [REDACTED] ADDRESS

DRILLED BY USBR ADDRESS

DRILLING METHOD Rotary GRAVEL PACKED DATE COMPLETED 5-21-53

SIZE OF CASING DEPTH 8" to 12', 4" to 380' STRUCK WATER AT

PERFORATIONS 285' to 380' SIZE No.

WATER LEVEL BEFORE PERFORATING Piezometers at 105', 210', 525' AFTER

TEST DATA: DISCHARGE G.P.M. Packers at 150', 270', 410' DRAWDOWN FT. HOURS RUN

OTHER DATA AVAILABLE: WATER LEVEL RECORD ANALYSIS

Electric log run  
 SURFACE ELEV. 187' DATUM SOURCE OF INFORMATION USBR

FOR FIELD COPIES USE ALTERNATE LINES

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SG YIELD %
0-4.0	Cored	Clay, silty, pebbly, yellow-brown		
5.0	"	Silt, clayey, pebbly, yellow-brown		
10.8	"	Clay, silty, slightly plastic, yellow-brown		
13.4	"	Sand, very coarse, pervious, friable, bedded, yellow-brown		
16.4	"	Clay, silty, scattered coarse sand, yellow-brown to olive		
19.2	"	Silt, clayey, with fine sand, firm plastic, yellow-brown to olive		
19.8	"	Sand, coarse, pervious, friable, ill-sorted, yellow-brown		
34.7	"	Gravel, pebbly with sandy clay matrix, pervious, firm, ill-sorted yellow-brown, pebbles of quartz, chert, and meta-arenite		
39.2	"	Clay, silty, firm, plastic, some fine sand, blue-green		
40.1	"	Clay, pebbly, blue-green		
44.0	"	Clay, silty, calcareous nodules, blue-green		
45.0	"	Clay, sandy, blue-green		
49.2	"	Gravel, to 1 inch, chert (15%), quartz (55%), meta-arenite (30%)		
49.6	"	Sand, fine, pebbly, pervious, firm, yellow-brown		

LOG OBTAINED BY R. S. Ford DATE 6-16-64 SHEET 1 OF 1  
 Plotted and Coded

WELL LOG

LOCAL DESIGNATION

DEPTH	ELEVATION OF BOTTOM OF BENTONITE	MATERIAL	THICKNESS FEET	% VOIDS	ABSOLUTE VOIDS FEET	TOTAL VOIDS FEET
54.5	Cored	Gravel to 1 inch, quartz, meta-arenite, chert				
55.0	"	Sand, medium to coarse, pebbly to clayey, pervious, firm, friable, yellow-brown				
59.0	"	Gravel, to 1 inch				
59.7	"	Sand, fine, pebbly, yellow-brown				
75.7	"	Silt, clayey, massive, manganese stained				
78.6	"	Sand, fine, silty, yellow-brown, poorly pervious				
92.9	"	Gravel, pebbly, sandy, silty, pervious, ill-sorted, cemented below 85', contains black metamorphics, white quartz, and sandstone				
93.4	"	Silt, sandy, dusky yellow				
96.3	"	Silt, clayey, firm, dark yellow				
119.1	"	Gravel, sand, silty, loose, reddish-brown, cemented 104' to 115'				
120.1	"	Silt, sandy, pebbly, friable to firm				
124.0	"	Sand, very fine, pervious, friable, high quartz content, yellow-brown, calcareous nodules and lenses.				
126.2	"	Silt, clayey, fine sand, yellow-brown				
128.8	"	Sand, very fine, pervious friable, yellow-brown, calcareous nodules to 2 inches				
140.9	"	Silt, clayey, friable to firm, yellow-brown				
142.0	"	Sand, fine, pervious, loose, well-sorted, olive-brown				
145.4	"	Clay, silty, firm, plastic, gray-olive				
149.0	"	Clay, sandy, firm, plastic, pale olive				
151.3	"	Clay, silty, firm, plastic, dusky yellow				
152.1	"	Sand, very fine, pervious, firm, ill-sorted, yellow-brown				
156.8	"	Clay, silty, firm to plastic, dusky yellow				
157.0	"	Sand, very fine, firm, ill-sorted, yellow-brown				
160.0	"	Clay, silty, firm, plastic, yellow-brown to olive				
166.0	"	Clay, silty, with limestone streaks to 6", yellowish gray				
174.9	"	Sand lensed with clay, moderately pervious, ill-sorted, yellow-brown				

FOR FIELD COPIES USE ALTERNATE LINES

Plotted and Coded

WELL LOG

LOCAL DESIGNATION

DEPTH	ELEVATION OF BOTTOM OF STRATUM	MATERIAL	THICKNESS FEET	% VOIDS	ABSOLUTE VOIDS FEET	TOTAL VOIDS FEET
181.3	Cored	Sand, very fine, pervious, firm, ill-sorted, yellow-brown				
183.1	"	Sand, fine, pervious, well-sorted, friable, olive-brown				
197.8	"	Gravel, to 2 inches, of meta-arenites, quartz, and chert				
198.8	"	Clay, silty, plastic, pale olive				
200.1	"	Sand, very fine, pervious, ill-sorted				
201.9	"	Gravel, clayey, pebbles to 1 inch, yellow-brown				
204.2	"	Silt, sandy, firm, yellow-brown				
205.8	"	Sand, silty, pervious, friable to loose dark yellow-brown				
208.8	"	Silt, sandy, firm, limey seams, yellow-brown				
210.0	"	Sand, fine, silty, pervious, friable to loose, well-sorted, yellow-brown				
210.9	"	Gravel, silty, sandy, pervious, firm, ill-sorted, calcareous, pebbles to 1/2-inch, dark yellow-brown				
214.8	"	Silt, sandy, clayey, firm, limey, yellow-brown				
215.2	"	Sand, very fine to coarse, yellow-brown				
224.1	"	Silt, sandy, clayey, firm, limey layers, yellow-brown				
233.8	"	Sand, medium, silty, clayey, pervious, friable to firm, massive, ill-sorted, olive-gray to dark yellow-brown				
248.2	"	Silt, sandy, firm to hard, lime cemented, yellow-brown, root holes, very hard limey layer at 245.6				
248.8	"	Silt, sandy, firm, gray-green				
250.9	"	Sand, fine to medium, pervious, loose to friable, well-sorted blue-gray				
251.8	"	Silt, sandy, brittle, root holes, limey, olive-gray				
255.5	"	Silt, firm, limey, yellow-brown				
258.8	"	Silt, clayey, brittle, root holes, gypsum(?) streaks, red brown				
264.7	"	Sand, fine to coarse, silty, pervious, ill-sorted, yellow-brown				
276.5	"	Clay, silty, firm, blue-gray				
278.0	"	Clay, silty, firm, plastic, calcareous nodules, gray-green				
283.0	"	Limestone, hard, yellow-gray, mottled with non-calcareous silty clay				

FOR FIELD COPIES USE ALTERNATE LINES

DIVISION OF WATER RESOURCES  
DEPARTMENT OF PUBLIC WORKS  
STATE OF CALIFORNIA

#1000021F SHEET 4

NUMBER 21/3W-31R2

WELL LOG

LOCAL DESIGNATION

DEPTH	ELEVATION OF BOTTOM OF STRATUM	MATERIAL	THICKNESS FEET	% VOIDS	ABSOLUTE VOIDS FEET	TOTAL VOIDS FEET
285.5	Cored	Sand, very fine, friable, well-sorted, greenish-gray				
293.0	"	Gravel, to 1/2-inch, of meta-sediments, quartz, and chert				
295.1	"	Sand, very fine, pervious, friable				
305.2	"	Sand, very fine, scattered pebbles and cobbles of quartz chert, and sandstone, olive-gray				
306.0	"	Clay, silty, plastic, gray-green				
325.8	"	Clay, silty, plastic, some fine sand, hard calcareous streaks 315' to 325', yellow-gray to green-gray				
327.8	"	Sand, very fine, moderately pervious, friable, gray-green				
329.1	"	Sand, fine, pervious, loose, friable, well-sorted, gray-green				
330.3	"	Clay, silty, plastic, gray-green				
334.6	"	Limestone, hard, gray-green				
342.6	"	Clay, silty, firm, plastic, calcareous streaks, gray-green				
345.4	"	Limestone, hard, yellow-gray				
346.7	"	Sand, fine, pervious, friable, ill-sorted, gray-green				
350.5	"	Clay, silty, plastic, calcareous layer at 350', gray-green				
355.0	"	Sand, very fine, low permeability, thin bedded, friable				
356.5	"	Clay, sandy, pebbly, firm, dusky green				
376.0	"	Sand, pebbly, pervious, loose, pebbles to 2-inches				
376.5	"	Gravel, clayey, firm, dark gray-green				
389.2	"	Silt, clayey, firm to brittle, gray-green				
382.5	"	Sand, fine, silty, clayey, soft to firm, moderately pervious, gray-green				
393.6	"	Gravel, sandy, silty, moderately pervious, loose, ill-sorted, pebbles to 1-1/2 inches, dusky green				
407.5	"	Silt, clayey, firm to hard, calcareous nodules, blue-green				
411.9	"	Clay, silty, firm, stratified, olive-gray				
412.4	"	Sand, very fine, friable, ill-sorted, gray-green				
417.5	"	Silt, firm, calcareous nodules, blue-gray				
427.7	"	Clay, silty, firm, calcareous, gray-green				
430.0	"	Silt, sandy, gray-green	Plotted and Coded			

FOR FIELD COPIES USE ALTERNATE LINES

WELL LOG

LOCAL DESIGNATION

FOR FIELD COPIES USE ALTERNATE LINES

DEPTH	ELEVATION OF BOTTOM OF STRATUM	MATERIAL	THICKNESS FEET	% VOIDS	ABSOLUTE VOIDS FEET	TOTAL VOIDS FEET
436.9	Cored	Clay, silty, stratified with hard limestone lenses, yellow-brown				
447.4	"	Silt, friable to firm, thin bedded, hard calcareous nodules, yellow-brown				
451.0	"	Sand, very fine, pervious, friable, ill-sorted, calcareous, yellow-brown				
456.2	"	Sand, coarse, pebbly, pervious, loose, ill-sorted, yellow-brown				
462.6	"	Sand, very fine, gravel streaks, pervious, yellow-brown				
484.6	"	Sand, medium, pebbly, pervious, friable, ill-sorted, pebbles to 2-inches, cemented by gypsum(?) and limonite, olive-brown				
488.2	"	Sand, fine, clayey, silty, firm, yellow-brown				
489.5	"	Silt, sandy, firm, gray-green				
494.9	"	Gravel, pebbly, silty, sandy, pervious, firm, gray-green				
497.0	"	Clay, silty, soft, plastic, calcareous veinlets and nodules, gray-green				
503.4	"	Clay, silty to sandy, firm to hardy nonplastic, yellow-brown				
505.6	"	Silt, sandy, pebbly, firm to hard, yellow-brown				
516.0	"	Gravel, pervious, loose, ill-sorted, pebbles to 2-inches calcareous layers, olive-gray				
525	Not cored	Gravel and coarse sand				
535	"	Streaks of gravel in sandy clay				
540	"	Silty sand				
541.5	Cored	Clay, silty, firm to brittle, gray-green				
543.7	"	Silt, sandy, pebbly, firm, deeply weathered, limonite stains, yellow-brown				
565.0	Not cored	Gravel, silt, and sand				
		T.D. 565.0				
		Plotted and Coded				
		As Well 21N-13W-31R20				



396049N1222495W

ORIGINAL  
File with DWR

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet

DWR USE ONLY DO NOT FILL IN

20N 03W - #

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Page 1 of 12

Owner's Well No. **8123**

No. **E057712**

Date Work Began **6/4/2007**

Ended **6/18/2007**

Local Permit Agency **GLENN COUNTY HEALTH DEPT**

Permit No. **MW 280-07**

Permit Date **5/31/2007**

**GEOLOGIC LOG**

ORIENTATION (✓)		DRILLING METHOD		FLUID	
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> ANGLE (SPECIFY)		<input checked="" type="checkbox"/> ROTARY		<input type="checkbox"/> MUD	
DEPTH FROM SURFACE		DESCRIPTION			
FL	to Ft.	Describe material, grain, size, color, etc.			
0	10	TOP SOIL			
10	40	BROWN CLAY WITH SAND AND GRAVEL			
40	130	YELLOW BROWN CLAY WITH SAND STREAKS			
130	140	SAND AND GRAVEL			
140	250	YELLOW BROWN CLAY WITH SAND STREAKS			
250	260	SAND AND GRAVEL			
260	310	YELLOW BROWN CLAY WITH SAND STREAKS			
310	465	YELLOW BROWN CLAY WITH SAND AND GRAVEL			
465	485	SAND AND GRAVEL WITH BLUE CLAY			
485	500	SAND AND GRAVEL			
500	530	BLUE CLAY WITH SAND			
530	625	BLUE AND YELLOW CLAY MIX WITH SAND AND GRAVEL STREAKS			
625	700	SAND AND GRAVEL WITH YELLOW AND BLUE CLAY MIX			
700	865	YELLOW BROWN AND BLUE CLAY MIX WITH SAND AND GRAVEL			
865	1000	GRAY CLAY WITH SAND AND GRAVEL STREAK			
1000	1050	SAND AND GRAVEL			
1050	1200	SAND AND GRAVEL WITH BLUE GRAY CLAY			
1200	1300	YELLOW ORANGE CLAY WITH SAND AND GRAVEL STREAKS			
1300	1395	SOFT YELLOW GRAY CLAY WITH SAND AND GRAVEL			
1395	1400	HARD ROCK			

**WELL LOCATION**

Address **50' EOF RD D & 46 MI SOF RD 35**

City **CA**

County **GLENN**

APN Book **020** Page **210** Parcel **008**

Township **20 N** Range **3 W** Section **7**

Latitude

**LOCATION SKETCH**

NORTH

WEST EAST

1 mi

EAST 1/4

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 & COMPLETE.

**ACTIVITY (✓)**

NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

**DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")**

**PLANNED USES (✓)**

WATER SUPPLY

Domestic  Public

Irrigation  Industrial

MONITORING

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDICATION

OTHER (SPECIFY)

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER \_\_\_\_\_ (Ft) BELOW SURFACE

DEPTH OF STATIC \_\_\_\_\_

WATER LEVEL \_\_\_\_\_ (Ft.) & DATE MEASURED \_\_\_\_\_

ESTIMATED YIELD \* \_\_\_\_\_ (GPM) & TEST TYPE \_\_\_\_\_

TEST LENGTH \_\_\_\_\_ (Hrs) TOTAL DRAWDOWN \_\_\_\_\_ (Ft)

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

TOTAL DEPTH OF BORING **1400** (Feet)

TOTAL DEPTH OF COMPLETED WELL **1034** (Feet)

DEPTH FROM SURFACE	BORE HOLE DIA. (Inches)	CASING (S)				
		TYPE (✓)	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
ZONE 1	1					
0	118	16	✓	PVC	2.5	SCH 80
118	128	16	✓	PVC	2.5	SCH 80 .030
128	138	16	✓	PVC	2.5	SCH 80
ZONE 2	2					
0	380	16/14	✓	PVC	2.5	SCH 80

DEPTH FROM SURFACE	ANNULAR MATERIAL			
	TYPE	CEMENT (✓)	BENTONITE (✓)	FILL (✓)
0	84	✓		
84	95		✓	
95	160			✓
160	176		✓	
176	318			✓
318	352		✓	

- ATTACHMENTS (✓)**
- Geologic Log
  - Well Construction Diagram
  - Geophysical Log(s)
  - Soil/Water Chemical Analysis
  - 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 **EATON DRILLING CO.**

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695

ADDRESS CITY STATE ZIP

Signed *Mark Davison* WELL DRILLER/AUTHORIZED REPRESENTATIVE

07/06/07 DATE SIGNED

C57 A HIC - 133781 C-57 LICENSE NUMBER

ORIGINAL  
File with DWR

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet

DWR USE ONLY - DO NOT FILL IN

20070300-7

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Page 1 of 12

Owner's Well No. 8123

No. E057712

Date Work Began 6/4/2007, Ended 6/18/2007

Local Permit Agency GLENN COUNTY HEALTH DEPT

Permit No. MW 280-07

Permit Date 5/31/2007

**GEOLOGIC LOG**

ORIENTATION (✓)		VERTICAL	HORIZONTAL	ANGLE	(SPECIFY)
DEPTH FROM SURFACE		DRILLING METHOD ROTARY FLUID MUD			
FL to FL		DESCRIPTION			
		Describe material, grain, size, color, etc.			
0	10	TOP SOIL			
10	40	BROWN CLAY WITH SAND AND GRAVEL			
40	130	YELLOW BROWN CLAY WITH SAND STREAKS			
130	140	SAND AND GRAVEL			
140	250	YELLOW BROWN CLAY WITH SAND STREAKS			
250	260	SAND AND GRAVEL			
260	310	YELLOW BROWN CLAY WITH SAND STREAKS			
310	465	YELLOW BROWN CLAY WITH SAND AND GRAVEL			
465	485	SAND AND GRAVEL WITH BLUE CLAY			
485	500	SAND AND GRAVEL			
500	530	BLUE CLAY WITH SAND			
530	625	BLUE AND YELLOW CLAY MIX WITH SAND AND GRAVEL STREAKS			
625	700	SAND AND GRAVEL WITH YELLOW AND BLUE CLAY MIX			
700	865	YELLOW BROWN AND BLUE CLAY MIX WITH SAND AND GRAVEL			
865	1000	GRAY CLAY WITH SAND AND GRAVEL STREAK			
1000	1050	SAND AND GRAVEL			
1050	1200	SAND AND GRAVEL WITH BLUE GRAY CLAY			
1200	1300	YELLOW ORANGE CLAY WITH SAND AND GRAVEL STREAKS			
1300	1395	SOFT YELLOW GRAY CLAY WITH SAND AND GRAVEL			
1395	1400	HARD ROCK			

WELL LOCATION:

Address 50' EOF RD D & 46 MI SOF RD 35

City CA

County GLENN

APN Book 020 Page 210 Parcel 008

Township 20 N Range 3 W Section 7

Latitude

DEG. MIN. SEC. LOCATION SKETCH NORTH SOUTH

DEG. MIN. SEC. ACTIVITY (✓)

NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY

— Domestic — Public

— Irrigation — Industrial

MONITORING (✓)

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMIEDIATION

OTHER (SPECIFY)

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER (Fl.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL (Fl.) & DATE MEASURED

ESTIMATED YIELD \* (GPM) & TEST TYPE

TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Fl.)

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

DEPTH FROM SURFACE	BORE HOLE DIA. (Inches)	CASING (S)				ANNULAR MATERIAL					
		TYPE (✓)	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	118	16	PVC	2.5	SCH 80						SAND SLURRY
118	128	16	PVC	2.5	SCH 80	.030					BENTONITE C
128	138	16	PVC	2.5	SCH 80						SRI#8 SAND
0	380	16/14	PVC	2.5	SCH 80						BENTONITE C
											SRI#8 SAND
											BENTONITE C

- ATTACHMENTS (✓)**
- Geologic Log
  - Well Construction Diagram
  - Geophysical Log(s)
  - Soil/Water Chemical Analysis
  - 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 EATON DRILLING CO.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

20 WEST KENTUCKY AVE WOODLAND CA 95695

ADDRESS CITY STATE ZIP

Signed Mark Dawson WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED 07/06/07 C57 A HIC - 133783 C-57 LICENSE NUMBER

ORIGINAL  
File with DWR  
Page 1 of 12

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet  
No. **E057712**

DWR USE ONLY DO NOT FILL IN  
**20N 03W - 7**  
STATE WELL NO./STATION NO.  
LATITUDE \_\_\_\_\_ LONGITUDE \_\_\_\_\_  
APN/TRS/OTHER \_\_\_\_\_

Owner's Well No. **8123**

Date Work Began **6/4/2007**, Ended **6/18/2007**

Local Permit Agency **GLENN COUNTY HEALTH DEPT**

Permit No. **MW 280-07**

Permit Date **5/31/2007**

**GEOLOGIC LOG**

ORIENTATION (✓)		DRILLING METHOD		FLUID	
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> ANGLE _____ (SPECIFY)		<b>ROTARY</b>		<b>MUD</b>	
DEPTH FROM SURFACE		DESCRIPTION			
FL	to	FL	Describe material, grain, size, color, etc.		
0	10	10	TOP SOIL		
10	40	40	BROWN CLAY WITH SAND AND GRAVEL		
40	130	130	YELLOW BROWN CLAY WITH SAND STREAKS		
130	140	140	SAND AND GRAVEL		
140	250	250	YELLOW BROWN CLAY WITH SAND STREAKS		
250	260	260	SAND AND GRAVEL		
260	310	310	YELLOW BROWN CLAY WITH SAND STREAKS		
310	465	465	YELLOW BROWN CLAY WITH SAND AND GRAVEL		
465	485	485	SAND AND GRAVEL WITH BLUE CLAY		
485	500	500	SAND AND GRAVEL		
500	530	530	BLUE CLAY WITH SAND		
530	625	625	BLUE AND YELLOW CLAY MIX WITH SAND AND GRAVEL STREAKS		
625	700	700	SAND AND GRAVEL WITH YELLOW AND BLUE CLAY MIX		
700	865	865	YELLOW BROWN AND BLUE CLAY MIX WITH SAND AND GRAVEL		
865	1000	1000	GRAY CLAY WITH SAND AND GRAVEL STREAK		
1000	1050	1050	SAND AND GRAVEL		
1050	1200	1200	SAND AND GRAVEL WITH BLUE GRAY CLAY		
1200	1300	1300	YELLOW ORANGE CLAY WITH SAND AND GRAVEL STREAKS		
1300	1395	1395	SOFT YELLOW GRAY CLAY WITH SAND AND GRAVEL		
1395	1400	1400	HARD ROCK		

**WELL LOCATION**  
Address **50' EOF RD D & 46 MI SOF RD 35**  
City **CA**  
County **GLENN**  
APN Book **020** Page **210** Parcel **008**  
Township **20 N** Range **3 W** Section **7**  
Latitude \_\_\_\_\_

**LOCATION SKETCH**  
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 & COMPLETE.

**ACTIVITY (✓)**  
 NEW WELL  
MODIFICATION/REPAIR  
 Deepen  
 Other (Specify) \_\_\_\_\_  
 DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")  
**PLANNED USES (✓)**  
WATER SUPPLY  
 Domestic  Public  
 Irrigation  Industrial  
MONITORING   
TEST WELL   
CATHODIC PROTECTION   
HEAT EXCHANGE   
DIRECT PUSH   
INJECTION   
VAPOR EXTRACTION   
SPARGING   
REMEDICATION   
OTHER (SPECIFY) \_\_\_\_\_

**WATER LEVEL & YIELD OF COMPLETED WELL**  
DEPTH TO FIRST WATER \_\_\_\_\_ (FL) BELOW SURFACE  
DEPTH OF STATIC WATER LEVEL \_\_\_\_\_ (FL) & DATE MEASURED \_\_\_\_\_  
ESTIMATED YIELD \* \_\_\_\_\_ (GPM) & TEST TYPE \_\_\_\_\_  
TEST LENGTH \_\_\_\_\_ (Hrs.) TOTAL DRAWDOWN \_\_\_\_\_ (FL)  
*May not be representative of a well's long-term yield.*

TOTAL DEPTH OF BORING **1400** (Feet)  
TOTAL DEPTH OF COMPLETED WELL **1034** (Feet)

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	ANNULAR MATERIAL				
		TYPE (✓)	BLANK	SCREEN	CON-DUCTOR					FILL PIPE	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	118	16	✓			PVC	2.5	SCH 80		0	84	✓		SAND SLURRY
118	128	16	✓			PVC	2.5	SCH 80	.030	84	95		✓	BENTONITE C
128	138	16	✓			PVC	2.5	SCH 80		95	160		✓	BENTONITE C
0	380	16/14	✓			PVC	2.5	SCH 80		160	176		✓	BENTONITE C
										176	318		✓	SRI#8 SAND
										318	352		✓	BENTONITE C

**ATTACHMENTS (✓)**  
 Geologic Log  
 Well Construction Diagram  
 Geophysical Log(s)  
 Soil/Water Chemical Analysis  
 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 **EATON DRILLING CO.**  
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)  
ADDRESS **20 WEST KENTUCKY AVE** CITY **WOODLAND** STATE **CA** ZIP **95895**  
Signed *Mark Dawson* WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED **07/06/07** C-57 A HIC - 133783 C-57 LICENSE NUMBER

ORIGINAL  
File with DWR

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**

Page 1 of 12

Owner's Well No. 8123

Refer to Instruction Pamphlet

No. **E057712**

Date Work Began 6/4/2007, Ended 6/18/2007

Local Permit Agency **GLENN COUNTY HEALTH DEPT**

Permit No. MW 280-07 Permit Date 5/31/2007

DWR USE ONLY DO NOT FILL IN

**20N 03W - 7**

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

**GEOLOGIC LOG**

ORIENTATION (✓)		VERTICAL	HORIZONTAL	ANGLE	(SPECIFY)
DEPTH FROM SURFACE		DRILLING METHOD		FLUID	
FL	to FL	ROTARY		MUD	
		DESCRIPTION			
Describe material, grain, size, color, etc.					
0	10	TOP SOIL			
10	40	BROWN CLAY WITH SAND AND GRAVEL			
40	130	YELLOW BROWN CLAY WITH SAND STREAKS			
130	140	SAND AND GRAVEL			
140	250	YELLOW BROWN CLAY WITH SAND STREAKS			
250	260	SAND AND GRAVEL			
260	310	YELLOW BROWN CLAY WITH SAND STREAKS			
310	465	YELLOW BROWN CLAY WITH SAND AND GRAVEL			
465	485	SAND AND GRAVEL WITH BLUE CLAY			
485	500	SAND AND GRAVEL			
500	530	BLUE CLAY WITH SAND			
530	625	BLUE AND YELLOW CLAY MIX WITH SAND AND GRAVEL STREAKS			
625	700	SAND AND GRAVEL WITH YELLOW AND BLUE CLAY MIX			
700	865	YELLOW BROWN AND BLUE CLAY MIX WITH SAND AND GRAVEL			
865	1000	GRAY CLAY WITH SAND AND GRAVEL STREAK			
1000	1050	SAND AND GRAVEL			
1050	1200	SAND AND GRAVEL WITH BLUE GRAY CLAY			
1200	1300	YELLOW ORANGE CLAY WITH SAND AND GRAVEL STREAKS			
1300	1395	SOFT YELLOW GRAY CLAY WITH SAND AND GRAVEL			
1395	1400	HARD ROCK			

**WELL LOCATION**

Address **50' EOF RD D & .46 MI SOF RD 35**

City **CA**

County **GLENN**

APN Book **020** Page **210** Parcel **008**

Township **20 N** Range **3 W** Section **7**

Latitude \_\_\_\_\_

DEG. MIN. SEC.

**LOCATION SKETCH**

NORTH

WEST EAST

SOUTH

ACTIVITY (✓)

NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

**PLANNED USES (✓)**

WATER SUPPLY

— Domestic — Public

— Irrigation — Industrial

MONITORING

TEST WELL \_\_\_\_\_

CATHODIC PROTECTION \_\_\_\_\_

HEAT EXCHANGE \_\_\_\_\_

DIRECT PUSH \_\_\_\_\_

INJECTION \_\_\_\_\_

VAPOR EXTRACTION \_\_\_\_\_

SPARGING \_\_\_\_\_

REMEDIATION \_\_\_\_\_

OTHER (SPECIFY) \_\_\_\_\_

**WATER LEVEL & YIELD OF COMPLETED WELL**

DEPTH TO FIRST WATER \_\_\_\_\_ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL \_\_\_\_\_ (Ft.) & DATE MEASURED \_\_\_\_\_

ESTIMATED YIELD \* \_\_\_\_\_ (GPM) & TEST TYPE \_\_\_\_\_

TEST LENGTH \_\_\_\_\_ (Hrs.) TOTAL DRAWDOWN \_\_\_\_\_ (Ft.)

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

TOTAL DEPTH OF BORING **1400** (Feet)

TOTAL DEPTH OF COMPLETED WELL **1034** (Feet)

DEPTH FROM SURFACE	BORE HOLE DIA. (Inches)	CASING (S)						DEPTH FROM SURFACE	ANNULAR MATERIAL					
		TYPE (✓)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)		GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE			
FL	to FL	BLANK	SCREEN	CONDUIT	FILL PIPE							FL	to FL	CE-MENT (✓)
ZONE 1														
0	118	16	✓			PVC	2.5	SCH 80		✓			SAND SLURRY	
118	128	16	✓			PVC	2.5	SCH 80	.030		✓		BENTONITE C	
128	138	16	✓			PVC	2.5	SCH 80				✓	SRI#8 SAND	
ZONE 2														
0	380	16/14	✓			PVC	2.5	SCH 80				✓	BENTONITE C	
												✓	SRI#8 SAND	
												✓	BENTONITE C	

**ATTACHMENTS (✓)**

— Geologic Log

— Well Construction Diagram

— Geophysical Log(s)

— Soil/Water Chemical Analysis

— 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 **EATON DRILLING CO.**

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS **20 WEST KENTUCKY AVE** CITY **WOODLAND** STATE **CA** ZIP **95695**

Signed *Mark Davison* WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED **07/06/07** C57 A HIC - 133783 C-57 LICENSE NUMBER

# Water Data Library

Use the map below to locate monitoring stations. You can find an area of interest if you zoom and pan the map. Quickly find an area searching for named features on a map such as the name of a city, park, landmark, lake, water feature, or zip code within California. Once at the area of interest, select the desired Site Type and click the "Refresh Map" button to show monitoring stations in the area. Additional searches by data type are possible by clicking the links on the left. For help on these and other ways to find your data [click here](#).

**WDL STATION MAP**

**Location Search**  
To find monitoring stations for a specific area, enter the placename or zip code into the text box below

**Site Type**  
Select the desired site type using the checkboxes

- Groundwater Level
- Water Quality
- Include Historic Data
- Continuous Data
- = Multiple Stations at one Location
- = Cluster, showing number of stations

**Cursor Coordinates (WGS84)**  
Lat: 39.6196, Long: -122.2652

0 0.2 0.4mi

Select Basemap

Bureau of Land Ma

You should view the map with Internet Explorer 9, Firefox 31, Chrome 36, or Safari 4 or later versions of these browsers.

# TRENCH/ EXCAVATION LOG

PROJECT <i>California Olive Ranch</i>	PROJECT NO. <i>71630</i>
LOCATION <i>Orland, CA</i>	DATE <i>1/26/17</i>
WEATHER <i>Calm, clear, ~45°F</i>	CONTRACTOR <i>C.O.R.</i>
SUPERVISOR <i>JWA</i>	EXCAVATION ID <i>TP-1</i>
LOGGED BY <i>JRA</i>	TOTAL DEPTH <i>7.0'</i>

## EXCAVATION DATA

PURPOSE:  Perc Test  Soil Classification  UST Related  Other Geotech

METHOD:  Hand Auger  Backhoe  Excavator  Other  Equip/Model No. \_\_\_\_\_

	DESCRIPTION	REMARKS
1.0'	0'-2': Brown (7.5 YR 4/3) clayey sand. Medium to fine sand, sub-angular, moderately sorted. Damp. Some matrix clay, not plastic. Moderate organic content. No odor or staining.	All depths meet bgs • Profile appears to be fill material
2.0'		
3.0'		
4.0'	2'-3.5': Yellowish brown (10 YR 5/4) gravelly-sandy clay. ~20% coarse material in clay matrix. Damp, wet below 3.5'. Plastic, slow dilatancy response. Moderate organic content. No odor or staining.	V = 3.5' Sampled 3'-3.5' ⊙: 1000
5.0'		
6.0'		
7.0'	5.5'-7': Dark gray-brown (7.5 YR 4/1) gravelly sand. Medium sand to gravel, poorly sorted, sub-angular to sub-rounded. Wet, low organic content. No odor or staining.	BOH = 7'
8.0'		
9.0'		
10.0'		

SAMPLE ID	LOCATION	PID	LAB ANALYSIS/ LAB
TP-1 3/3.5	3'-3.5' bgs	--	Saturated hydraulic cond.

DECON PROCEDURE:  Detergent Wash  Tap Rinse  Pressure Wash  Other DI Rinse

**TRENCH/ EXCAVATION LOG**

PROJECT <i>California Olive Ranch</i>	PROJECT NO. <i>71630</i>
LOCATION <i>Orland, CA</i>	DATE <i>1/26/17</i>
WEATHER <i>Calm, clear, ~45°F</i>	CONTRACTOR <i>C.O.R.</i>
SUPERVISOR <i>JWA</i>	EXCAVATION ID <i>TP-2</i>
LOGGED BY <i>JRA</i>	TOTAL DEPTH <i>7.0'</i>

**EXCAVATION DATA**

PURPOSE:     Perc Test     Soil Classification     UST Related     Other *Geotech*

METHOD:     Hand Auger     Backhoe     Excavator     Other     Equip/Model No. \_\_\_\_\_

DEPTH	DESCRIPTION	REMARKS
0'-2.2'	Brown (10 YR 5/4) sandy clay. Damp. Plastic, slightly dilatant. Minor silt. Moderate organic content. No odor or staining.	All depths feet bgs
2.2'-7'	Brown (10 YR 4/3) silty clay. Damp, wet below 4.5'. Dense, highly plastic, not dilatant. ~10% 10B 5/1 mottles. Low organic content. No odor or staining.	Sampled 3.5'-4' ⑥: 1015 II = 4.5'
6.0'	BOH = 7'	
1.0'		
2.0'		
3.0'		
4.0'		
5.0'		
6.0'		
7.0'		
8.0'		
9.0'		
10.0'		

SAMPLE ID	LOCATION	PID	LAB ANALYSIS/ LAB
TP-2 3.5/4	3.5'-4' bgs	--	Saturated hydraulic cond.

DECON PROCEDURE:     Detergent Wash     Tap Rinse     Pressure Wash     Other *DI Rinse*



# TRENCH/ EXCAVATION LOG

PROJECT <i>California Olive Ranch</i>	PROJECT NO. <i>71630</i>
LOCATION <i>Orland, CA</i>	DATE <i>1/26/17</i>
WEATHER <i>Calm, clear, ~45°F</i>	CONTRACTOR <i>C.O.D.</i>
SUPERVISOR <i>JWA</i>	EXCAVATION ID <i>TP-3</i>
LOGGED BY <i>JRA</i>	TOTAL DEPTH <i>7.0'</i>

## EXCAVATION DATA

PURPOSE:  Perc Test  Soil Classification  UST Related  Other *Geotech*  
 METHOD:  Hand Auger  Backhoe  Excavator  Other  Equip/Model No. \_\_\_\_\_

DEPTH	DESCRIPTION	REMARKS
1.0'	0'-2.4': Brown (10 YR 5/4) sandy clay. Damp, plastic, slightly dilatant. Minor silt. Moderate organic content. No odor or staining.	All depths feet bgs
2.0'		
3.0'	2.4'-7': Brown (10 YR 4/3) silty clay. Damp, wet below 6.5'. Dense, highly plastic, not dilatant. ~10% 10 GB 5/1 nodules. low organic content. No odor or staining.	Sampled 3.5'-4' @: 1035  II = 6.5'
4.0'		
5.0'		
6.0'		
7.0'	BOH = 7'	
8.0'		
9.0'		
10.0'		

SAMPLE ID	LOCATION	PID	LAB ANALYSIS/ LAB
TP-3 3.5/4	3.5'-4' bgs	--	Saturated hydraulic cond.

DECON PROCEDURE:  Detergent Wash  Tap Rinse  Pressure Wash  Other *DI Rinse*

# TRENCH/ EXCAVATION LOG

PROJECT	California Olive Ranch	PROJECT NO.	71630
LOCATION	Orland, CA	DATE	1/26/17
WEATHER	Clear, calm ~45°F	CONTRACTOR	C.O.R.
SUPERVISOR	JWA	EXCAVATION ID	TP-4
LOGGED BY	JRA	TOTAL DEPTH	

## EXCAVATION DATA

PURPOSE:  Perc Test  Soil Classification  UST Related  Other Geotech

METHOD:  Hand Auger  Backhoe  Excavator  Other  Equip/Model No. \_\_\_\_\_

	DESCRIPTION	REMARKS
1.0'	0'-2': Brown (Z.3 YR 4/3) clayey sand. Medium to fine sand, sub-angular, moderately sorted. Damp. Some matrix clay, not plastic. Moderate organic content. No odor or staining.	All depths feet bgs • Profile appears to be fill material
2.0'		
3.0'	2'-5': Yellowish brown (10 YR 5/4) sandy clay. Damp, wet below 3'. Plastic, slow dilatancy response. Moderate organic content. No odor or staining.	VI=3.0' Sampled 2'-3.5' @: 0945
4.0'		
5.0'		
6.0'	5'-6.5': Dark gray-brown (7.5 YR 4/1) gravelly sand. Medium sand to gravel, poorly sorted, sub-angular to sub-rounded. Wet. Low organic content. No odor or staining.	
7.0'		
8.0'		
9.0'	BOH = 6.5'	
10.0'		

SAMPLE ID	LOCATION	PID	LAB ANALYSIS/ LAB
TP-43/3.5	3'-3.5' bgs	--	Saturated Hydraulic Cond.

DECON PROCEDURE:  Detergent Wash  Tap Rinse  Pressure Wash  Other DI Rinse





NOAA Atlas 14, Volume 6, Version 2  
 Location name: **Orland, California, USA\***  
 Latitude: **39.6095°**, Longitude: **-122.2669°**  
 Elevation: **209.25 ft\*\***  
 \* source: ESRI Maps  
 \*\* source: USGS



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitania, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

**PF tabular**

**PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup>**

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.100 (0.091-0.111)	0.126 (0.114-0.140)	0.160 (0.145-0.180)	0.189 (0.169-0.215)	0.230 (0.195-0.274)	0.262 (0.216-0.321)	0.296 (0.236-0.375)	0.331 (0.254-0.437)	0.381 (0.275-0.533)	0.421 (0.290-0.617)
10-min	0.143 (0.130-0.159)	0.180 (0.163-0.201)	0.230 (0.208-0.257)	0.272 (0.242-0.308)	0.330 (0.280-0.392)	0.376 (0.310-0.461)	0.424 (0.338-0.538)	0.475 (0.363-0.627)	0.546 (0.394-0.764)	0.603 (0.415-0.884)
15-min	0.173 (0.157-0.193)	0.218 (0.197-0.243)	0.278 (0.251-0.311)	0.328 (0.293-0.372)	0.399 (0.339-0.474)	0.455 (0.375-0.557)	0.513 (0.408-0.651)	0.574 (0.440-0.758)	0.660 (0.477-0.923)	0.729 (0.502-1.07)
30-min	0.238 (0.216-0.265)	0.299 (0.271-0.333)	0.382 (0.345-0.427)	0.451 (0.402-0.511)	0.548 (0.465-0.651)	0.624 (0.515-0.765)	0.704 (0.561-0.893)	0.789 (0.604-1.04)	0.907 (0.655-1.27)	1.00 (0.690-1.47)
60-min	0.328 (0.298-0.365)	0.413 (0.374-0.460)	0.527 (0.475-0.589)	0.622 (0.555-0.704)	0.755 (0.642-0.898)	0.861 (0.710-1.05)	0.971 (0.773-1.23)	1.09 (0.832-1.44)	1.25 (0.903-1.75)	1.38 (0.951-2.02)
2-hr	0.485 (0.441-0.540)	0.593 (0.537-0.661)	0.737 (0.665-0.825)	0.857 (0.764-0.971)	1.02 (0.870-1.22)	1.16 (0.953-1.42)	1.29 (1.03-1.64)	1.44 (1.10-1.90)	1.64 (1.18-2.29)	1.80 (1.24-2.64)
3-hr	0.609 (0.553-0.677)	0.735 (0.666-0.819)	0.904 (0.816-1.01)	1.04 (0.931-1.18)	1.24 (1.05-1.47)	1.39 (1.15-1.70)	1.55 (1.23-1.97)	1.72 (1.31-2.26)	1.95 (1.41-2.72)	2.13 (1.47-3.12)
6-hr	0.892 (0.810-0.993)	1.06 (0.966-1.19)	1.29 (1.17-1.45)	1.48 (1.32-1.68)	1.74 (1.48-2.07)	1.95 (1.60-2.38)	2.15 (1.71-2.73)	2.37 (1.81-3.13)	2.67 (1.93-3.73)	2.91 (2.00-4.26)
12-hr	1.27 (1.15-1.41)	1.52 (1.38-1.70)	1.86 (1.68-2.08)	2.14 (1.91-2.42)	2.51 (2.13-2.99)	2.80 (2.31-3.43)	3.09 (2.46-3.92)	3.39 (2.60-4.48)	3.80 (2.75-5.32)	4.12 (2.84-6.04)
24-hr	1.78 (1.64-1.98)	2.18 (2.00-2.43)	2.71 (2.47-3.02)	3.12 (2.83-3.52)	3.69 (3.23-4.29)	4.11 (3.53-4.88)	4.54 (3.81-5.52)	4.98 (4.06-6.22)	5.56 (4.36-7.24)	6.01 (4.55-8.10)
2-day	2.28 (2.09-2.53)	2.82 (2.58-3.14)	3.51 (3.21-3.92)	4.06 (3.69-4.57)	4.80 (4.21-5.58)	5.35 (4.60-6.35)	5.90 (4.95-7.18)	6.46 (5.27-8.07)	7.19 (5.63-9.37)	7.75 (5.87-10.4)
3-day	2.59 (2.38-2.88)	3.22 (2.95-3.59)	4.04 (3.69-4.50)	4.68 (4.24-5.27)	5.53 (4.85-6.43)	6.17 (5.30-7.32)	6.80 (5.70-8.27)	7.43 (6.07-9.29)	8.27 (6.48-10.8)	8.90 (6.74-12.0)
4-day	2.78 (2.55-3.09)	3.48 (3.19-3.87)	4.37 (4.00-4.88)	5.08 (4.61-5.72)	6.01 (5.27-6.99)	6.70 (5.76-7.96)	7.39 (6.20-8.98)	8.07 (6.59-10.1)	8.97 (7.03-11.7)	9.65 (7.30-13.0)
7-day	3.35 (3.07-3.72)	4.25 (3.90-4.73)	5.39 (4.93-6.02)	6.29 (5.70-7.07)	7.45 (6.54-8.67)	8.31 (7.15-9.87)	9.16 (7.68-11.1)	10.0 (8.16-12.5)	11.1 (8.68-14.4)	11.9 (9.00-16.0)
10-day	3.73 (3.42-4.14)	4.77 (4.37-5.31)	6.08 (5.56-6.79)	7.11 (6.44-8.00)	8.44 (7.41-9.81)	9.42 (8.09-11.2)	10.4 (8.70-12.6)	11.3 (9.23-14.1)	12.5 (9.81-16.3)	13.4 (10.2-18.1)
20-day	4.77 (4.38-5.31)	6.19 (5.67-6.89)	7.95 (7.27-8.88)	9.32 (8.45-10.5)	11.1 (9.73-12.9)	12.4 (10.6-14.7)	13.6 (11.4-16.6)	14.8 (12.1-18.6)	16.4 (12.8-21.4)	17.5 (13.3-23.6)
30-day	5.75 (5.27-6.39)	7.46 (6.84-8.30)	9.59 (8.76-10.7)	11.2 (10.2-12.6)	13.3 (11.7-15.5)	14.9 (12.8-17.7)	16.4 (13.7-19.9)	17.8 (14.5-22.3)	19.6 (15.4-25.6)	21.0 (15.9-28.2)
45-day	7.17 (6.58-7.97)	9.26 (8.48-10.3)	11.8 (10.8-13.2)	13.8 (12.5-15.6)	16.4 (14.4-19.1)	18.2 (15.7-21.7)	20.0 (16.8-24.3)	21.7 (17.7-27.2)	23.9 (18.7-31.2)	25.5 (19.3-34.4)
60-day	8.47 (7.77-9.42)	10.8 (9.94-12.1)	13.8 (12.6-15.4)	16.0 (14.5-18.0)	18.9 (16.6-22.0)	21.0 (18.1-25.0)	23.0 (19.3-28.0)	25.0 (20.4-31.2)	27.4 (21.5-35.7)	29.2 (22.1-39.3)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.



NOAA Atlas 14, Volume 6, Version 2  
 Location name: **Orland, California, USA\***  
 Latitude: **39.6095°**, Longitude: **-122.2669°**  
 Elevation: **209.25 ft\*\***



\* source: ESRI Maps  
 \*\* source: USGS

**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitania, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

**PF tabular**

**PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)<sup>1</sup>**

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.20 (1.09-1.33)	1.51 (1.37-1.68)	1.92 (1.74-2.16)	2.27 (2.03-2.58)	2.76 (2.34-3.29)	3.14 (2.59-3.85)	3.55 (2.83-4.50)	3.97 (3.05-5.24)	4.57 (3.30-6.40)	5.05 (3.48-7.40)
10-min	0.858 (0.780-0.954)	1.08 (0.978-1.21)	1.38 (1.25-1.54)	1.63 (1.45-1.85)	1.98 (1.68-2.35)	2.26 (1.86-2.77)	2.54 (2.03-3.23)	2.85 (2.18-3.76)	3.28 (2.36-4.58)	3.62 (2.49-5.30)
15-min	0.692 (0.628-0.772)	0.872 (0.788-0.972)	1.11 (1.00-1.24)	1.31 (1.17-1.49)	1.60 (1.36-1.90)	1.82 (1.50-2.23)	2.05 (1.63-2.60)	2.30 (1.76-3.03)	2.64 (1.91-3.69)	2.92 (2.01-4.28)
30-min	0.476 (0.432-0.530)	0.598 (0.542-0.666)	0.764 (0.690-0.854)	0.902 (0.804-1.02)	1.10 (0.930-1.30)	1.25 (1.03-1.53)	1.41 (1.12-1.79)	1.58 (1.21-2.08)	1.81 (1.31-2.54)	2.00 (1.38-2.94)
60-min	0.328 (0.298-0.365)	0.413 (0.374-0.460)	0.527 (0.475-0.589)	0.622 (0.555-0.704)	0.755 (0.642-0.898)	0.861 (0.710-1.05)	0.971 (0.773-1.23)	1.09 (0.832-1.44)	1.25 (0.903-1.75)	1.38 (0.951-2.02)
2-hr	0.242 (0.220-0.270)	0.296 (0.268-0.330)	0.368 (0.332-0.412)	0.428 (0.382-0.486)	0.512 (0.435-0.609)	0.578 (0.476-0.708)	0.647 (0.515-0.820)	0.719 (0.550-0.949)	0.820 (0.592-1.15)	0.900 (0.620-1.32)
3-hr	0.203 (0.184-0.225)	0.245 (0.222-0.273)	0.301 (0.272-0.337)	0.348 (0.310-0.394)	0.412 (0.350-0.490)	0.463 (0.382-0.567)	0.516 (0.411-0.654)	0.571 (0.437-0.754)	0.648 (0.468-0.906)	0.709 (0.489-1.04)
6-hr	0.149 (0.135-0.166)	0.178 (0.161-0.198)	0.216 (0.195-0.242)	0.248 (0.221-0.281)	0.291 (0.247-0.346)	0.325 (0.268-0.398)	0.360 (0.286-0.456)	0.396 (0.303-0.523)	0.446 (0.322-0.624)	0.485 (0.335-0.712)
12-hr	0.105 (0.095-0.117)	0.127 (0.115-0.141)	0.155 (0.140-0.173)	0.177 (0.158-0.201)	0.208 (0.177-0.248)	0.232 (0.192-0.285)	0.257 (0.204-0.326)	0.282 (0.216-0.372)	0.316 (0.228-0.441)	0.342 (0.236-0.502)
24-hr	0.074 (0.068-0.083)	0.091 (0.083-0.101)	0.113 (0.103-0.126)	0.130 (0.118-0.146)	0.154 (0.135-0.179)	0.171 (0.147-0.203)	0.189 (0.159-0.230)	0.207 (0.169-0.259)	0.232 (0.182-0.302)	0.250 (0.190-0.337)
2-day	0.047 (0.043-0.053)	0.059 (0.054-0.065)	0.073 (0.067-0.082)	0.085 (0.077-0.095)	0.100 (0.088-0.116)	0.111 (0.096-0.132)	0.123 (0.103-0.149)	0.134 (0.110-0.168)	0.150 (0.117-0.195)	0.161 (0.122-0.217)
3-day	0.036 (0.033-0.040)	0.045 (0.041-0.050)	0.056 (0.051-0.063)	0.065 (0.059-0.073)	0.077 (0.067-0.089)	0.086 (0.074-0.102)	0.094 (0.079-0.115)	0.103 (0.084-0.129)	0.115 (0.090-0.150)	0.124 (0.094-0.167)
4-day	0.029 (0.027-0.032)	0.036 (0.033-0.040)	0.046 (0.042-0.051)	0.053 (0.048-0.060)	0.063 (0.055-0.073)	0.070 (0.060-0.083)	0.077 (0.065-0.094)	0.084 (0.069-0.105)	0.093 (0.073-0.122)	0.101 (0.076-0.135)
7-day	0.020 (0.018-0.022)	0.025 (0.023-0.028)	0.032 (0.029-0.036)	0.037 (0.034-0.042)	0.044 (0.039-0.052)	0.049 (0.043-0.059)	0.055 (0.046-0.066)	0.060 (0.049-0.074)	0.066 (0.052-0.086)	0.071 (0.054-0.095)
10-day	0.016 (0.014-0.017)	0.020 (0.018-0.022)	0.025 (0.023-0.028)	0.030 (0.027-0.033)	0.035 (0.031-0.041)	0.039 (0.034-0.047)	0.043 (0.036-0.053)	0.047 (0.038-0.059)	0.052 (0.041-0.068)	0.056 (0.042-0.075)
20-day	0.010 (0.009-0.011)	0.013 (0.012-0.014)	0.017 (0.015-0.018)	0.019 (0.018-0.022)	0.023 (0.020-0.027)	0.026 (0.022-0.031)	0.028 (0.024-0.035)	0.031 (0.025-0.039)	0.034 (0.027-0.044)	0.037 (0.028-0.049)
30-day	0.008 (0.007-0.009)	0.010 (0.009-0.012)	0.013 (0.012-0.015)	0.016 (0.014-0.018)	0.019 (0.016-0.022)	0.021 (0.018-0.025)	0.023 (0.019-0.028)	0.025 (0.020-0.031)	0.027 (0.021-0.035)	0.029 (0.022-0.039)
45-day	0.007 (0.006-0.007)	0.009 (0.008-0.010)	0.011 (0.010-0.012)	0.013 (0.012-0.014)	0.015 (0.013-0.018)	0.017 (0.015-0.020)	0.019 (0.016-0.023)	0.020 (0.016-0.025)	0.022 (0.017-0.029)	0.024 (0.018-0.032)
60-day	0.006 (0.005-0.007)	0.008 (0.007-0.008)	0.010 (0.009-0.011)	0.011 (0.010-0.013)	0.013 (0.012-0.015)	0.015 (0.013-0.017)	0.016 (0.013-0.019)	0.017 (0.014-0.022)	0.019 (0.015-0.025)	0.020 (0.015-0.027)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

# Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	21.50	6	492	370,248	---	-----	-----	<no description>

# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Jan 12 2017, 3:4 PM

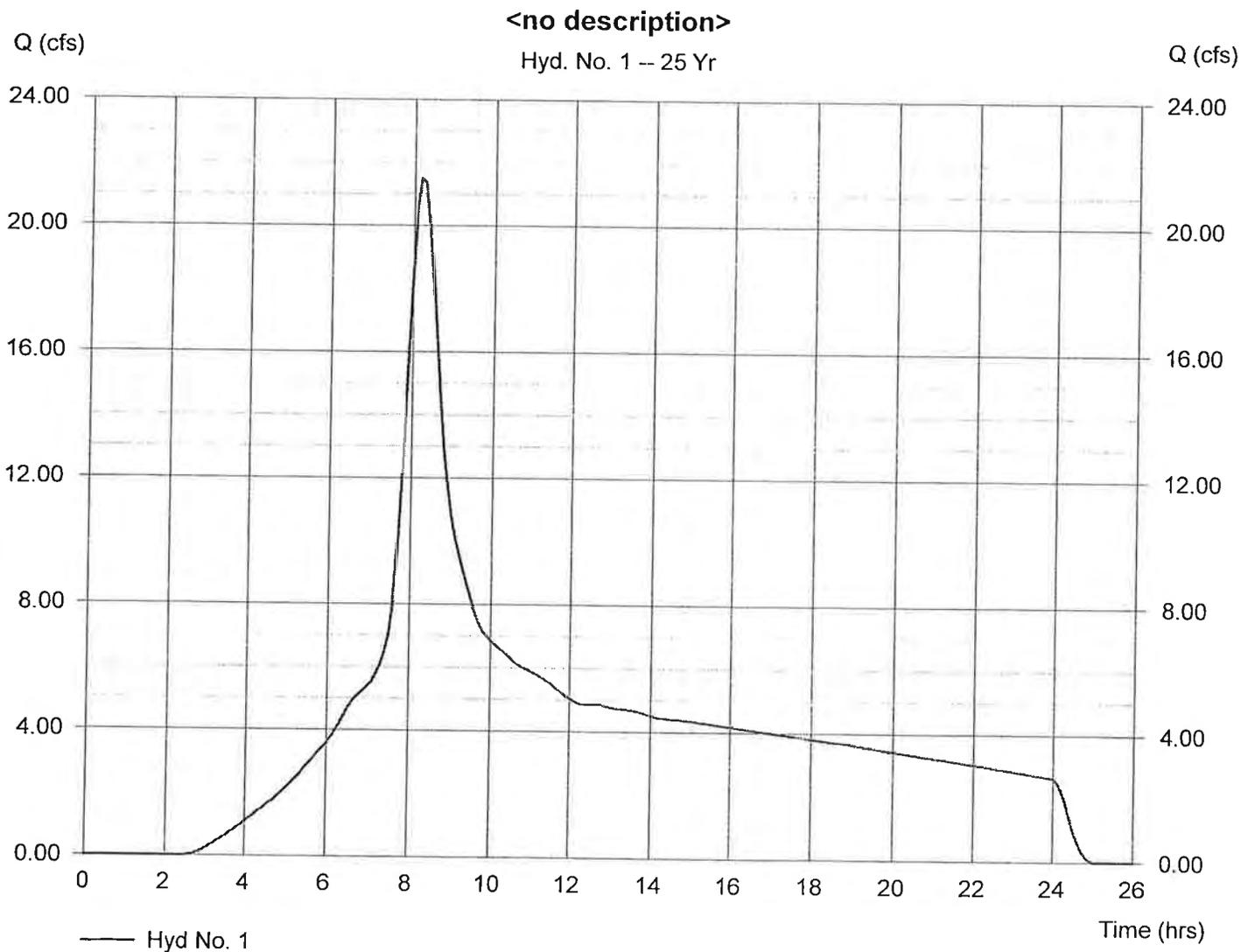
## Hyd. No. 1

<no description>

Hydrograph type = SCS Runoff  
Storm frequency = 25 yrs  
Drainage area = 37.660 ac  
Basin Slope = 0.8 %  
Tc method = LAG  
Total precip. = 3.69 in  
Storm duration = 24 hrs

Peak discharge = 21.50 cfs  
Time interval = 6 min  
Curve number = 90  
Hydraulic length = 1500 ft  
Time of conc. (Tc) = 34.56 min  
Distribution = Type IA  
Shape factor = 484

Hydrograph Volume = 370,248 cuft





# ODOR IMPACT MINIMIZATION PLAN CALIFORNIA OLIVE RANCH COMPOST FACILITY

## 1.0 INTRODUCTION

This Odor Impact Minimization Plan (OIMP) has been prepared for the California Olive Ranch (COR) olive pomace composting facility in Artois, California. It is intended to provide guidance to onsite personnel in the handling, storage, and removal of compostable materials, in accordance with Title 14, California Code of Regulations, Section 17863.4. This OIMP will be maintained onsite and revised as necessary to reflect any changes in the design or operation of the site. A copy of the revisions will be provided to the enforcement agency within 30 days of the changes. In addition, this OIMP will be reviewed annually to determine if any revisions are necessary.

### 1.1 Project Contacts

**Project Name:** California Olive Ranch Compost Facility

**Project Location:** 5945 County Road 35  
Artois, California 95913

**Mailing Address:** 1367 East Lassen Ave, Suite A-1  
Chico, California 95973

**Landowner:** California Olive Ranch, Inc.  
1367 East Lassen Ave, Suite A-1  
Chico, California 95973

**Project Contact:** James Lipman, Vice President Production Operations  
California Olive Ranch  
1367 East Lassen Ave, Suite A1  
Chico, California 95973

**Regulatory Contact:** John H. Wells, M.S. REHS  
Glenn County Environmental Health  
247 North Villa Avenue  
Willows, California 95988

### 1.2 Project Description

California Olive Ranch (COR) farms approximately 5,500 acres of olives and processes the olives, from their farm and from other growers, into “extra-virgin” olive oil at their processing and bottling facility in Artois, California. The pressing of extra-virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the

pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive. COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller etc. All of the olive pomace is generated during the pressing window.

The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace (vegetative food waste)
- Almond trash (floor sweepings, etc., from almond harvest)
- MOO (materials other than olives generated during processing)
- Orchard trimmings and stems
- Manure (dairy)
- Agricultural processing waste
- Greenwaste
- Other agricultural waste materials

The compost facility will include compacted compost areas, paved mixing area, stormwater detention pond, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back from property lines and County Road 35. The facility will be surrounded by a vegetative buffer of two to three rows of olives. Mix materials will be received via a separate entrance off County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a bioswale and hence discharged.

The pomace will be mixed directly out of the olive processing facility in the mix trucks. The trucks will be topped off with the mixing/bulking agents and then proceed to a windrow location. It is anticipated that material will be mixed and windrowed until November 1<sup>st</sup>, after which point the materials will be mixed, stockpiled, and covered until March or April. Approximately two-thirds of the total pomace produced will be mixed and windrowed before November 1<sup>st</sup>. The remaining one-third will be mixed, stockpiled, and covered for the winter season. Once temperatures begin to warm in the spring, the mixed material will be placed in windrows and turned until complete.

When COR is not using portions of the composting pads in late spring and summer, these areas may be used by others to produce a higher-quality compost product.

It is anticipated that the early windrowed material will be turned as needed and composting be completed by April or May. This first batch of completed compost will be applied to the COR orchards beginning in April or May. The stockpiled material that was covered and windrowed in December will be uncovered and windrowed in March or April, depending on the weather, and will compost until July or August and be applied to orchards under the control of COR. The target application rate is 5 tons per acre to the orchard cropland. This will be applied between the tree rows and seeded to a cover crop.

The composting will be completed using similar techniques to other composting operations in the county. The exception herewith is that the pomace and other bulking materials will be mixed in large mixing trucks and the material conveyed in the truck to the windrow location. Once a windrow is complete, it will be turned as needed using a standard turning machine. The windrows will be on 32-foot centers and measure 16 feet wide and approximately 6 feet high. When composting is completed, three to four windrows will be combined into a large row to facilitate removal to orchards.

Because the composting will be conducted during a relatively short window, only a few days of mixable materials will be stockpiled in the weeks prior to harvest. Mix materials will be delivered via truck off County Road 35 and stockpiled in or near the “mix area.” If necessary, the mix materials will be covered prior to use. Mix materials planned for use are not planned to be pretreated prior to mixing.

The material mixing area, where the dry material will be added to the pomace-filled mix truck, will be paved and have concrete push bins and walls to contain mix products. Wind screens will contain fine materials from blowing offsite.

### **1.3 Sources of Odor**

The primary sources of composting-related odors are:

- (1) Feedstock management (delivery, storage and handling)
- (2) Active composting (surface emissions, turning windrows, tearing down piles)
- (3) Curing (surface emissions, turning windrows, and tearing down piles)

Other minor sources of composting-related odor include mixing of feedstocks into windrows, finished product loading, and poor site management (runoff, leachate, surface ponding, and road spillage).

Type of feedstock, condition of the feedstock, and the stage of composting will determine odor contribution. Feedstocks that decompose rapidly may produce odors at higher concentrations than those feedstocks that decompose at a slower rate. The delivery, storage, and handling of feedstocks can also greatly affect odors. If incoming feedstocks are not expeditiously processed, they may decay and begin to produce odors.

If portions of the windrows become anaerobic, actual turning of the windrow can result in the release of odors. Odors produced at early stages of composting are principally the result of the decomposition or breakdown of proteins that contain sulfur and nitrogen compounds. These compounds generally break down during the first 14 days of composting, and odor generation is significantly reduced after this initial stage of decomposition.

Odors can be released from windrow surfaces during non-turning periods. Although surface emissions are the greatest overall source of odors from windrows, turning results in higher short-term spikes in concentration and intensity of odors. The fresher the material in the windrow, the greater the odor potential. Material that has been in the windrow for long periods of time is more stable and generates fewer odors.

When the windrows are torn down, the potential for odors is considerably lower than for the initial composting process, because the compost has become more stable with time. In addition, odors from finished compost are usually not considered to be offensive, unlike fresh composting feedstocks. Odor levels are generally minimal during final loading of the finished compost product for shipment offsite, and the characteristics of the odor from this process is that of a soil-like material. Odors can also be generated if runoff and leachate remain on the composting facility surface in sufficient amounts to form ponds.

Epstein (2004) identifies sources of odors during the composting process and the relative contribution of individual sources in comparison to total odor generation by composting facility operations. These are shown in Table 1. The relative odor contributions are expressed as a percentage of the total odor emissions typically generated.

<p style="text-align: center;"><b>Table 1</b>  <b>ODOR RELATIVE CONTRIBUTIONS BY PROCESS</b>  <b>AND POTENTIAL CHARACTERISTICS</b></p>		
<b>Odor Sources &amp; Area Sources</b>	<b>Relative Odor Contribution</b>	<b>Potential Odor Characteristics</b>
Feedstock Storage	4%	Woody
Composting Windrows, 0-6 days old	30%	Stinky, sulfurous, fish, ammonia
Composting Windrows, 7-11 days old	10%	Stinky, sulfurous
Composting Windrows, 12-27 days old	40%	Earthy, mulch
Curing Windrows, 28-61 days old	11%	Earthy, soil-like
Curing Windrows, 61-90 days old	3%	Earthy, soil-like

## **2.0 ODOR MONITORING PROTOCOL**

### **2.1 Proximity of Odor Receptors**

The compost trial site is surrounded by agricultural land uses. The closest receptors to the composting trial site would be COR employees responsible for monitoring and/or managing the compost, COR employees working in the processing plant or olive orchards located adjacent to the composting site, or adjacent residences.

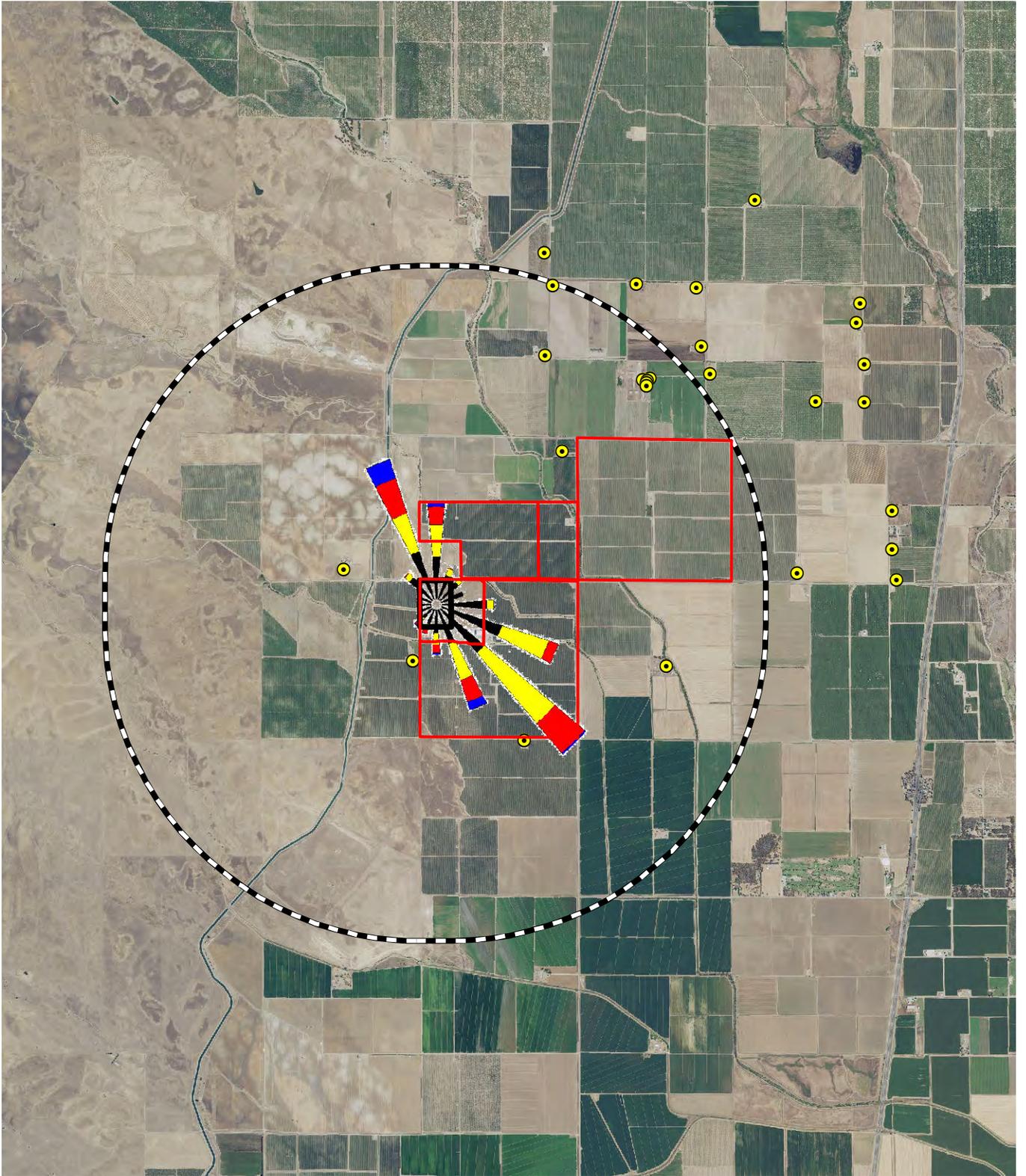
Three residences are located within a one-mile radius of the compost trial site. The closest residence is 1,000 feet southwest of the site. The locations of the 11 residential receptors within a two-mile radius of the compost trial location and a wind rose are shown on Figure 1. The majority of the receptors are located north or east of the compost trial site outside of the predominant wind directions.

The Glenn County Landfill is located approximately two miles northwest of the compost trial site. The landfill and trucks hauling waste to the landfill on County Road 33 are potential competing odor sources.

### **2.2 Method of Assessing Odor Impacts**

Each operating day, COR personnel will evaluate onsite odors and operations for potential release of objectionable odors in the course of their usual work. If questionable or objectionable onsite odors are detected by site personnel, the following protocol will be implemented:

1. Investigate and determine the likely source of the odor.
2. Assess the effectiveness of available onsite management practices to resolve the odor event and immediately take steps to reduce the odor-generating capacity of the onsite material. Possible management practices are shown in Table 2.
3. Determine if the odor traveled offsite by surveying the site perimeter and noting existing wind patterns.
4. If it is determined possible odor impacts occurred, contact appropriate enforcement agency and/or neighboring residences.
5. Record the event for further operational review in an odor log.



-  Nearby Residence
-  2-Mile Buffer Around Proposed Compost Facility
-  Proposed Compost Facility
-  California Olive Ranch Ownership



FIGURE 1  
 NEARBY RESIDENCES  
 AND WIND ROSE  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: GLENN COUNTY 2016; FEMA 2014

**Table 2**  
**SOURCES OF ODOR AND POSSIBLE MANAGEMENT TECHNIQUES**

<b>Source of Odor</b>	<b>Possible Cause</b>	<b>Management Approach</b>
Feedstock receiving	Materials arrive with odors	<ul style="list-style-type: none"> <li>• Mix materials upon receipt</li> <li>• Stockpile bulking agent or high carbon amendments as receiving basin</li> <li>• Make smaller piles</li> <li>• Consider blanketing odiferous materials with a six-inch to one-foot layer of bulking agent, high carbon amendments or finished compost</li> <li>• Add lime or wood ash to piles to adjust pH</li> </ul>
	Material sitting too long prior to being processed or mixed	<ul style="list-style-type: none"> <li>• Expedite material processing</li> <li>• Consider blanketing odiferous materials with a 6-inch to 1-foot layer of bulking agent, high carbon amendments or finished compost</li> </ul>
Grinding	Grinding volatilizes particles	<ul style="list-style-type: none"> <li>• Add light misting of water or odor neutralizer to grinder at discharge points</li> <li>• Consider scheduling grinding to coincide with favorable atmospheric dispersion conditions</li> <li>• Consider grinding green materials with woodier materials</li> </ul>
Mixing and Material Handling	Mixing volatilizes particles	<ul style="list-style-type: none"> <li>• Create windrows/piles that are sufficiently blended</li> <li>• Combine materials to achieve high C:N ratio (greater than 30:1)</li> <li>• Create piles with good porosity</li> <li>• Reduce mixing/materials handling activity during stagnant air conditions</li> <li>• Reduce mixing/materials handling activity when wind is in direction of receptors</li> <li>• Mist water or odor neutralizer at dust generation points</li> </ul>
Composting	Less than ideal conditions	<ul style="list-style-type: none"> <li>• Reduce turning and/or material handling activity during stagnant air conditions</li> <li>• Reduce turning/material handling activity when wind is in direction of nearby receptors</li> <li>• Turn regularly to reinvigorate the composting process</li> <li>• Maintain sufficient moisture in windrows</li> <li>• Avoid over-watering windrows</li> <li>• Make smaller windrows to increase passive aeration</li> <li>• Diligently monitor and manage the composting process</li> <li>• Increase porosity and bulk density</li> <li>• Consider blanketing odiferous materials in a six inch to one-foot layer of bulking agent, high carbon amendments or finished compost (water lightly to reduce odor releases)</li> <li>• Adopt forced aeration</li> </ul>
Screening	Screening volatilizes particles	<ul style="list-style-type: none"> <li>• Reduce screening activity during stagnant air conditions</li> <li>• Reduce screening activity when wind is in direction of nearby receptors</li> <li>• Mist water or neutralizer at dust generation points</li> </ul>
Site	Water allowed to pond	<ul style="list-style-type: none"> <li>• Grade the site to eliminate puddles, depressions, and wheel ruts where water collects</li> <li>• Absorb ponded water with wood chips/other absorbent, fill pothole with soil/pad material</li> </ul>

**Table 2**  
**SOURCES OF ODOR AND POSSIBLE MANAGEMENT TECHNIQUES**

Source of Odor	Possible Cause	Management Approach
Curing Piles	Excessive temperature	<ul style="list-style-type: none"> <li>• Decrease curing pile size (height)</li> <li>• Review moisture content of in-process compost</li> <li>• Screen after curing to maintain porosity</li> <li>• Aerate curing piles</li> </ul>
Stormwater Pond	Excessive nutrients in stormwater runoff	<ul style="list-style-type: none"> <li>• Remove particles from water draining into stormwater pond</li> <li>• Filter stormwater through filter berm or sock</li> </ul>

### 3.0 METEOROLOGICAL CONDITIONS

#### 3.1 Precipitation

The precipitation data used for the Artois area was estimated on Willows 6W Weather Station (No. 049699), located approximately 7.5 miles southwest of the proposed compost trial facility, with years of record from 1906 to 2016. Precipitation at the Willows station averages 17.95 inches per year, 80 percent of which falls between November and March. Precipitation data for the Willows station are summarized in Table 3.

<b>Month</b>	<b>Willows</b>	<b>Percent of Year</b>
January	3.68	20.5
February	3.14	17.5
March	2.33	13.0
April	1.12	6.2
May	0.66	3.7
June	0.33	1.8
July	0.04	0.2
August	0.09	0.5
September	0.31	1.7
October	1.01	5.6
November	2.13	11.9
December	3.13	17.4
<b>Average</b>	<b>17.95</b>	<b>---</b>

#### 3.2 Temperature

Based on data for the Willows 6W Weather Station (No. 049699), average daily minimum temperatures in the project area range from 35.9 degrees Fahrenheit (°F) in January to 60.8 °F in July. Average daily maximum temperatures range from 54.6 °F in January to 65.2 °F in July. Figure 2 shows the average monthly minimum and maximum temperatures for the Willows station.

#### 3.3 Wind Rose

Wind data are available from the Colusa CIMIS station (No. 99032) located about 30 miles southeast of the proposed compost trial facility. Winds in the Colusa area are generally from the south during the summer and fall (May through October), averaging 3 to 6 miles per hour (mph). Average wind directions shift to the north-northwest during November and December, averaging 6 to 9 mph. A wind rose for data collected between 1993 and 1997 at the Colusa CIMIS station is included on Figure 3.

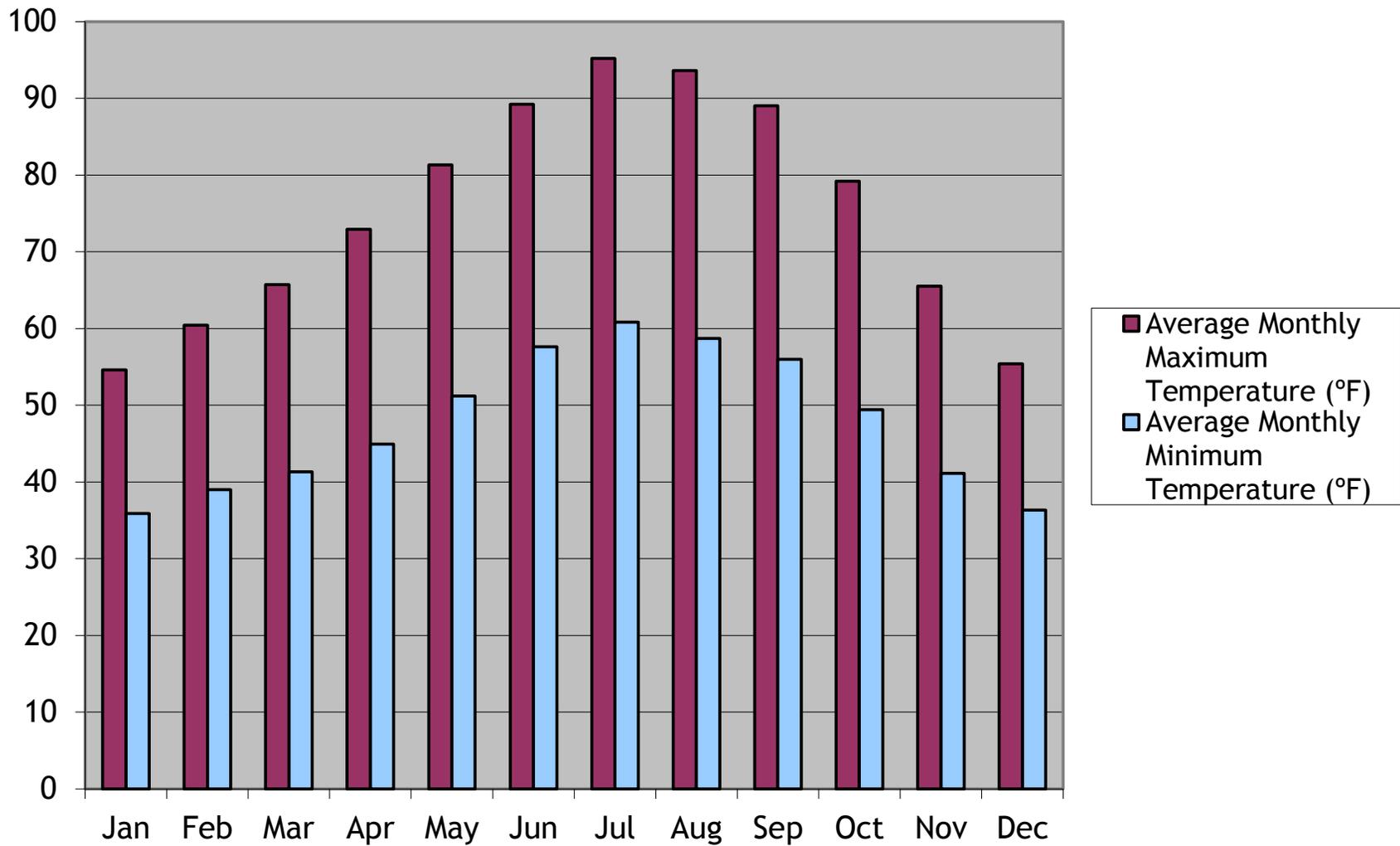


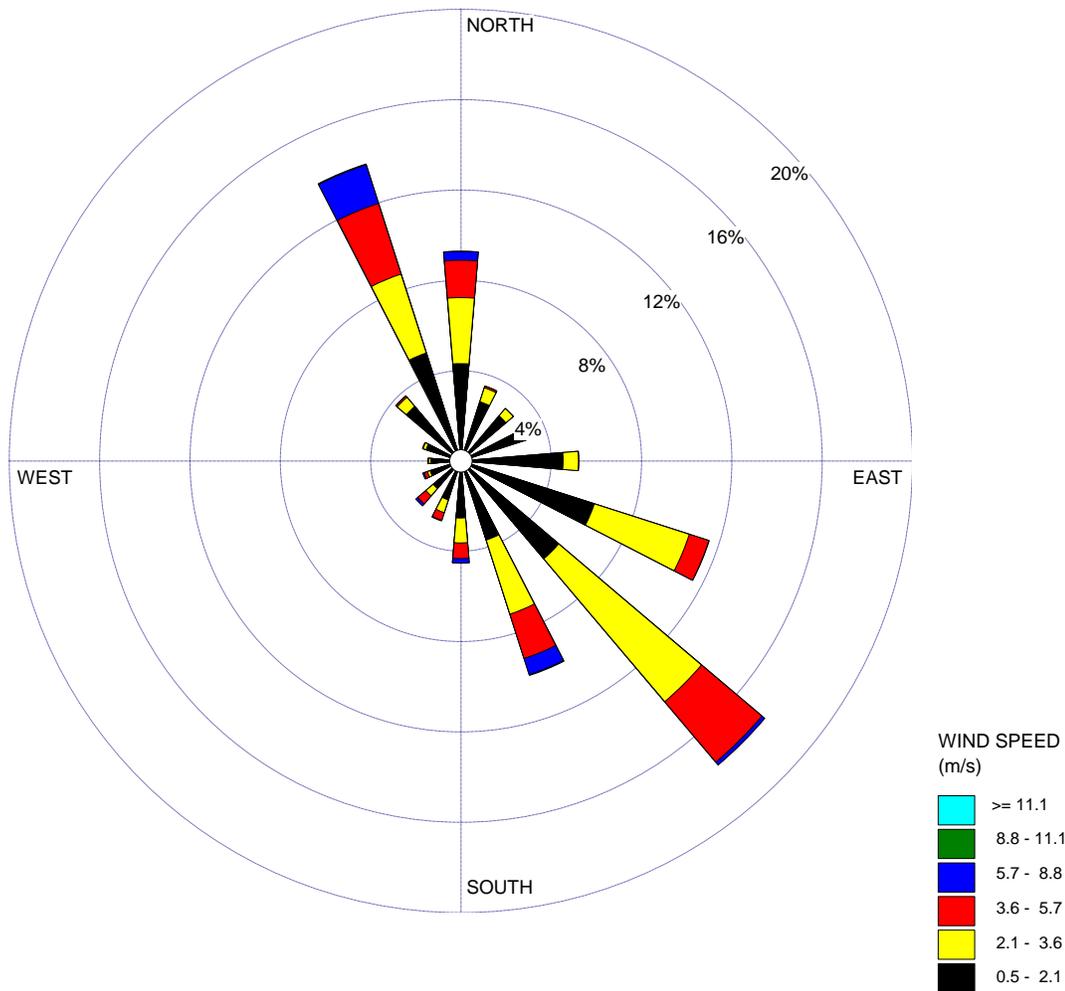
FIGURE 2  
 AVERAGE MONTHLY MINIMUM AND  
 MAXIMUM TEMPERATURES  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA



SOURCE: WILLOWS 6W WEATHER STATION 049699

WIND ROSE PLOT:  
**Station #99032**

DISPLAY:  
**Wind Speed  
 Direction (blowing from)**



COMMENTS:	DATA PERIOD: <b>1993 1994 1996 1997 Jan 1 - Dec 31 00:00 - 23:00</b>	COMPANY NAME:	
	CALM WINDS: <b>3.93%</b>	MODELER:	
	AVG. WIND SPEED: <b>2.37 m/s</b>	TOTAL COUNT: <b>35064 hrs.</b>	
		PROJECT NO.:	<b>993, 1994, 1996, 1997</b>

WRPLOT View - Lakes Environmental Software

**FIGURE 3  
 WIND ROSE  
 CALIFORNIA OLIVE RANCH  
 GLENN COUNTY, CALIFORNIA**

SOURCE: STATION 99032, COLUSA CIMIS STATION

## 4.0 COMPLAINT RESPONSE PROTOCOL

In the event that an odor complaint is received, the following procedures will be followed by COR personnel:

1. If possible, the operator will visit the location of the complaint to verify if the site may be responsible for the odor. Otherwise, the operator shall investigate the probable source of the odor complaint and implement operational changes to minimize odors.
2. Discuss investigation and response with complainant.
3. Inform Local Enforcement Agency (LEA) of complaint and response.
4. Document the complaint(s) on the odor investigation report form (copy included as Appendix A).

## **5.0 DESIGN CONSIDERATIONS/OPERATING PROCEDURES TO MINIMIZE ODORS**

The composting site is located in a rural area. The compost area is surrounded by olive orchards and almond trees, which will provide a vegetative buffer between odor sources and any offsite receptors.

Effective odor management is dependent upon containing volatile organic compounds (VOCs). This is done primarily by limiting excess moisture in the feedstock and materials that are actively composting. In addition, a correct initial C:N ratio is essential in sequestering VOCs. COR will work to attain the proper C:N ratio and limit excess moisture in the initial compost feedstock blend. Additional water will be added to the compost on an as-needed basis only. Proper management of water additions eliminates excess moisture in the compost.

The material will be covered with tarps following November 1 and not composted until late spring. Additional possible management tools that could be employed at the compost trial site if needed were summarized in Table 2.

### **5.1 Feedstock Characteristic and Quality/Moisture Content**

The feedstock will consist of olive pomace and other agricultural materials. An olive pomace sample collected at the COR facility contained 65 percent moisture. The pomace will be composted with locally available materials to facilitate the compost process. The materials will include some type of manure to provide nutrients and one or more bulking agents.

Temperature will be monitored during composting too ensure that the process is progressing as planned. Monitoring these parameters could allow correction of conditions that may lead to excessive odors.

### **5.2 Aeration**

The processing at the COR facility will be passive. These will be turned regularly to provide aeration.

### **5.3 Airborne Emission Controls**

Activities such as material handling, grinding, turning, and screening could generate dust and odor emissions. Maintaining proper moisture in materials onsite would prevent generation of dust. If necessary, water can be added to material to prevent dust. Additional measures to control airborne emissions from the site include reducing turning and material handling when wind is in the direction of nearby receptors, and reducing turning and material handling during stagnant air conditions.

## **5.4 Drainage Controls**

The compost area will be compacted and directed to drain to a bioswale to be constructed adjacent to the site. There is no run-on to the site and runoff from the site will be managed by windrow piles and drainage controls.

## **5.5 Pad Maintenance**

The pad will be graded and maintained to discourage any ponding of water which could lead to odors at the site.

## **5.6 Process/Wastewater Controls**

The compost facility will not generate a process/wastewater. Leachate generation is expected to be minimal as the heat of the windrows will result in water evaporation. Any wastewater generated by watering the piles would drain into the drainage control system and hence to the bioswale prior to discharge.

## **5.7 Storage Practices**

The olive pomace feedstock will be processed immediately upon generation and mixed with drier feedstocks. Compost piles will be trapezoidal in cross-section. With the exception of an initial two-week supply, mix materials will not be stored in piles on the site and delivered as needed. All feedstock materials delivered with the exception of a small amount of manure are anticipated to be dry to offset the moisture content of the pomace.

## **5.8 Weather Event Impacts**

It is not anticipated that extreme weather events could significantly interfere with composting operations. Winds could cause migration of odor from the site, but will not result in odor-causing material leaving the property. Measures to control airborne emissions from the piles include reducing turning and material handling when wind is in the direction of nearby receptors, and reducing turning and material handling during stagnant air conditions.

## **5.9 Contingency Plans**

Water will be supplied by an onsite well. If needed, water could be delivered to the site by tanker truck if the water supply was interrupted. The composting equipment onsite will be diesel-powered and will not require electricity. Power outage would not impact composting operations. All equipment will be maintained per the manufacturer recommendations. In the event of equipment failure, the operator will rent or lease equipment if needed while repairs are made. Multiple employees will be trained in composting procedures and equipment operation to ensure operations can continue in the absence of key personnel.

## **5.10 Personnel Training**

Personnel will be trained in the proper use of facility equipment. Potential hazards and safety features will be stressed as well as handling procedures to minimize production of odors. All equipment operators will be trained before running each piece of machinery. Training records will be kept on file.

## **5.11 Load Enclosure/Tarping**

Olive pomace will be transported to the mix area directly from the olive processing facility in mix trucks. Pomace will not be deposited onsite. Only dry mix ingredients will be used. Mix materials will be tarped as necessary. The one-third of the total compost mix that is stored over the winter will be piled and covered. The composting windrows of the other two-thirds will not be covered.



## **ODOR INCIDENT INVESTIGATION REPORT (OIR)**

*Note: This is not intended to be an "inspection" report per se (to indicate the regulatory agent's verification of the odor). It is more of an evaluation to determine the cause of the odor incident.*

GENERAL

Date: \_\_\_\_\_

Facility Name: \_\_\_\_\_

Address:

\_\_\_\_\_

Town: \_\_\_\_\_, State: \_\_\_\_\_, Zip code: \_\_\_\_\_ County:

\_\_\_\_\_

Facility contact:

\_\_\_\_\_

Phone:

\_\_\_\_\_

Email:

\_\_\_\_\_

Regulatory jurisdiction:

\_\_\_\_\_

Regulatory contact:

\_\_\_\_\_

**ODOR COMPLAINT:**

Nature of the complaint:

\_\_\_\_\_

Date of 1<sup>st</sup> complaint: \_\_\_\_\_ Day of week: \_\_\_\_\_

Time(s) during day:

\_\_\_\_\_



Feedstocks received on day of complaint and/or previous day:

Material	Day	AM/PM	Condition
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Activities on day of complaint and/or previous day:

Activity (e.g. turning, pile moved, delivery)	Day of Week	AM/PM
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Extraordinary circumstances

(e.g. spill, equipment breakdown, employee incident, odorous load, etc.):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Resolution of the above:

\_\_\_\_\_

APPROXIMATE WEATHER CONDITIONS (e.g. warm, hot, windy, sunny, light rain, etc)

At time	Morning	Afternoon	
of 1 <sup>st</sup>	of Same	of Same	Previous
Previous			

	complaint	Day	Day	Afternoon	Night
Temperature	_____		_____		
	_____		_____		
	_____				
Cloud cover	_____		_____		
	_____		_____		
	_____				
Prevailing wind	_____		_____		
	_____		_____		
	_____				
Wind conditions	_____		_____		
	_____		_____		
	_____				
Precipitation	_____		_____		
	_____		_____		
	_____				
Humidity	_____		_____		
	_____		_____		
	_____				

Unusual weather conditions (e.g. very strong wind, temperature inversion):

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Description of weather character for previous five days (e.g. hot and humid for 3 days followed by heavy rain and mild temperatures):

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SIERRA  
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SUTTER  
TEHAMA  
TRINITY

123 West 6<sup>th</sup> Street, Suite 100  
Chico, CA 95928  
Phone (530) 898-6256  
*neinfocntr@csuchico.edu*

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**Request for Project Review**

**Project Reference Number:** 71630

**Project Title/ Applicant Name:** California Olive Ranch Compost Project

**Assessor's Parcel Number(s):** 021-020-027-9

**Project Acreage or Linear Miles:** 40 acres

**Street Address:** 5945 County Road 35, Artois, CA

**Project Description:** Development of a compost facility

**Project Location:**

Township: 20N Range: 4W Section(s) NW 1/4 of Section 12

**USGS 7.5' Topographic Quadrangle Map(s):** Stoney Valley

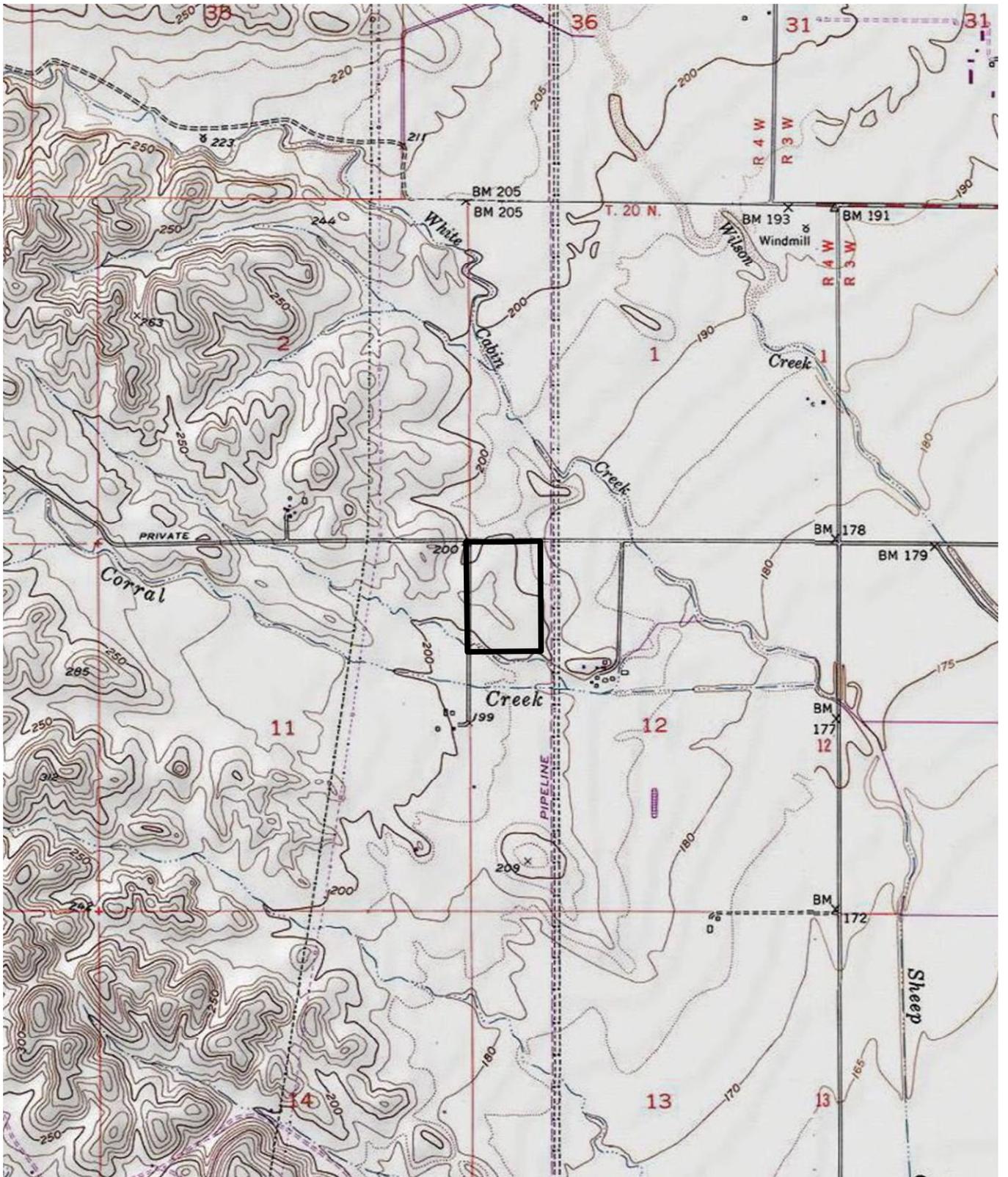
**County:** Glenn

**Please enclose a copy of the relevant portion  
of the 1:24,000 USGS 7.5' quadrangle map (1:1)  
with the project area clearly and accurately outlined**

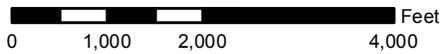
**Contact Person/Planner:** Wendy Johnston / VESTRA Resources, Inc.

**Contact Phone Number:** (530) 223-2585

*\*\*\*Please include pertinent project application paperwork describing the nature of the project, potential ground disturbance, and existing modifications to the property.*



 Proposed Compost Facility



SOURCE: USGS 7.5' TOPOGRAPHIC MAP, STONE VALLEY QUADRANGLE

FIGURE 1  
USGS TOPOGRAPHIC MAP  
CALIFORNIA OLIVE RANCH  
GLENN COUNTY, CALIFORNIA

# CALIFORNIA OLIVE RANCH PROPOSED COMPOST FACILITY

## PROJECT SUMMARY

California Olive Ranch (COR) farms approximately 5,500 acres of olives and processes the olives, from their farm and from other growers, into extra virgin olive oil at their processing and bottling facility in Artois, California. The pressing of extra virgin olive oil produces between 40,000 and 70,000 tons of olive pomace (skins and residual olive meat) annually. COR generates olive pomace over a four-month period from September to December. The generation of the pomace coincides with the harvest window for olives. The need to press olives immediately following harvest compresses the pomace generation into a narrow window.

Historically, the pomace has been transported to the Wilbur-Ellis facility at the Orland Airport for use as a pet-food additive; however, the cost associated with the disposal of this byproduct has been increasing. In response, COR evaluated alternatives and is proposing to compost the pomace for use as an amendment on their olive orchards. The long-term goal is to follow regenerative agricultural techniques and eliminate or completely reduce the need for commercial fertilizers on the olive orchards that supply the olives for California Olive Ranch.

California Olive Ranch harvests all of its olives in a short, four-month period. COR produces only “extra-virgin” olive oil. “Extra virgin” olive oil is the naturally extracted juice from fresh olives. To be considered “extra virgin,” the oil is extracted in a single cold press without the use of chemicals or heat. Olives must be pressed within hours after harvest and cannot be stored. Olive harvest is cyclic, with one year being smaller and the next larger, the next smaller etc. All of the olive pomace is generated during the pressing window.

California Olive Ranch is proposing to compost up to 70,000 tons per year of olive pomace. The pomace has high moisture content (approximately 65 percent) and will be mixed with other agricultural products to facilitate composting. No commercial fertilizer additives are proposed. The following compost feedstocks and bulking agents are proposed for processing at the facility:

- Olive pomace
- Almond waste
- Rice straw or rice hulls
- MOO
- Olive trimmings and stems
- Animal manure
- Other agricultural waste materials

No source-separated greenwaste or other anthropogenic-generated materials are planned to be used in the COR compost mix; however, as stated previously, CSI will use a portion of the facility during the summer months to produce a premium compost mix and the CSI mix may contain less than 15 percent greenwaste.

The compost facility will include compacted compost areas, paved mixing area, stormwater detention pond, landscaped buffer, and graveled haul road. Employee areas and equipment fueling and maintenance will be located at the adjoining COR maintenance shop.

The compost areas will be set back 100 feet from property lines and County Road 35. The facility will be surrounded by a vegetative buffer of two to three rows of olives. Mix materials will be received via a separate entrance off of County Road 35. Pomace will be obtained directly from the processing plant via mixing trucks. Stormwater will be conveyed to a detention pond to be constructed onsite and hence discharged.

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TEHAMA  
TRINITY

123 West 6th Street, Suite 100  
Chico CA 95928  
Phone (530) 898-6256  
*neinfocntr@csuchico.edu*

February 14, 2017

VESTRA Resources, Inc.  
5300 Aviation Drive  
Redding, CA 96002  
Ms. Wendy Johnston

**I.C. File # D17-16  
Non-Archaeological Records  
Search**

RE: California Olive Ranch Compost Project/APN 021-020-027-9  
T20N, R4W, Section 12 MDBM  
USGS Stone Valley 7.5' and Fruto (1958) 15' quads  
Approximately 38 acres, estimated from project map (Glenn County)

Dear Ms. Johnston,

In response to your request, a non-archaeological records search for the project cited above was conducted by examining the official maps and records for archaeological sites and surveys in Glenn County.

**RESULTS:**

**Prehistoric Resources:** According to our records, no sites of this type have been recorded in the project area or within a mile of the proposed project. The project is located in a region utilized by Konkow Maidu populations. Unrecorded prehistoric cultural resources may be located within the project area.

**Historic Resources:** According to our records, no sites of this type have been recorded in the project area or within a mile of the proposed project. Unrecorded historic cultural resources may be located in the project area.

The USGS Fruto (1958) 15' quad map indicates that roads are located in the project area; transmission lines and a pipeline are located adjacent to the project area; and Sheep Corral Creek, White Cabin Creek, a transmission line, structures, and roads are located in the project vicinity.

A copy of the historic Fruto (1944) 1:125,000 quad map depicting the Sacramento Valley and roads in the project area is enclosed.

**Previous Archaeological Investigations:** According to our records, the project area has not been previously surveyed by a professional archaeologist.

**Literature Search:** The official records and maps for archaeological sites and surveys in Glenn County were reviewed. Also reviewed: **National Register of Historic Places - Listed properties and Determined Eligible Properties** (2012); **California Register of Historical Resources** (2012); **California Points of Historical Interest** (2012); **California Inventory of Historic Resources** (1976); **California Historical Landmarks** (2012); **Directory of Properties in the Historic Property Data File for Glenn County** (2012); **Handbook of North American Indians, Vol. 8, California** (1978); **Historic Spots in California** (2002).

#### RECOMMENDATIONS:

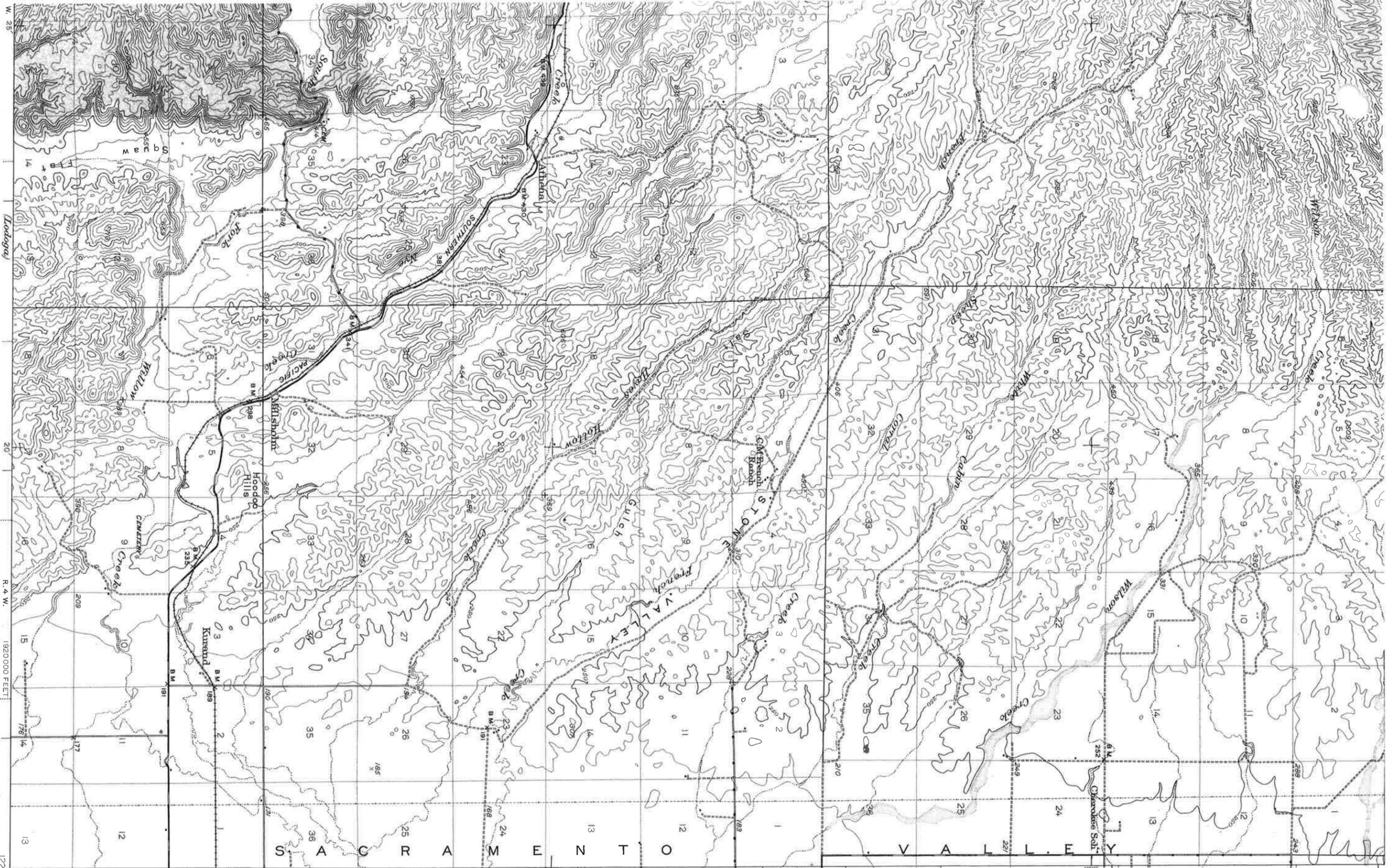
We recommend that you contact the appropriate local Native American representatives for information regarding traditional cultural properties that may be located within project boundaries for which we have no records.

The charge for this record search is **\$150.15** (1 hour @ \$150.00 per hour, plus 1 copy @ \$0.15 per copy). An invoice will follow from the CSUC Research Foundation for billing purposes. Thank you for your concern in preserving California's cultural heritage, and please feel free to contact us if you have any questions or need any further information or assistance.

Sincerely,



Adrienne Springsteen, B.A.  
Research Assistant

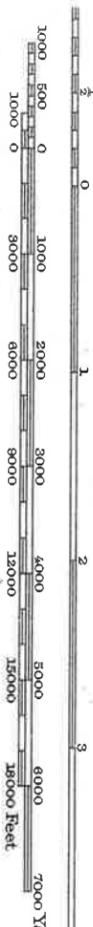


Scale 62300

Scale 62300

Scale 62300

Scale 62300



Contour interval 50 feet  
Datum is mean sea level

ROAD CLASSIFICATION  
 1944  
 Loose surface, graded  
 Unsurfaced, graded  
 Dry weather road  
 D/r road  
 U.S. Route 15  
 State Route 28

FRUITO, CALIF.  
 Editor of 1944  
 N3930-W1225/15

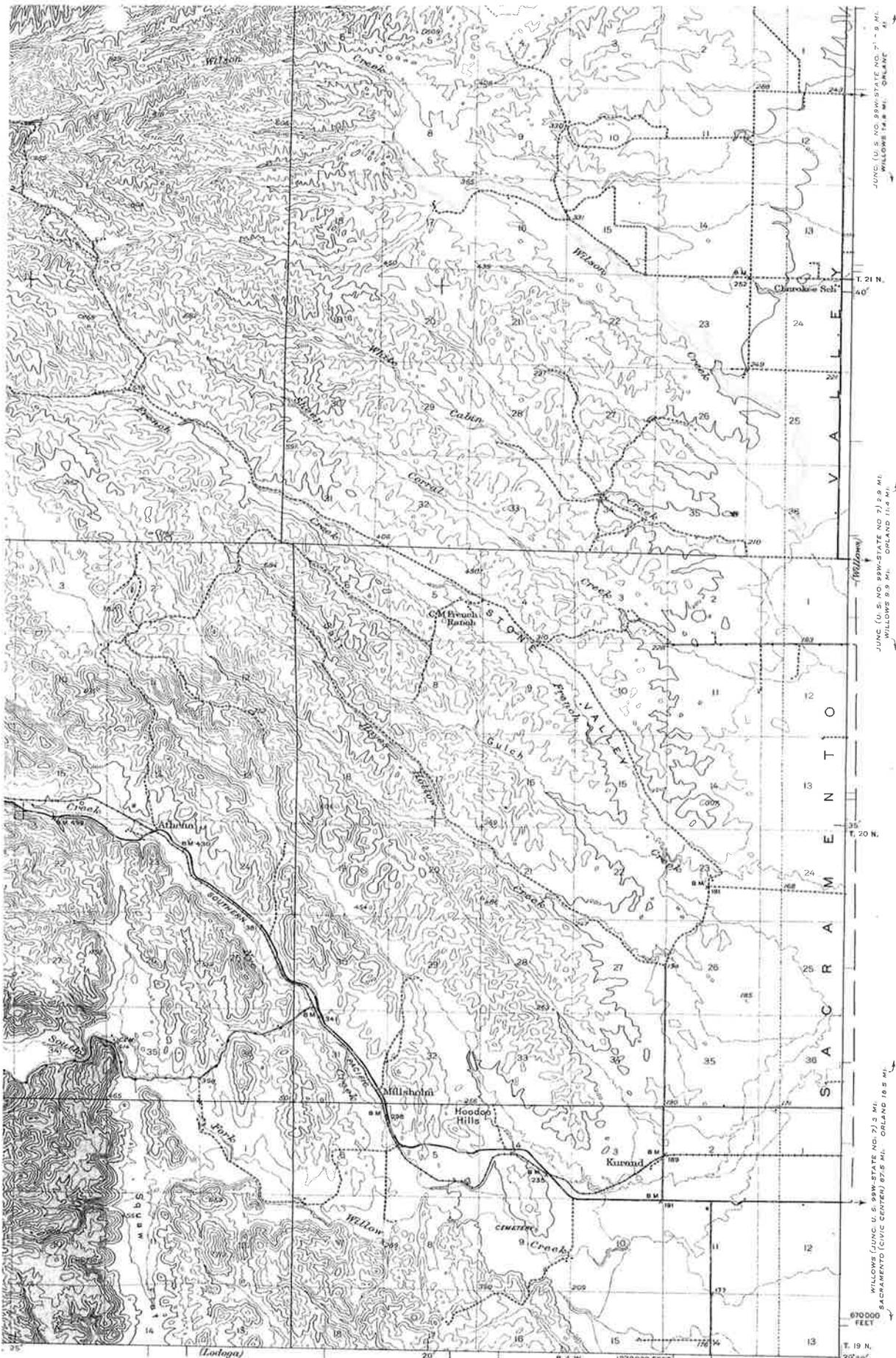
Maps of the Walker Creek and Kurund quadrangles, scale 1:31,680, contour interval 5 feet, from more detailed surveys of the Sacramento Valley part of this area, are available.

670,000 FEET

WILLOWS (JUNC. U. S. 99W-STATE NO. 7) 3 MI.  
 SACRAMENTO (CIVIC CENTER) 87.5 MI. ORLAND 18.5 MI.

JUNC. (U. S. NO. 99W-STATE NO. 7) 2.9 MI.  
 WILLOWS 9.9 MI. ORLAND 11.4 MI.

JUNC. (U. S. NO. 99W-STATE NO. 7) 14.9 MI. ORLAND 18.5 MI.



JUNC (U.S. NO. 89W-STATE NO. 7) 8.9 MI. WILLOWS 14.8 MI. OPLAND 11.4 MI.  
 JUNC (U.S. NO. 89W-STATE NO. 7) 8.9 MI. WILLOWS 8.9 MI. OPLAND 11.4 MI.  
 WILLOWS (JUNC. U.S. NO. 89W-STATE NO. 7) 3 MI. SACRAMENTO (CIVIC CENTER) 87.5 MI. OPLAND 18.5 MI.  
 670000 FEET  
 T. 19 N. 39 30' 122 0' (MAGNETIC)



Contour interval 50 feet  
 Datum: 44 meters above level

Maps of the Walker Creek and Kuroki quadrangles, scale 1:31,680, contour interval 5 feet, from more detailed surveys of the Sacramento Valley part of this area, are available.

1920000 FEET

Polyconic projection - 1927 North American datum  
 5000 yard grid based on U.S. zone system G  
 10000 foot grid based on California (2) rectangular coordinate system  
 To join Willows map use dotted projection corners

ROAD CLASSIFICATION

19 4 4

Openly used surface  
 Secondary road surface  
 All weather road

19 4 4  
 Lane surface, graded  
 Unimproved grade  
 Dip water marks  
 Dike (road)

U.S. Route (M)  
 State Route (N)

FRUITO, CALIF.  
 Edition of 1944  
 N3830-W12215/15

Note: less than two feet indicated along road with tick at point of change



April 28, 2017

**GIS, Environmental, & Engineering Services**

71630

John H. Wells  
Glenn County Environmental Health  
247 North Villa Ave  
Willows, CA 95988

**RE: Response to Recommendations  
California Olive Ranch Compost Facility SWFP Application**

Dear Mr. Wells:

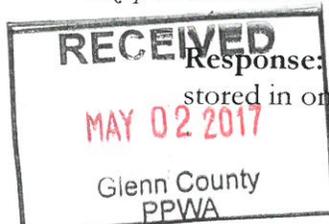
California Olive Ranch is in receipt of letters from Glenn County Health and Human Services Agency regarding the proposed Solid Waste Facility Permit for the California Olive Ranch Compost Facility. This letter includes a compilation of responses for comments received on four documents regarding the proposed facility. The four source documents include:

- April 19, 2017 Glenn County Health and Human Services Agency letter to Andy Popper, re: Comments on CEQA Initial Study for California Olive Ranch Vegetative Waste Composting Facility.
- April 19, 2017 Department of Resources Recycling and Recovery letter to Andy Popper, subject: State Clearinghouse No. 2017032061 – Notice of Early Consultation (NOC) for a Conditional Use Permit for the proposed California Olive Ranch Composting (CORC) facility requiring the issuance of a Solid Waste Facilities Permit (SWFP), Glenn County.
- April 11, 2017 Glen County Environmental Health letter to Jim Lipman, subject: Notes and Recommendations for Next Submittal of Solid Waste Facility Permit Application Package.
- April 11, 2017 Glen County Environmental Health letter to Jim Lipman, subject: Solid Waste Facility Permit Application for California Olive Ranch.

Responses to each letter follow.

**April 19, 2017 Department of Resources Recycling and Recovery letter to Andy Popper, subject: State Clearinghouse No. 2017032061 – Notice of Early Consultation (NOC) for a Conditional Use Permit for the proposed California Olive Ranch Composting (CORC) facility requiring the issuance of a Solid Waste Facilities Permit (SWFP), Glenn County.**

**Comment 1:** *How will the plastic waste and other contaminants be removed from the greenwaste feedstock? What size plastic would remain in the greenwaste, and what percentage of the greenwaste would this waste residual comprise?*



**Response:** Unusable materials and contaminants will be removed by hand, contained and stored in onsite garbage receptacles, and properly disposed of.

**Comment 2:** *The Site Plan, Figure 2-7, in the Initial Study portion of the document should contain the entire facility layout. Please include on this drawing: the parking, unloading, loading, and storage areas.*

**Response:** Figure 1-2 is the Site Plan and has been corrected to include the parking, unloading, loading, and storage areas.

**April 19, 2017 Glenn County Health and Human Services Agency letter to Andy Popper, re: Comments on CEQU Initial Study for California Olive Ranch Vegetative Waste Composting Facility.**

**Comment 1:** *The Initial Study specifies a lower maximum daily tonnage than the E-177 form. The feedstock table on page 14 of the Initial Study specifies a maximum daily tonnage of 1380 tons/day with an unspecified "TBD" tons/day listed for other agricultural materials, which matches what is specified in the RCSI. However, the E-177 application specifies a maximum daily tonnage of 1660 tons/day.*

**Response:** The E-177 has been corrected to match the maximum daily tonnage listed in the Initial Study. The maximum daily tonnage in the RCSI, E-177, and Initial Study are now the same.

**Comment 2:** *The Initial Study specifies a lower daily traffic count than the E-177 form and RCSI. Page 17 of the Initial Study specifies a maximum of 100 truck trips per day, but makes no mention of the additional 6 employee vehicle trips specified in the E-177 and RCSI. The E-177 form and RCSI both specify 100 truck trips per day plus 6 employee vehicle trips per day, for a total of 106 vehicle trips.*

**Response:** The Initial Study, page 17, has been corrected to reflect 100 truck trips plus 6 employee vehicle trips per day.

**Comment 3:** *Green material typo in the Initial Study. Page 2 of the initial study lists materials to be composted at the site, but does not list green material as a feedstock. The feedstock table on page 14, however, does list green material. While the LEA has deemed this clear enough to approve composting of green material at the site, other agencies may not. Consider adding green material into the list of feedstock materials on page 2 of the Initial Study.*

**Response:** The Initial Study, page 2, has been updated to reflect feedstocks, bulking agents, and additives listed on page 14 of the RCSI, including greenwaste.

**Comment 4:** *Capacity tonnage typo in Initial Study. The top of page 8 of the Initial Study states that the facility is applying to compost up to 78,000 cubic yards of olive pumice and 121,000 cubic yards of other materials for a total of 199,000 cubic yards of material at the site. However, the feedstock table on page 14 of the initial study adds these numbers up to 198,000 cubic yards total capacity. The LEA has deemed this clear enough for approval, given the SWFP application requests a maximum capacity of 198,000 cubic yards. Other agencies might not deem this clear enough for approval. Consider adjusting these numbers within the Initial Study so they match.*

**Response:** The maximum volume of material on site 198,000 cubic yards at any given time. The Initial Study, page 8, and RCSI, page 14, have been updated to reflect this.

**April 11, 2017 Glen County Environmental Health letter to Jim Lipman, subject: Notes and Recommendations for Next Submittal of Solid Waste Facility Permit Application Package.**

***Comment 1: Consider providing conversion factors used by your facility to convert tons to cubic yards.*** Page 14 of the RCSI provides a feedstock table with maximum tons per day of various materials and then provides two columns describing total tons and total cubic yards; The conversion factors used by your facility may not match those used by the LEA, which could lead to misunderstandings during future inspections at the facility. Consider providing both the conversion factors for converting tons to cubic yards as well as the source of the conversion factors used.

**Response:** The RCSI, page 16, Section 3.4.3, provides addresses the conversion factors used. This section has been referenced on page 14 of the RCSI for clarity.

***Comment 2: Possible restrictions to lending out use of the composting pad to other operators.*** Paragraph 4 on Page 17 of the RCSI states: When COR is not using portions of the composting pads in late spring and summer, these areas may be used by another party to produce a higher-quality compost product California Olive Ranch will be the permitted operator of the site, and can choose to hire/contract any qualified individuals they desire to perform composting operations at the facility. However, all limits for types of compostable materials allowed, operating hours, acreage, maximum daily tonnage, site capacity, and vehicular traffic that have been specified in the SWFP and RCSI will still apply regardless of who ultimately performs composting operations at the site.

**Response:** This is acceptable to the facility operator. No changes have been made to the RCSI regarding this comment.

***Comment 3: Consider providing more detail on dust control.*** The dust control methods listed on page 23 of the RCSI are deemed by the LEA to be adequate. However, you may want to consider adding language stating that compost will not be mixed during high wind conditions, a commonly implement best management practice for controlling both dust and odors.

**Response:** The RCSI, page 24, has been updated to include *avoiding mixing compost during high wind conditions (e.g., winds greater than 20 mph)* as a means of dust control.

***Comment 4: Green material typo in the Initial Study.*** Page 2 of the initial study lists materials to be composted at the site, but does not list green material as a feedstock. The feedstock table on page 14, however, does list green material. While the LEA has deemed this clear enough to approve composting of green material at the site, the Glenn County Planning Department and/or CalRecycle may not Consider adding green material into the list of feedstock materials on page 2 of the Initial Study.

**Response:** The Initial Study, page 2, has been updated to reflect feedstocks, bulking agents, and additives listed on page 14 of the RCSI, including greenwaste.

***Comment 5: Capacity tonnage typo in Initial Study.*** The top of page 8 of the Initial Study states that the facility is applying to compost up to 78,000 cubic yards of olive pumice and 121,000 cubic yards of other materials for a total of 199,000 cubic yards of material at the site. However, the feedstock table on page 14 of the initial study adds these

*numbers up to 198,000 cubic yards total capacity. The LEA has deemed this clear enough for approval, given the SWFP application requests a maximum capacity of 198,000 cubic yards. Other agencies might not deem this clear enough for approval, Consider adjusting these numbers within the Initial Study so they match.*

**Response:** The maximum volume of material on site 198,000 cubic yards at any given time. The Initial Study, page 8, and RCSI, page 14, have been updated to reflect this.

**April 11, 2017 Glen County Environmental Health letter to Jim Lipman, subject: Solid Waste Facility Permit Application for California Olive Ranch.**

***Comment 1:*** *Operating hours specified in the E-177 Application form do not match those specified in the Report of Composting Site Information (RCSI). The E-177 form states that the operating hours for the facility will be Monday through Friday, 7:00 am to 4:00 pm during the months of January through August (and 24 hours a day from September through December). Page 14 of the RCSI states the facility will operate on a 40-hour week, Monday through Friday, further stating: normal operating hours will be no more than one hour before sunrise until one hour after sunset.*

**Response:** The facility will operate as specified on the E-177. The RCSI, page 14, has been updated to reflect this.

***Comment 2:*** *The maximum daily tonnage specified in the E-177 does not match the RCSI. The maximum daily tonnage specified in Part 3(A)(2) of the E-177 application is 1660 tons/day, The maximum daily tonnage specified in the feedstock table on page 14 of the RCSI is 1380 tons/day. While it is technically acceptable for the RCSI to specify a lower maximum daily tonnage than the permit; left unchanged the facility will be restricted to the lower daily tonnage specified in the RCSI.*

**Response:** The maximum daily tonnage is 1380 tons/day as listed in the RCSI. The E-177 has been corrected.

***Comment 3:*** *The RCSI incorrectly states the General Waste Discharge order does not apply to this facility. Page 5 of the RCSI states that Compliance with Order WQ-2015~0121~DWQ General Waste Discharge Requirements for Compost Operations is not believed to be applicable to this project Unless the facility plans to apply for a facility-specific individual Waste Discharge Requirements (WDR) order from the Regional Water Quality Control Board (RWQCB), General Order WQ-2015-Q121-DWQ is the applicable WDR order for the facility.*

**Response:** This Order is applicable to this project. The RCSI, page 5, has been corrected to reflect this. The comment was referring to Order 2015-0057-DWQ.

***Comment 4:*** *Figure 2-7 incorrectly describes a buffer around the "trial compost facility". The legend for Figure 2-7 indicates that the light green line shows the 0.5 Mile Buffer Around Proposed Compost Trial Facility and that the black and white dotted line shows the 1-Mile Buffer Around Proposed Compost Trial Facility. The compost trial facility refers to a different facility currently operating a few blocks away from the proposed facility.*

**Response:** Figure 2-7 has been corrected by removing the word 'trial.' The figure reflects the current facility and not the trial facility.

**Comment 5:** *The feedstock table on page 14 of the RCSI does not clearly indicate what "total" refers to. The feedstock table on page 14 of the RCSI has four columns. The first column lists the feedstock material type; the second column lists the Max Tons per Day of that feedstock type that can be received by the facility. The next two columns, however, describe "Total Tons" and "Total Cubic Yards". It is not clear if these columns refer to the total amount of these materials allowed to accumulate onsite at a given time, or if they refer to some other measure.*

**Response:** The Total Tons column gives the maximum total tons of each material that will be onsite at any given time. The Total Cubic Yards gives the maximum total cubic yards of each material that will be onsite at any given time. The RCSI, page 14, has been updated to reflect this clarification.

**Comment 6:** *Windrow temperature monitoring procedures described on page 19 are not consistent with State Minimum Standards, The third paragraph on page 19 describes windrow temperature monitoring procedures stating: temperatures are monitored twice weekly in the initial phases of composting and weekly thereafter While this monitoring frequency is fine for the majority of the composting process, it is not acceptable while the compost is active within the pathogen reduction phase of production. 14 CCR 17868.3 (c) specifies compost temperatures must be taken daily during the pathogen reduction phase, with one measurement taken for each 150 feet of windrow length.*

**Response:** The RCSI, page 19, has been updated to comply with 14 CCR 17868.3 (c) specifications for temperature monitoring. During the pathogen reduction phase, one temperature measurement will be taken every 150 feet of windrow length at a depth of 12 to 24 inches below the windrow surface.

**Comment 7:** *The E-177 Application does not specify a facility operator. Part 8 of the E-177 application form lists the facility operator as "pending". An operator must be specified to process the permit application. Unless an outside operator has been arranged, list the facility owner (California Olive Ranch) as the operator. If an outside, contract operator is later obtained, a permit revision can be completed at a later date to make the necessary changes.*

**Response:** At this time, California Olive Ranch will operate the facility. This has been corrected on the E-177, part 8, and in the RCSI.

**Comment 8:** *Facility layout drawings are incomplete, 14 CCR 18277(c) requires the RCSI to contain schematic drawings of the facility layout showing unloading, storage, processing, parking, and loading areas. The parking and loading areas are not shown in any of the layout drawings. It is also unclear if the area labeled "mix area" is where unloading and storage will take place.*

**Response:** Figure 1-2 has been corrected to include the parking, loading, unloading, and storage areas.

**Comment 9:** *Emergency provisions for a power failure are not described. 14 CCR 18277(e) requires the RCSI to contain emergency provisions for equipment breakdown or power failure. The RCSI does not describe*

*emergency provisions for a power failure, which is particularly important for this facility which plans to operate 24 hours per day from September through December.*

**Response:** All equipment onsite will be diesel powered, including lighting. Light stands will be powered by individual generators with multiple light stands onsite. Facility operations will not be impacted in the event of local power failure since no power lines are connected to the site. The RCSI has been updated to reflect this by the addition of Section 3.5.2, *Emergency Provisions for Power Failure*.

**Comment 10:** *Methods for storage and final disposal of unusable residues are not described. 14 CCR 18277(j) requires the RCSI to describe methods for storage and final disposal of non-recoverable and non-marketable residues from the composting process, Green waste that will be received by the facility will inevitably contain some contaminants. Also, some materials may prove impractical or impossible to fully compost, The RCSI must describe how these materials will be stored and eventually disposed of by the facility.*

**Response:** Unusable materials and contaminants will be removed by hand, contained and stored in onsite garbage receptacles, and properly disposed of.

**Comment 11:** *A responsible party for facility operations must be listed. 14 CCR 18277(1) requires identification of a responsible person(s) for oversight of facility operations. Select one or more persons who will be responsible for the composting operation. If the responsible person(s) later changes, an RCSI amendment can be completed at a later date.*

**Response:** James Lipman, Vice President of California Olive Ranch will serve as the responsible person. The RCSI, page 2, has been updated for clarity.

**Comment 12:** *The Initial Study specifies a lower maximum daily tonnage than the E-177 form. The feedstock table on page 14 of the Initial Study specifies a maximum daily tonnage of 1380 tons/day with an unspecified "TBD" tons/day listed for other agricultural materials, which matches what is specified in the RCSI. However, the E-177 application specifies a maximum daily tonnage of 1660 tons/day.*

**Response:** The maximum daily tonnage is 1380 tons/day as listed in the RCSI. The E-177 has been corrected.

**Comment 13:** *The Initial Study specifies a lower daily traffic count than the E-177 form and RCSI. Page 17 of the Initial Study specifies a maximum of 100 truck trips per day, but makes no mention of the additional 6 employee vehicle trips specified in the E-177 and RCSI.*

**Response:** The Initial Study, page 17, has been corrected to reflect 100 truck trips plus 6 employee vehicle trips per day.

Mr. John Wells/Glenn County Environmental Health  
April 28, 2017  
Page 7 of 7

The revised RCSI/Technical Document and Initial Study are attached as well as the E-177. Please contact me if you have any questions at 530-223-2585.

Sincerely,

**VESTRA Resources, Inc.**



Wendy Johnston  
Project Manager

CC: James Lipman/California Olive Ranch  
Melissa Buciak/RWQCB, Central Valley Region  
Andy Popper/Glenn County Planning Department



EDMUND G. BROWN JR.  
GOVERNOR

STATE OF CALIFORNIA  
GOVERNOR'S OFFICE of PLANNING AND RESEARCH  
STATE CLEARINGHOUSE AND PLANNING UNIT



KEN ALEX  
DIRECTOR

**Request for Early Consultation**

March 21, 2017



To: Reviewing Agencies

Re: Conditional Use Permit 2017-001. California Olive Ranch Composting Facility  
SCH# 2017032061

Prior to determining whether a Negative Declaration or an Environmental Impact Report (EIR) is required for a project under CEQA, a Lead Agency is required to consult with all responsible and trustee agencies. This notice and attachment fulfill the early consultation requirement. Recommendations on the appropriate type of environmental document for this project, as well as comments on its scope and content, should be transmitted to the Lead Agency at the address below. You do not have to be a responsible or trustee agency to comment on the project. All agencies are encouraged to comment in a manner that will assist the Lead Agency to prepare a complete and adequate environmental document.

Please direct your comments to:

Andy Popper  
Glenn County  
777 North Colusa St  
Willows, CA 95988

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to SCH Number 2017032061 in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan  
Director, State Clearinghouse

Attachment  
cc: Lead Agency

**Document Details Report  
State Clearinghouse Data Base**

**SCH#** 2017032061  
**Project Title** Conditional Use Permit 2017-001. California Olive Ranch Composting Facility  
**Lead Agency** Glenn County

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**Type** CON Early Consultation  
**Description** Request for Review/Early Consultation: COR has applied for a CUP to develop a facility to compost olive pomace residuals from the pressing of olives into olive oil. Following composting, COR would reuse infor/documentation has been included.

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**Lead Agency Contact**

**Name** Andy Popper  
**Agency** Glenn County  
**Phone** (530) 934-6540 **Fax**  
**email**  
**Address** 777 North Colusa St  
**City** Willows **State** CA **Zip** 95988

---

**Project Location**

**County** Glenn  
**City**  
**Region**  
**Cross Streets** County Rd 35 and County Rd D  
**Lat / Long** 39° 36' 34" N / 122° 16' 0" W  
**Parcel No.** 021-020-027  
**Township** 20N **Range** 4W **Section** 12 **Base** MDBM

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**Proximity to:**

**Highways**  
**Airports**  
**Railways**  
**Waterways** TC Canal, Sheep Corral, White Cabin, Wilson Crks  
**Schools**  
**Land Use** Olive Orchard (adjacent to Olive Oil Mill)/AP-80/Intensive ag

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**Project Issues** Other Issues

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**Reviewing Agencies** Resources Agency; Department of Fish and Wildlife, Region 2; Department of Parks and Recreation; Department of Water Resources; Resources, Recycling and Recovery; California Highway Patrol; Caltrans, District 3 N; Regional Water Quality Control Bd., Region 5 (Redding); Native American Heritage Commission; Department of Food and Agriculture

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**Date Received** 03/21/2017 **Start of Review** 03/21/2017 **End of Review** 04/19/2017

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Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

2017032061

Project Title: Conditional Use Permit 2017-001, California Olive Ranch Composting Facility
Lead Agency: Glenn County Planning & Public Works Agency
Contact Person: Andy Popper, Associate Planner
Mailing Address: 777 North Colusa Street
Phone: (530) 934-6540
City: Willows, CA Zip: 95988 County: Glenn

Project Location: County: Glenn City/Nearest Community: Artois
Cross Streets: County Road 35 and County road D Zip Code: 95913

Longitude/Latitude (degrees, minutes and seconds): 39 \* 36 \* 34 " N / 122 \* 16 \* 0 " W Total Acres: 90 +/- acres (property)
Assessor's Parcel No.: 021-020-027 Section: 12 Twp.: 20N Range: 4W Base: MDBM
Within 2 Miles: State Hwy #: Waterways: TC Canal, Sheep Corral, White Cabin, Wilson, Crks
Airports: Railways: Schools:

Document Type:
CEQA: [ ] NOP [ ] Draft EIR NEPA: [ ] NOI Other: [ ] Joint Document
[ ] Early Cons [ ] Supplement/Subsequent EIR [ ] EA [ ] Final Document
[ ] Neg Dec (Prior SCH No.) [ ] Draft EIS [ ] Other:
[ ] Mit Neg Dec Other:
Governor's Office of Planning & Research

Local Action Type:
[ ] General Plan Update [ ] Specific Plan [ ] Rezone [ ] Annexation
[ ] General Plan Amendment [ ] Master Plan [ ] Prezone [ ] Redevelopment
[ ] General Plan Element [ ] Planned Unit Development [ ] Use Permit [ ] Coastal Permit
[ ] Community Plan [ ] Site Plan [ ] Land Division (Subdivision, etc.) [ ] Other:
MAY 21 2017 STATE CLEARINGHOUSE

Development Type:
[ ] Residential: Units \_\_\_\_\_ Acres \_\_\_\_\_
[ ] Office: Sq.ft. \_\_\_\_\_ Acres \_\_\_\_\_ Employees \_\_\_\_\_
[ ] Commercial: Sq.ft. \_\_\_\_\_ Acres \_\_\_\_\_ Employees \_\_\_\_\_
[ ] Industrial: Sq.ft. \_\_\_\_\_ Acres \_\_\_\_\_ Employees \_\_\_\_\_
[ ] Educational: \_\_\_\_\_
[ ] Recreational: \_\_\_\_\_
[ ] Water Facilities: Type \_\_\_\_\_ MGD \_\_\_\_\_
[ ] Transportation: Type \_\_\_\_\_
[ ] Mining: Mineral \_\_\_\_\_
[ ] Power: Type \_\_\_\_\_ MW \_\_\_\_\_
[ ] Waste Treatment: Type \_\_\_\_\_ MGD \_\_\_\_\_
[ ] Hazardous Waste: Type \_\_\_\_\_
[ ] Other: Composting Facility, 30 acres, 70 tons per year

Project Issues Discussed in Document:
[ ] Aesthetic/Visual [ ] Fiscal [ ] Recreation/Parks [ ] Vegetation
[ ] Agricultural Land [ ] Flood Plain/Flooding [ ] Schools/Universities [ ] Water Quality
[ ] Air Quality [ ] Forest Land/Fire Hazard [ ] Septic Systems [ ] Water Supply/Groundwater
[ ] Archeological/Historical [ ] Geologic/Seismic [ ] Sewer Capacity [ ] Wetland/Riparian
[ ] Biological Resources [ ] Minerals [ ] Soil Erosion/Compaction/Grading [ ] Growth Inducement
[ ] Coastal Zone [ ] Noise [ ] Solid Waste [ ] Land Use
[ ] Drainage/Absorption [ ] Population/Housing Balance [ ] Toxic/Hazardous [ ] Cumulative Effects
[ ] Economic/Jobs [ ] Public Services/Facilities [ ] Traffic/Circulation [ ] Other: To be determined

Present Land Use/Zoning/General Plan Designation:
Olive Orchard (adjacent to Olive Oil Mill) / AP-80 (Agricultural Preserve Zone (Williamson Act)) / Intensive Agriculture
Project Description: (please use a separate page if necessary)

Request for Review/Early Consultation: California Olive Ranch (COR) has applied for a Conditional Use Permit to develop a facility to compost olive pomace residuals from the pressing of olives into olive oil. Following composting, COR would reuse the compost following regenerative agricultural techniques on orchards under their control. Additional project information/documentation has been included.

State Clearinghouse Contact: (916) 445-0613
State Review Began: 3-21-2017

EARLY CONSULTATION
SEND COMMENTS DIRECTLY TO
LEAD AGENCY BY: 4-19-2017

Please note State Clearinghouse Number (SCH#) on all Comments
SCH#: 2017032061
Please forward late comments directly to the Lead Agency A-D.

AQMD/APCD 8
(Resources: 3/25)

Project Sent to the following State Agencies
[X] Resources State/Consumer Svcs
Boating & Waterways General Services
Coastal Comm Cal EPA
Colorado Rvr Bd ARB: Airport & Freight
Conservation ARB: Transportation Projects
[X] CDFW # 2 ARB: Major Industrial/Energy
Delta Protection Comm SWRCB: Div. of Drinking Water
Cal Fire SWRCB: Div Drinking Wtr #
Historic Preservation SWRCB: Div. Financial Assist.
[X] Parks & Rec SWRCB: Wtr Quality
Central Valley Flood Prot. SWRCB: Wtr Rights
Bay Cons & Dev Comm. [X] Reg. WQCB # 5 r
[X] DWR Toxic Sub Ctrl-CTC
OES Yth/Adlt Corrections
[X] Resources, Recvc. & Recovery Corrections
CalSTA
Aeronautics
[X] CHP Independent Comm
[X] Caltrans # 3N Energy Commission
Trans Planning [X] NAHC
Other Public Utilities Comm
Housing & Comm. Dev State Lands Comm
[X] Food & Agriculture. Tahoe Rgl Plan Agency
Conservancy
Other:



## DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY

1001 I STREET, SACRAMENTO, CALIFORNIA 95814 • WWW.CALRECYCLE.CA.GOV • (916) 322-4027

P.O. BOX 4025, SACRAMENTO, CALIFORNIA 95812

April 19, 2017

Mr. Andy Popper, Associate Planner  
Glenn County Planning & Public Works Agency  
777 North Colusa Street  
Willows, California 95988

**Subject: State Clearinghouse No. 2017032061** – Notice of Early Consultation (NOC) for a Conditional Use Permit for the proposed California Olive Ranch Composting (CORC) facility requiring the issuance of a Solid Waste Facilities Permit (SWFP), Glenn County

Dear Mr. Popper:

Thank you for allowing the Department of Resources Recycling and Recovery (CalRecycle) staff to provide comments for this proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

CalRecycle staff have reviewed the environmental document cited above and offers the following project analysis and our recommendations for the proposed project based on CalRecycle staff's understanding of the project.

### **Project Description**

The Glenn County Planning & Public Works Agency, acting as Lead Agency, has prepared and circulated a project proposal to solicit consultation with Responsible Agencies in the development of an environmental document to be used for subsequent approvals of the proposed project.

The following project description is intended for use by CalRecycle and details the entitlements to be considered for approval of a SWFP:

The proposed project would develop a facility to compost vegetative olive pomace residuals from the pressing of olives into olive oil. In addition, feedstock and bulking agents include almond trash (floor sweepings, etc., from almond harvest), dairy manure, orchard trimmings and stems, greenwaste, materials other than olives generated during processing, and other agricultural waste materials. Contaminants in the feedstock are anticipated for greenwaste. Following composting, the facility would reuse the compost following regenerative agriculture techniques on orchards under the proponent's control. The facility will be located at the California Olive Ranch, 5945 County Road 35 in Artois.



	Proposed Project Parameters
Area (in acres)	30
Max. Daily Tonnage	1,660
Permitted Hours of Operation	24/7 September through December; January through August Monday through Friday 7:00 AM – 4:00 PM. Normal operating hours will occur no more than 1 hour before sunrise until 1 hour after sunset.
Tonnage	2,000 tpd
Traffic Volume	100 trucks per day/6 employee trips, no public access.
Design Capacity (yd3)	198,000

### CalRecycle Comments

It is the Lead Agency's responsibility to determine the type of environmental document appropriate for the project. However, CalRecycle offers the following guidance noted in the "Compost Facility Outline for Environmental Review Documents" located on our website at:

<http://www.calrecycle.ca.gov/SWFacilities/Permitting/CEQA/Documents/Guidance/Compost.htm>

How will the plastic waste and other contaminants be removed from the greenwaste feedstock? What size plastic would remain in the greenwaste, and what percentage of the greenwaste would this waste residual comprise?

The Site Plan, Figure 2-7 in the Initial Study portion of the document should contain the entire facility layout. Please include on this drawing: the parking, unloading, loading and storage areas.

CalRecycle staff thanks the Lead Agency for the opportunity to review and comment on the NOC.

If you have any questions regarding these comments, please contact me at 916.341.6327 or by e-mail at [John.Loane@CalRecycle.ca.gov](mailto:John.Loane@CalRecycle.ca.gov).

Sincerely,

*John Loane*

John Loane, Environmental Scientist  
Permitting and Assistance Branch  
Waste Permitting, Compliance, and Mitigation Division

cc: John Wells, LEA  
[JWells@countyofglenn.net](mailto:JWells@countyofglenn.net)



# COUNTY OF GLENN

## HEALTH & HUMAN SERVICES AGENCY

Christine Zoppi  
Director

Erin Valdez  
Deputy Director  
Administration

Amy Lindsey  
Deputy Director  
Behavioral Health

Bill Wathen  
Deputy Director  
Social Services

Grinnell Norton  
Deputy Director Public Health  
Director of Nursing

Vacant  
Deputy Director  
Community Action

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April 19, 2017

To: Andy Popper, Associate Planner  
Glenn County Planning Department  
(via email)

From: John H Wells, REHS  
Glenn County Environmental Health

Re: **Comments on CEQA Initial Study for California Olive Ranch Vegetative Waste Composting Facility**

Glenn County Environmental Health, the Local Enforcement Agency (LEA) for solid waste within the county, has reviewed the CEQA Initial Study prepared by VESTRA Resources, Inc. on behalf of California Olive Ranch to operate a Vegetative Waste Composting Facility at 5945 County Road 35, Artois, CA 95913 (APN 021-020-027). **Our office has the following comments:**

**Several items in the Initial Study are inconsistent with Solid Waste Facility Permit (SWFP) application package.** The SWFP application package submitted to the LEA for review includes two documents, the *Application for Solid Waste Facility Permit and Waste Discharge Requirements (E-177 Form)* and the *Report of Compost Site Information (RCSI)*, both of which must be consistent with conditions set within CEQA in order to be approved. If any information is not consistent between all three documents, the LEA and CalRecycle will reject the SWFP application. The following inconsistencies have been observed that will block approval of the SWFP application:

- **The Initial Study specifies a lower maximum daily tonnage than the E-177 form.** The feedstock table on page 14 of the Initial Study specifies a maximum daily tonnage of 1380 tons/day with an unspecified "TBD" tons/day listed for *other agricultural materials*, which matches what is specified in the RCSI. However, the E-177 application specifies a maximum daily tonnage of 1660 tons/day.
- **The Initial Study specifies a lower daily traffic count than the E-177 form and RCSI.** Page 17 of the Initial Study specifies a maximum of 100 truck trips per day, but makes no mention of the additional 6 employee vehicle trips specified in the E-177 and RCSI. The E-177 form and RCSI both specify 100 truck trips per day *plus* 6 employee vehicle trips per day, for a total of 106 vehicle trips.

In a letter to the applicant dated April 11, 2017 rejecting a SWFP application package, our office advised the applicant that either the CEQA Initial Study, or the E-177 and RCSI, must be revised to ensure consistency between these documents for SWFP approval.

**The initial study also contains a few typographical errors.** While the LEA has deemed these errors too insignificant to block the permit application, these errors could complicate approval of the permit application from other involved agencies:

- **Green material typo in the Initial Study.** Page 2 of the initial study lists materials to be composted at the site, but does not list green material as a feedstock. The feedstock table on page 14, however, does list green material. While the LEA has deemed this clear enough to approve composting of green material at the site, other agencies may not. Consider adding green material into the list of feedstock materials on page 2 of the Initial Study.
- **Capacity tonnage typo in Initial Study.** The top of page 8 of the Initial Study states that the facility is applying to compost up to 78,000 cubic yards of olive pumice and 121,000 cubic yards of other materials for a total of 199,000 cubic yards of material at the site. However, the feedstock table on page 14 of the initial study adds these numbers up to 198,000 cubic yards total capacity. The LEA has deemed this clear enough for approval, given the SWFP application requests a maximum capacity of 198,000 cubic yards. Other agencies might not deem this clear enough for approval. Consider adjusting these numbers within the Initial Study so they match.

Please contact our office at (530) 934-6102 if you have any questions pertaining to this matter.

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## Central Valley Regional Water Quality Control Board

13 April 2017

Mr. Andy Popper  
Glenn County Planning & Public Works Agency  
777 North Colusa St.  
Willows, CA 95988

### **COMMENTS ON CONDITIONAL USE PERMIT 2017-001, CALIFORNIA OLIVE RANCH COMPOSTING FACILITY, SCH# 2017032061, ARTOIS, GLENN COUNTY**

On 24 March 2017, Central Valley Regional Water Quality Control Board (Central Valley Water Board) received your Request for Review/Early Consultation on the Conditional Use Permit (CUP) 2017-001 for California Olive Ranch Composting Facility (Facility) project in Artois, Glenn County. California Olive Ranch (COR) proposes to develop a facility to compost olive pomace residuals from the pressing of olives into olive oil. COR would use the composted olive pomace residuals for regenerative agricultural techniques on orchards under their control. The subject property for the proposed Facility is located at Assessor Parcel Number (APN) 021-020-027-009.<sup>1</sup> The proposed composting operations will occupy the western 30 acres of the 90-acre parcel. The 30 acres will consist of approximately 24 acres of compost windrows and a 4-acre mixing area.

Prior to determining whether a Negative Declaration or an Environmental Impact Report is required for a project under the California Environmental Quality Act (CEQA), the Lead Agency is required to consult with all of the responsible and trustee agencies. Glenn County is the Lead Agency and the Central Valley Water Board is a responsible agency for this project, as defined by the CEQA.

The following comments are provided to help outline potential permitting which may be required by the Central Valley Water Board as COR continues with Facility development:

#### General Waste Discharge Requirements (WDRs) for Composting Operations

On 21 February 2017, COR submitted a Notice of Intent (NOI) and a Technical Report of Composting Facility Information (Technical Report) to obtain coverage under Water Quality Order 2015-0121-DWQ, General Waste Discharge Requirements for Composting Operations (General Order) for composting operations at the proposed Facility. Currently, the Central Valley Water Board is waiting for the associated filing fee of \$4,699 for Tier II composting operations. Once the filing fee is received and deemed to meet the requirements of the General Order,

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<sup>1</sup> The subject property is located on a different parcel than the COR olive processing facility located at 5945 County Road 35 (APN 020-027-000).

Central Valley Water Board staff will recommend that the Executive Officer issue a Notice of Applicability (NOA) enrolling COR under the General Order.

Industrial Storm Water

In addition to enrollment under the General Order, the Facility may also need a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the Federal Clean Water Act. For composting operations where storm water discharges off-site, the Discharger may be required to enroll under the State Water Board's Industrial General Permit 2014-0057-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (Industrial General Permit), and/or future promulgations. If wastewater is discharged to surface water, the Discharger may be required to obtain an individual NPDES permit.

  
for Melissa Buciak, P.G.  
Engineering Geologist  
Groundwater Unit

MAB: ab

cc via email: Rebecca Tabor, Central Valley Water Board, Redding  
Scott Zaitz, Central Valley Water Board, Redding  
John Wells, Glenn County Environmental Health Department, Willows  
Wendy Johnston, VESTRA Resources, Inc., Redding  
Jim Limpman, California Olive Ranch, Artois

## Conditions of Approval

Conditional Use Permit No. 2017-001

California Olive Ranch

### **Comments**

That prior to any work being done in the County Right-of-Way an Encroachment Permit shall be applied for and received from the Glenn County Planning and Public Works Agency.

That the applicant shall construct off-street parking in accordance with the requirements of Title 15.610 of the Glenn County Code. Said parking areas shall be designed to accommodate all employees and customers.

This project has the potential to increase truck traffic in the area. It is recommended that a Road Maintenance Agreement is added to this Conditional Use Permit. A similar fee-based formula that we have used recently on other truck traffic generating Conditional Use Permits is recommended. The fee would be based on the weight of the product exported from the site. The applicant should give us the route used by their trucks so that we can apply the fees collected to those roads.

### **Conditions**

That no off-site parking associated with this development shall be allowed on County Road "35".

That the driveway shall be constructed in accordance with Glenn County Standard S-19 for a Private Road Intersection, except that the minimum driveway width shall be 24 feet in anticipation of trucks and equipment utilizing the driveway.

Michael R. Biggs  
Engineering Technician III

## NATIVE AMERICAN HERITAGE COMMISSION

Environmental and Cultural Department  
1550 Harbor Blvd., Suite 100  
West Sacramento, CA 95691  
Phone (916) 373-3710  
Fax (916) 373-5471



July 6, 2017

Andy Popper, Associate Planner  
Glenn County Planning & Public Works Agency  
777 North Colusa Street  
Willows, CA 95988

Sent via e-mail: [apopper@countyofglenn.net](mailto:apopper@countyofglenn.net)

Re: SCH# 2017032061, Conditional Use Permit 2017-001, California Olive Ranch Composting Facility Project, Community of Artois; Glenn County, California

Dear Mr. Popper:

The Native American Heritage Commission (NAHC) has reviewed the Mitigated Negative Declaration prepared for the project referenced above. The review included the Project Description, the Technical Report, the Initial Study, and the Environmental Checklist, sections V, Cultural Resources, and section XVII Tribal Cultural Resources prepared by VESTRA Resources, Inc. for the Glenn County Planning & Public Works Agency. We have the following concerns:

1. There is no documentation of **government-to-government consultation by the lead agency** under AB-52 with Native American tribes traditionally and culturally affiliated to the project area as required by statute, or that mitigation measures were developed in consultation with the tribes. Discussions under AB-52 may include the type of document prepared; avoidance, minimization of damage to resources; and proposed mitigation. *Contact by consultants is not formal consultation.*
2. There are no mitigation measures specifically addressing Tribal Cultural Resources separately. Mitigation measures must take Tribal Cultural Resources into consideration as required under AB-52, **with or without consultation** occurring. Mitigation language for archaeological resources is not always appropriate for or similar to measures specifically for handling Tribal Cultural Resources.
3. Tribal Cultural Resources assessments are not documented (with the exception of a CHRIS search). These should adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources. **The lack of documented resources does not preclude inadvertent finds**, which should be addressed in the mitigation measures.

The California Environmental Quality Act (CEQA)<sup>1</sup>, specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.<sup>2</sup> If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared.<sup>3</sup> In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended in 2014 by Assembly Bill 52. (AB 52).<sup>4</sup> **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** AB 52 created a separate category for "tribal cultural resources"<sup>5</sup>, that now includes "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."<sup>6</sup> Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.<sup>7</sup> Your project may also be subject to **Senate Bill 18 (SB 18)** (Burton, Chapter 905, Statutes of 2004), Government Code 65352.3, if it also involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space. **Both SB 18 and AB 52 have tribal consultation requirements.** Additionally, if your project is also subject to the federal National Environmental

<sup>1</sup> Pub. Resources Code § 21000 et seq.

<sup>2</sup> Pub. Resources Code § 21084.1; Cal. Code Regs., tit. 14, § 15064.5 (b); CEQA Guidelines Section 15064.5 (b)

<sup>3</sup> Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1); CEQA Guidelines § 15064 (a)(1)

<sup>4</sup> Government Code 65352.3

<sup>5</sup> Pub. Resources Code § 21074

<sup>6</sup> Pub. Resources Code § 21084.2

<sup>7</sup> Pub. Resources Code § 21084.3 (a)

Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966<sup>8</sup> may also apply.

**Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

Agencies should be aware that AB 52 does not preclude agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52. For that reason, we urge you to continue to request Native American Tribal Consultation Lists and Sacred Lands File searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>. Additional information regarding AB 52 can be found online at [http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation\\_CalEPAPDF.pdf](http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf), entitled "Tribal Consultation Under AB 52: Requirements and Best Practices".

The NAHC recommends lead agencies consult with all California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources.

A brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments is also attached.

Please contact me at [gayle.totton@nahc.ca.gov](mailto:gayle.totton@nahc.ca.gov) or call (916) 373-3710 if you have any questions.

Sincerely,



Gayle Totton, B.S., M.A., Ph.D  
Associate Governmental Project Analyst

Attachment

cc: State Clearinghouse

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<sup>8</sup> 154 U.S.C. 300101, 36 C.F.R. § 800 et seq.

## **Pertinent Statutory Information:**

### **Under AB 52:**

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice.

A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project,<sup>9</sup> and **prior to the release of a negative declaration, mitigated negative declaration or environmental impact report**. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18)."<sup>10</sup>

The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- a. Alternatives to the project.
- b. Recommended mitigation measures.
- c. Significant effects.<sup>11</sup>

1. The following topics are discretionary topics of consultation:

- a. Type of environmental review necessary.
- b. Significance of the tribal cultural resources.
- c. Significance of the project's impacts on tribal cultural resources.

If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency.<sup>12</sup>

With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process **shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10**. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.<sup>13</sup>

If a project may have a significant impact on a tribal cultural resource, **the lead agency's environmental document shall discuss** both of the following:

- a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
- b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource.<sup>14</sup>

Consultation with a tribe shall be considered concluded when either of the following occurs:

- a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
- b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.<sup>15</sup>

Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 **shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program**, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable.<sup>16</sup>

If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, **the lead agency shall consider feasible mitigation** pursuant to Public Resources Code section 21084.3 (b).<sup>17</sup>

An environmental impact report **may not be certified**, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

- a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
- b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

<sup>9</sup> Pub. Resources Code § 21080.3.1, subds. (d) and (e)

<sup>10</sup> Pub. Resources Code § 21080.3.1 (b)

<sup>11</sup> Pub. Resources Code § 21080.3.2 (a)

<sup>12</sup> Pub. Resources Code § 21080.3.2 (a)

<sup>13</sup> Pub. Resources Code § 21082.3 (c)(1)

<sup>14</sup> Pub. Resources Code § 21082.3 (b)

<sup>15</sup> Pub. Resources Code § 21080.3.2 (b)

<sup>16</sup> Pub. Resources Code § 21082.3 (a)

<sup>17</sup> Pub. Resources Code § 21082.3 (a)

- c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days.<sup>18</sup>  
***This process should be documented in the Tribal Cultural Resources section of your environmental document.***

**Under SB 18:**

Government Code § 65352.3 (a) (1) requires consultation with Native Americans on general plan proposals for the purposes of “preserving or mitigating impacts to places, features, and objects described § 5097.9 and § 5091.993 of the Public Resources Code that are located within the city or county’s jurisdiction. Government Code § 65560 (a), (b), and (c) provides for consultation with Native American tribes on the open-space element of a county or city general plan for the purposes of protecting places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code.

- SB 18 applies to **local governments** and requires them to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. Local governments should consult the Governor’s Office of Planning and Research’s “Tribal Consultation Guidelines,” which can be found online at: [https://www.opr.ca.gov/docs/09\\_14\\_05\\_Updated\\_Guidelines\\_922.pdf](https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf)
- **Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a “Tribal Consultation List.” If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.**<sup>19</sup>
- There is no Statutory Time Limit on Tribal Consultation under the law.
- **Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research,<sup>20</sup> the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city’s or county’s jurisdiction.<sup>21</sup>
- **Conclusion Tribal Consultation:** Consultation should be concluded at the point in which:
  - The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation.<sup>22</sup>

**NAHC Recommendations for Cultural Resources Assessments:**

- Contact the NAHC for:
  - A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project’s APE.
  - A Native American Tribal Contact List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
    - The request form can be found at <http://nahc.ca.gov/resources/forms/>.
- Contact the appropriate regional California Historical Research Information System (CHRIS) Center ([http://ohp.parks.ca.gov/?page\\_id=1068](http://ohp.parks.ca.gov/?page_id=1068)) for an archaeological records search. The records search will determine:
  - If part or the entire APE has been previously surveyed for cultural resources.
  - If any known cultural resources have been already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

<sup>18</sup> Pub. Resources Code § 21082.3 (d)

<sup>19</sup> (Gov. Code § 65352.3 (a)(2)).

<sup>20</sup> pursuant to Gov. Code section 65040.2,

<sup>21</sup> (Gov. Code § 65352.3 (b)).

<sup>22</sup> (Tribal Consultation Guidelines, Governor’s Office of Planning and Research (2005) at p. 18).

**Examples of Mitigation Measures That May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**

- Avoidance and preservation of the resources in place, including, but not limited to:
  - Planning and construction to avoid the resources and protect the cultural and natural context.
  - Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - Protecting the cultural character and integrity of the resource.
  - Protecting the traditional use of the resource.
  - Protecting the confidentiality of the resource.
- Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed.<sup>23</sup>
- Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.<sup>24</sup>

The lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

- Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources.<sup>25</sup> In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
- Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
- Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

<sup>23</sup> (Civ. Code § 815.3 (c)).

<sup>24</sup> (Pub. Resources Code § 5097.991).

<sup>25</sup> per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)).

July 12, 2017 Mechoopda Indian Tribe email reply

Mr. Popper

There is no substantial evidence that Mechoopda Indian Tribe has Human remains or artifacts in that area that will be constructed. The closes Tribe would be Grindstone Reservation Tribe. Chairman Ron Kirk would be the contact. Here is his cell phone 530-519-8358

Thank you for reaching out to us and if there is anything we can do to help feel free to contact me at [dramirez@mechoopda-nsn.gov](mailto:dramirez@mechoopda-nsn.gov)

Office number 530-899-8922 ext 215 or my cell 530-414-1582

Chairman Dennis Ramirez  
Mechoopda Indian Tribe  
125 Mission Ranch Blvd  
Chico, Ca. 95926  
530-899-8921 ext 215  
530-514-1582

Sent from my iPhone

> On Jul 11, 2017, at 4:53 PM, "Andy Popper" <[APopper@countyofglenn.net](mailto:APopper@countyofglenn.net)> wrote:

>

> To Dennis Ramirez, Chairman

> Mechoopda Indian Tribe of Chico Rancheria, California

> 125 Mission Blvd.

> Chico, CA 95926

> 530-899-8922

>

> During the State Clearinghouse review period (June 16 to July 18, 2017) the above NAHC letter was received.

> A pre-application/consultation for the project had also occurred, via the State Clearinghouse, from March 22 to April 21, 2017.

>

> A public hearing has been schedule for the project on July 19.

> Based on the above letter, consultation/comments are currently being sought from Mechoopda Indian Tribe of Chico Rancheria, California (and further).

>

> If it is determined that additional time (beyond July 18, 2017) is requested for comments, please let it be known so that the hearing on the matter may be recommended for continuance/postponement.

7/12/2017 Email request to  
Grindstone Indian Rancheria of Wintun-Wailaki Indians of California

To Ronald Kirk, Chairman  
P.O. Box 63  
Elk Creek, CA, 95939

(530) 968-5365, (530) 968-5366  
[girrancheria@yahoo.com](mailto:girrancheria@yahoo.com)

During the State Clearinghouse review period (June 16 to July 18, 2017) the above NAHC letter was received.

A pre-application/consultation for the project had also occurred, via the State Clearinghouse, from March 22 to April 21, 2017.

A public hearing has been schedule for the project on July 19.

Based on the above letter, consultation/comments are currently being sought from Grindstone Indian Rancheria of Wintun-Wailaki Indians of California (and further).

If it is determined that additional time (beyond July 18, 2017) is requested for comments, please let it be known so that the hearing on the matter may be recommended for continuance/postponement.

Excerpt of 7/11/17 email to Middletown Rancheria of Pomo Indians of California

To Stephanie L. Reyes, Tribal Historic Preservation Officer,

During the State Clearinghouse review period (June 16 to July 18, 2017) the above NAHC letter was received.

A pre-application/consultation for the project had also occurred, via the State Clearinghouse, from March 22 to April 21, 2017.

A public hearing has been schedule for the project on July 19.

Based on the above letter, consultation/comments are currently being sought from Middletown Rancheria of Pomo Indians of California (and further).

If it is determined that additional time (beyond July 18, 2017) is requested for comments, please let it be known so that the hearing on the matter may be recommended for continuance/postponement.

Email excerpt to Konkow Maidu Cultural Preservation Association 07/13/17

To Kate Hedges,

530-510-1278

Konkow Maidu Cultural Preservation Association  
4250 Ishi Trail, Yankee Hill, CA 95965

During the State Clearinghouse review period (June 16 to July 18, 2017) the above NAHC letter was received.

A pre-application/consultation for the project had also occurred, via the State Clearinghouse, from March 22 to April 21, 2017.

A public hearing has been schedule for the project on July 19.

Based on the above letter, consultation/comments are currently being sought from Konkow Maidu Cultural Preservation Association (and further).

If it is determined that additional time (beyond July 18, 2017) is requested for comments, please let it be known so that the hearing on the matter may be recommended for continuance/postponement.

For ease of reference, below is an excerpt of the (draft) Initial Study, including the following mitigation measure.

John and Barbara Berens  
5831 County Road 35  
Artois, Ca 95913

July, 10, 2017

TO: The Planning Commission of the County of Glenn, State of California

We have concerns in regards to Conditional Use Permit 2017-001, California Olive Ranch Composting Facility State Clearinghouse no. 2017032061 Applicant/landowner: California Olive Ranch

Project Description: California Olive Ranch (COR) has applied for a Conditional Use permit to develop a facility to compost vegetative olive pomace residuals from the pressing of olives into olive oil. In addition, feedstock and bulking agents include almond trash (floor sweepings, etc., from almond harvest), dairy manure, orchard trimmings and stems, green waste, materials other than olives generated during processing, and other agricultural waste materials. Following composting, COR would reuse the compost following regenerative agricultural techniques on orchards under their control.

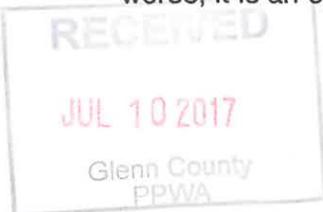
**Concerns:**

1. Our first concern under Project Description would be the smell that could possibly/probably be involved. There is already smell from existing compost. We are nearest neighbors to California Olive Ranch and the project will be only feet from our property. We have lived on our ranch at 5831 County Road 35 since 1987. We consider ourselves good neighbors to the Olive Ranch and have leased property to them since 2007. Examples as stated by the Planning Commissions letter that concern us involve the odors that will be produced by the soaking ponds of Olive pomace residuals, feedstock and bulking agents, including greenwaste, and materials other than olives generated during processing, and other agricultural waste materials. Dairy manure was also stated to be used. When the Olive Ranch first moved in until present they have trucked away all their residue. This was our understanding from their inception. This is a major concern.

Location: The project site is located adjacent to the COR olive processing facility at 5945 County Road 35 in Artois. The site is approximately three miles west of Artois and Interstate 5 in the unincorporated area of Glenn County, California. The facility will occupy the western 30 acres of the 90-acre parcel. The 30 acres will consist of approximately 24 acres of compost windrows and a 4-acre mixing area.

**Concerns:**

1. Smell from compost windrows and mixing area near my home and livestock.
2. Additional trucks using county road 35. The bridge that is just east of the Olive Ranch is small and unsafe for large vehicles and more than one vehicle at a time.
3. The Olive Ranch has an existing stop sign at the end of the lane, entering and leaving the property, many of us living on County Road 35 have barely avoided being hit by workers not stopping at the stop sign. Now there will be more trucks coming and going.
4. Trash has been being stacked up next to my property for years, my fear is that it will be worse, it is an eyesore. (not only looking bad but smelling bad)



5. Light pollution is a concern. We have already installed heavy blinds in our home and are afraid this addition will cause more bright light issues.
6. Noise and water pollution is another concern. Country living is not the same.
7. This project will increase the traffic on county road 35, which is already in bad shape and dangerous.
8. Many people on County Road 35 and County Road D will be affected by these concerns, even though they don't live within 300 feet of the Olive Ranch.(smell travels) I state this because only people living within 300 feet of the Plant were notified by the Planning Commission concerning this Composting Facility Project.

Sincerely,

*Barbara A. Berens* 7-10-2017

*John L. Berens* 7-10-2017



DEPARTMENT OF TRANSPORTATION  
Structure Maintenance & Investigations

Bridge Number : 11C0103  
Facility Carried: ROAD 35  
Location : 0.6 MI W/O ROAD 'D'  
City :  
Inspection Date : 02/07/2017

## Bridge Inspection Report

Inspection Type  
Routine FC Underwater Special Other

**STRUCTURE NAME:** WHITE CABIN CREEK

### CONSTRUCTION INFORMATION

Year Built : 1925  
Year Modified: N/A  
Length (m) : 8.8  
Skew (degrees): 33  
No. of Joints : 0  
No. of Hinges : 0

Structure Description: Two span continuous RC T girder (4) with RC deck on RC column (4) bents and RC diaphragm abutments with monolithic wingwalls. All founded on spread footings

Span Configuration : 2 @ 14.00 ft

### SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN  
Inventory Rating: RF=0.50 =>16.2 metric tons  
Operating Rating: RF=0.83 =>26.9 metric tons  
Permit Rating : 00000  
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal  
Calculation Method: FIELD EVAL/ENG JUDGMENT  
Calculation Method: FIELD EVAL/ENG JUDGMENT

### DESCRIPTION ON STRUCTURE

Deck X-Section: 1.00 ft br, 19.25 ft, 1.00 ft br  
Total Width: 6.5 m Net Width: 5.9 m No. of Lanes: 2 Speed: 55 mph  
Min. Vertical Clearance: Unimpaired AC Thickness: 2.0 Inches  
Rail Code: 0000

Rail Type	Location	Length (ft)	Rail Modifications
Miscellaneous	Right/Left	69	Aluminum pipe on concrete posts

### DESCRIPTION UNDER STRUCTURE

Channel Description: Small width, well vegetated, earthen channel immediately upstream and downstream of structure. Concrete lined beneath structure.

### NOTICE

The bridge inspection condition assessment used for this inspection is based on the American Association of State Highway and Transportation Officials (AASHTO) Bridge Element Inspection Manual 2013 as defined in Moving Ahead for Progress in the 21st Century (MAP-21) federal law. The new element inspection methodology may result in changes to related condition and appraisal ratings on the bridge without significant physical changes at the bridge.

The element condition information contained in this report represents the current condition of the bridge based on the most recent routine and special inspections. Some of the notes presented below may be from an inspection that occurred prior to the date noted in this report. Refer to the Scope and Access section of this inspection report for a description of which portions of the bridge were inspected on this date.

### INSPECTION COMMENTARY

#### SCOPE AND ACCESS

The top side of the bridge was inspected by walking the deck. The underside was inspected from ground level underneath. The channel had up to 3 feet of rapidly flowing water on the day of this inspection. A wade and probe inspection was not possible during this inspection. The deck was sighted there were no sags or distortions in the deck or rail.

**INSPECTION COMMENTARY**

All visible elements were inspected. A complete inspection was performed in 2015.

**SAFE LOAD CAPACITY**

A Structure Rating Summary Sheet dated 2/2/2011 is on file for this structure. While this inspection does not include a check of that analysis, it does verify that the structural conditions observed during the inspection are consistent with those assumed in that analysis. The current rating was assigned in accordance with SMI procedures for concrete bridges without plans.

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State			
						St. 1	St. 2	St. 3	St. 4
16		Top Flange-RC	2	56	sq.m	37	19	0	0
	1130	Cracking (RC and Other)	2	19		0	19	0	0
	510	Deck Wearing Surface-Asphalt	2	56	sq.m	56	0	0	0
(16-1130)									
There are cracks in the soffit of deck. The cracks are in all bays and are up to 0.02 inches wide. The cracks are randomly oriented and generally spaced at over 3 feet on center. It is estimated that the cracks affect approximately 30 percent of the soffit area. No corrective action is required.									
(16-510)									
The AC on the deck was in good condition (free of depressions, potholes and significant cracking) at the time of this inspection.									
110		Girder/Beam-RC	2	35	m	29	6	0	0
	1080	Delamination/Spall/Patched Area	2	6		0	6	0	0
(110-1080)									
There are patched spalls on some of the girders. All patches were found to be sound. No corrective action is required at this time. Based on a field comparison of the photo from the February 2009 report, this condition has not changed.									
There are patched spalls on the diaphragm on the right overhang of the bridge. The patches are tight and sound.									
205		Column-RC	2	4	each	0	4	0	0
	1190	Abrasion (PS Conc./RC)	2	4		0	4	0	0
(205-1190)									
During this inspection all abraded areas of the columns were below the waterline. The following was reported in the 2015 bridge inspection report:									
All of the columns have minor abrasion. There is exposed coarse aggregate but the aggregate remains secure in the concrete. No corrective action is required.									
215		Abutment-RC	2	28	m	26	0	2	0
	1130	Cracking (RC and Other)	2	2		0	0	2	0
(215-1130)									
The right and left wingwalls at Abutment 1 have full height vertical cracks. Based on a field comparison of the photo from the February 2009 report, this condition has not changed. No corrective action is required at this time.									
333		Railing-Other	2	18	m	15	3	0	0

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

Elem No.	Defect /Prot	Element Description	Env	Total Qty	Units Qty in each Condition State			
					St. 1	St. 2	St. 3	St. 4
1080		Delamination/Spall/Patched Area	2	3	0	3	0	0

(333-1080)

Three of the concrete posts on the left rail have been repaired/patched and three have been replaced. Seven feet of the right concrete and pipe rail at Abutment 1 has cracked away from the deck and moved outward up to 2.5 inches. Based on a field comparison of the photo from the January 2009 report, this condition has not changed. All four corners have similar cracks but the right side of Abutment 1 is the most severe and is the only one migrating outward. No corrective action is required at this time.

**WORK RECOMMENDATIONS - NONE**

Team Leader : Gary Claggett  
 Report Author : Gary Claggett  
 Inspected By : G. Claggett/LD. Nash



*[Handwritten Signature]* 5/22/17  
 Gary Claggett (Registered Civil Engineer) (Date)

**STRUCTURE INVENTORY AND APPRAISAL REPORT**

\*\*\*\*\* IDENTIFICATION \*\*\*\*\*

(1) STATE NAME- CALIFORNIA 069  
 (8) STRUCTURE NUMBER 11C0103  
 (5) INVENTORY ROUTE (ON/UNDER) - ON 140000000  
 (2) HIGHWAY AGENCY DISTRICT 03  
 (3) COUNTY CODE 021 (4) PLACE CODE 00000  
 (6) FEATURE INTERSECTED- WHITE CABIN CREEK  
 (7) FACILITY CARRIED- ROAD 35  
 (9) LOCATION- 0.6 MI W/O ROAD 'D'  
 (11) MILEPOINT/KILOMETERPOINT 0  
 (12) BASE HIGHWAY NETWORK- NOT ON NET 0  
 (13) LRS INVENTORY ROUTE & SUBROUTE  
 (16) LATITUDE 39 DEG 36 MIN 41.65 SEC  
 (17) LONGITUDE 122 DEG 15 MIN 37.6 SEC  
 (98) BORDER BRIDGE STATE CODE % SHARE %  
 (99) BORDER BRIDGE STRUCTURE NUMBER

\*\*\*\*\* STRUCTURE TYPE AND MATERIAL \*\*\*\*\*

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE CONT  
 TYPE- TEE BEAM CODE 204  
 (44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA  
 TYPE- OTHER/NA CODE 000  
 (45) NUMBER OF SPANS IN MAIN UNIT 2  
 (46) NUMBER OF APPROACH SPANS 0  
 (107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1  
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:  
 A) TYPE OF WEARING SURFACE- BITUMINOUS CODE 6  
 B) TYPE OF MEMBRANE- NONE CODE 0  
 C) TYPE OF DECK PROTECTION- NONE CODE 0

\*\*\*\*\* AGE AND SERVICE \*\*\*\*\*

(27) YEAR BUILT 1925  
 (106) YEAR RECONSTRUCTED 0000  
 (42) TYPE OF SERVICE: ON- HIGHWAY 1  
 UNDER- WATERWAY 5  
 (28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00  
 (29) AVERAGE DAILY TRAFFIC 185  
 (30) YEAR OF ADT 2010 (109) TRUCK ADT 10 %  
 (19) BYPASS, DETOUR LENGTH 199 KM

\*\*\*\*\* GEOMETRIC DATA \*\*\*\*\*

(48) LENGTH OF MAXIMUM SPAN 4.3 M  
 (49) STRUCTURE LENGTH 8.8 M  
 (50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M  
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 5.9 M  
 (52) DECK WIDTH OUT TO OUT 6.5 M  
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 7.3 M  
 (33) BRIDGE MEDIAN- NO MEDIAN 0  
 (34) SKEW 33 DEG (35) STRUCTURE FLARED NO  
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M  
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 5.9 M  
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M  
 (54) MIN VERT UNDERCLEAR REF- NOT H/RR 0.00 M  
 (55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 M  
 (56) MIN LAT UNDERCLEAR LT 0.0 M

\*\*\*\*\* NAVIGATION DATA \*\*\*\*\*

(38) NAVIGATION CONTROL- NO CONTROL CODE 0  
 (111) PIER PROTECTION- CODE  
 (39) NAVIGATION VERTICAL CLEARANCE 0.0 M  
 (116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M  
 (40) NAVIGATION HORIZONTAL CLEARANCE 0.0 M

\*\*\*\*\* SUFFICIENCY RATING \*\*\*\*\*

SUFFICIENCY RATING = 43.3  
 STATUS  
 HEALTH INDEX 91.1  
 PAINT CONDITION INDEX = N/A

\*\*\*\*\* CLASSIFICATION \*\*\*\*\*

(112) NBIS BRIDGE LENGTH- YES Y  
 (104) HIGHWAY SYSTEM- NOT ON NHS 0  
 (26) FUNCTIONAL CLASS- LOCAL RURAL 09  
 (100) DEFENSE HIGHWAY- NOT STRAHNET 0  
 (101) PARALLEL STRUCTURE- NONE EXISTS N  
 (102) DIRECTION OF TRAFFIC- 2 WAY 2  
 (103) TEMPORARY STRUCTURE-  
 (105) FED.LANDS HWY- NOT APPLICABLE 0  
 (110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0  
 (20) TOLL- ON FREE ROAD 3  
 (21) MAINTAIN- COUNTY HIGHWAY AGENCY 02  
 (22) OWNER- COUNTY HIGHWAY AGENCY 02  
 (37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

\*\*\*\*\* CONDITION \*\*\*\*\*

(58) DECK 5  
 (59) SUPERSTRUCTURE 7  
 (60) SUBSTRUCTURE 5  
 (61) CHANNEL & CHANNEL PROTECTION 7  
 (62) CULVERTS N

\*\*\*\*\* LOAD RATING AND POSTING \*\*\*\*\*

(31) DESIGN LOAD- UNKNOWN 0  
 (63) OPERATING RATING METHOD- FIELD EVAL/ENG JUD 0  
 (64) OPERATING RATING- 26.9  
 (65) INVENTORY RATING METHOD- FIELD EVAL/ENG JUL 0  
 (66) INVENTORY RATING- 16.2  
 (70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5  
 (41) STRUCTURE OPEN, POSTED OR CLOSED- A  
 DESCRIPTION- OPEN, NO RESTRICTION

\*\*\*\*\* APPRAISAL \*\*\*\*\*

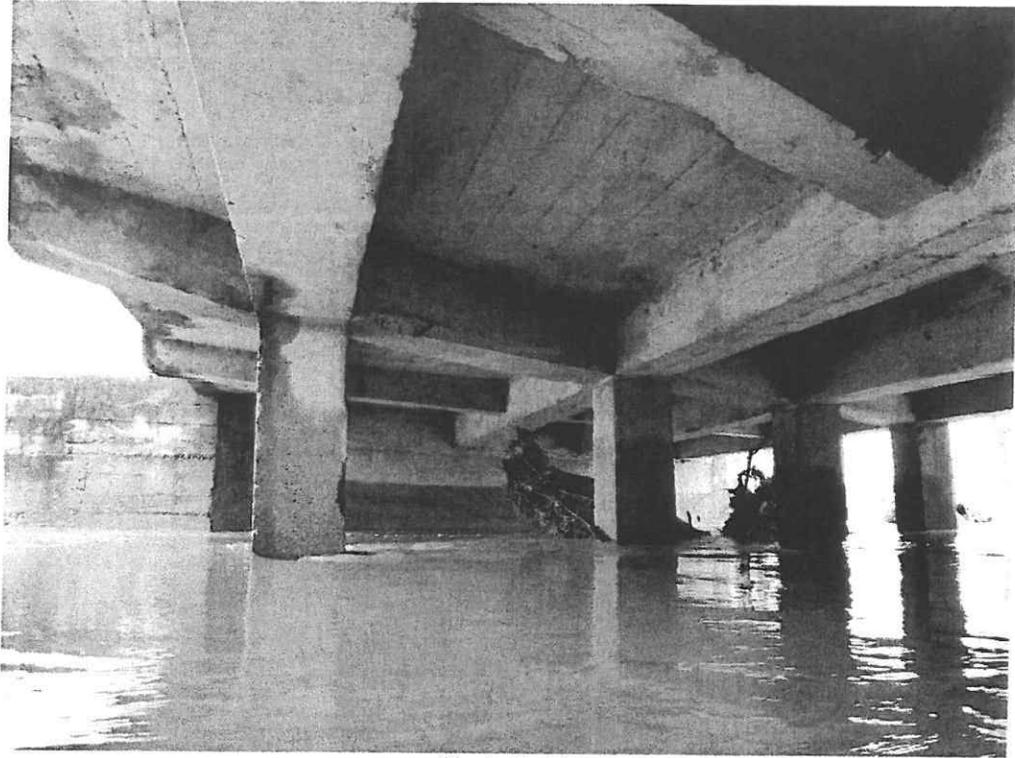
(67) STRUCTURAL EVALUATION 5  
 (68) DECK GEOMETRY 3  
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N  
 (71) WATER ADEQUACY 7  
 (72) APPROACH ROADWAY ALIGNMENT 6  
 (36) TRAFFIC SAFETY FEATURES 0000  
 (113) SCOUR CRITICAL BRIDGES 5

\*\*\*\*\* PROPOSED IMPROVEMENTS \*\*\*\*\*

(75) TYPE OF WORK- REPLACE FOR DEFICIENC CODE 31  
 (76) LENGTH OF STRUCTURE IMPROVEMENT 8.8 M  
 (94) BRIDGE IMPROVEMENT COST \$131,100  
 (95) ROADWAY IMPROVEMENT COST \$26,220  
 (96) TOTAL PROJECT COST \$220,248  
 (97) YEAR OF IMPROVEMENT COST ESTIMATE 2017  
 (114) FUTURE ADT 315  
 (115) YEAR OF FUTURE ADT 2035

\*\*\*\*\* INSPECTIONS \*\*\*\*\*

(90) INSPECTION DATE 02/17 (91) FREQUENCY 24 MO  
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE  
 A) FRACTURE CRIT DETAIL- NO MO A)  
 B) UNDERWATER INSP- NO MO B)  
 C) OTHER SPECIAL INSP- NO MO C)



**Photo No. 1**

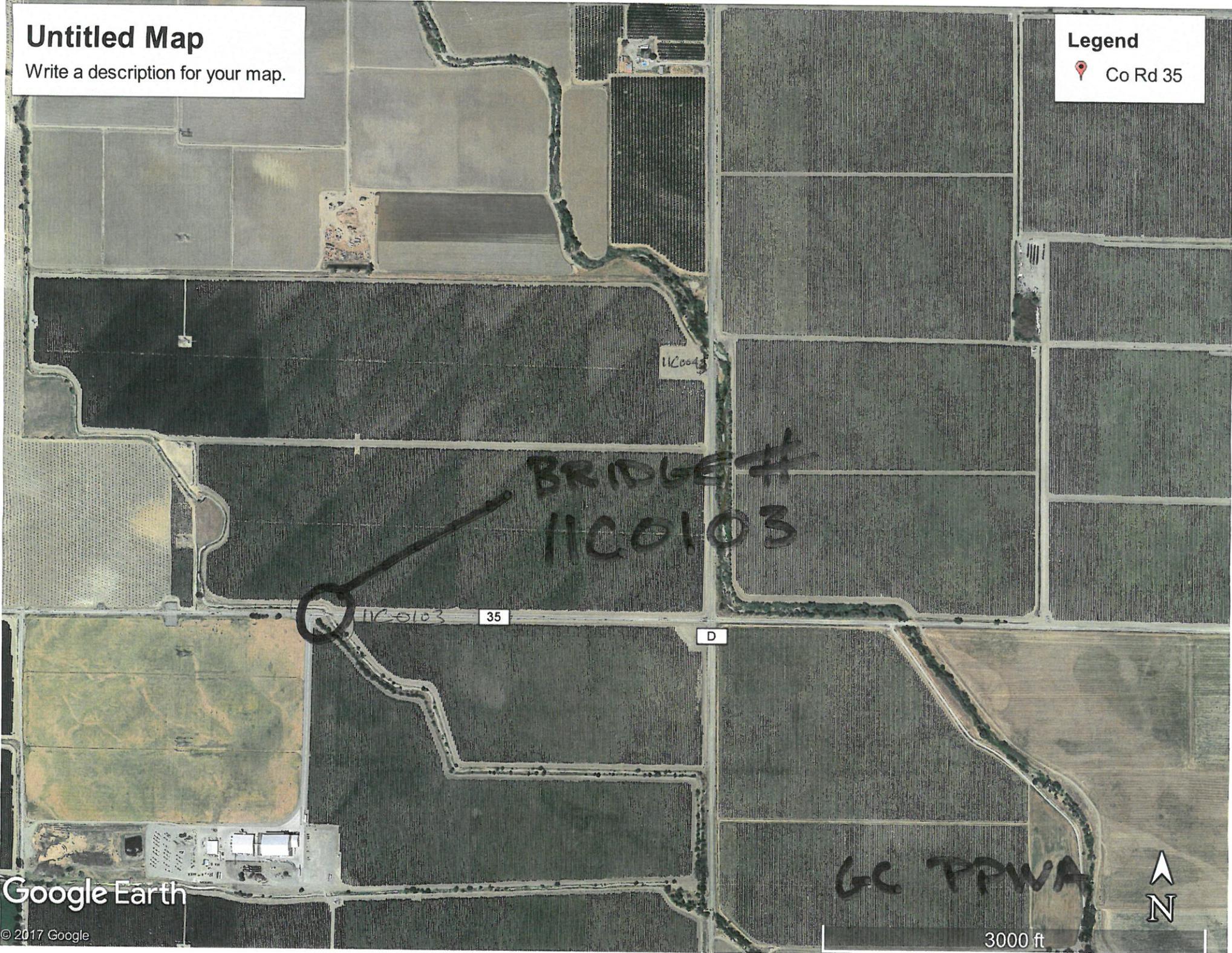
**Underside view facing west.**

# Untitled Map

Write a description for your map.

## Legend

 Co Rd 35



Google Earth

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3000 ft