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# Public Draft Initial Study and Negative Declaration

Well Permit Application Nos. 19-72, 19-73, and 19-74  
Pescadero Ranch  
Stanislaus County, California

May 21, 2020

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Prepared for:

**Stanislaus County**  
Department of Environmental Resources  
3800 Cornucopia Drive, Suite C  
Modesto, California,

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Prepared by:



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## CEQA INITIAL STUDY – PUBLIC DRAFT

Adapted from 2019 CEQA Guidelines APPENDIX G Environmental Checklist Form, Final Text, Revised June 11, 2019

1. **Project title:** Supplemental Wells for Pescadero Ranch
2. **Lead agency name and address:** Stanislaus County Environmental Resources  
3800 Cornucopia Way  
Modesto, California 95358
3. **Contact person and phone number:** Phil Christensen, Power of Attorney  
(559) 439-7490
4. **Project location:** 136 South Kasson Road, Patterson, CA, 95363
5. **Project sponsor's name and address:** NBINV AP6, LLC  
3075 Sanders Road  
Northbrook, IL 60062
6. **General Plan designation:** Agricultural
7. **Zoning:** A-2-40
8. **Description of project:**

The proposed project includes the installation and operation of three agricultural supply wells on a parcel located on Kasson Road in northern Stanislaus County. The proposed well locations are on Assessor's Parcel Number 016-010-003 (the Site), as shown on Figure 1a – Proposed Well Locations Map.

The proposed wells will serve as a backup supply during times of drought when permitted diversions from the river could be decreased or curtailed. Based on the seniority of the surface water right used to supply the orchard, the maximum anticipated groundwater extraction from these wells is 1,300 acre-feet during a two-month period during June and July, during the height of the irrigation season. The long-term average groundwater demand is not expected to exceed 1,000 AFY. The individual wells will be pumped at peak rates between 1,000 and 2,000 gallons per minute (gpm).

The wells will be constructed to extract water from the unconfined aquifer system above the Corcoran Clay. Estimated well depths will be approximately 300 feet. The wells are proposed to be constructed using 16-inch diameter steel casings and screens completed in 26-inch diameter boreholes with annular filter packs. A steel conductor casing will be installed in the upper portion of the wells. Sanitary seals are expected to extend from the ground surface to depths of 100 feet. The wells will be completed with small concrete pads at the surface and fitted with electrical line-shaft turbine pumps. Electrical service will be extended to the well locations. Fenced enclosures, typically measuring approximately 10 feet by 20 feet, may be constructed around each well.

Well construction and development work will take place during the spring of 2020. All work and ground disturbance will take place within the footprint of the existing agricultural operation in areas of previous ground disturbance or cultivation. Temporary well construction work areas will be established around each well site. The work areas will measure up to approximately 50 by 100 feet, be located in existing cleared, level areas and accessed using existing dirt and gravel roads. The wells will be constructed using the reverse mud rotary method. Drilling equipment, typically consisting of a drilling rig, pipe truck water truck, fork lift, compressors, pumps, light stands, de-sander, mud pit and support trucks will be mobilized for approximately two to three weeks at each drilling location. Work during drilling of the wells will be conducted during normal working hours, but may be conducted utilizing shift work, 24 hours per day, seven days per week, depending on conditions. Well development, pump testing, pump installation and surface completion will be conducted over the course of an additional month during regular working hours. Equipment utilized during this time will include development rigs, jib cranes and work trucks.

Currently, the Site has been cleared, a drip irrigation system has been installed, and almond saplings have been planted.

**10. Surrounding land uses and setting:**

The project site is adjacent to the San Joaquin River to the east and the boundary with San Joaquin County to the north. Across the San Joaquin River is a small portion of the San Joaquin River National Wildlife Refuge. The predominant land use in the area is agricultural. The nearest sensitive receptor to the proposed project is a single family residence located across Highway 132, approximately 800 feet to the south of Proposed Well Location #1. There are additional single family homes at various distances from the Site and an RV park located approximately 2 miles from the Site.

**11. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):**

None.

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

**DETERMINATION: (To be completed by the Lead Agency)**

On the basis of this initial evaluation:

- I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- I find that the proposed project **MAY** have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

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 Signature

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 Date



**EVALUATION OF ENVIRONMENTAL IMPACTS:**

- 1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, than the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration.

Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

- a) **Earlier Analysis Used.** Identify and state where they are available for review.
  - b) **Impacts Adequately Addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c) **Mitigation Measures.** For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). References to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
  - 7) **Supporting Information Sources:** A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
  - 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
  - 9) The explanation of each issue should identify:
    - a) the significant criteria or threshold, if any, used to evaluate each question; and
    - b) the mitigation measure identified, if any, to reduce the impact to less than significant.



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

**Discussion:** A Program level Initial Study completed in 2016 (2016 IS) determined that potential impacts to aesthetic resources associated with wells constructed or operated under the Stanislaus County Discretionary Well Permitting Program are less than significant. The 2016 IS was completed to scope a Program Environmental Impact Report that was subsequently completed in 2018 (2018 PEIR). Findings from the 2016 IS are applicable to unincorporated areas of Stanislaus County that are not under the jurisdiction of a public water agency. The proposed project meets these criteria, therefore the findings from the 2018 PEIR are applicable to the proposed project.

Note: The questions included in the above table reflect updates contained in the 2019 version of Appendix G that were not contained in the version of Appendix G used for the 2016 IS or 2018 PEIR. Specifically, potential impacts to “non-urbanized areas” are specified, and “public views” are clearly defined. These minor changes do not affect the “less than significant finding” for the proposed project, and no further consideration of potential impacts to this resource is warranted.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study - Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

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

**Discussion:** Findings from the 2016 IS indicated that construction or operation of wells under the County’s Discretionary Well Permitting Program will result in no impact related to items “c” and “d” listed in the above checklist, and a less than significant impact for item “b”. Further, findings from the 2018 PEIR indicated that impacts associated with items “a” and “e” are also less than significant.

Findings from the 2016 IS and 2018 PEIR, which were prepared in consideration of the Stanislaus County General Plan, are applicable to the proposed project, which is located in an unincorporated area in Stanislaus County that is not under the jurisdiction of a public water agency. Therefore, the proposed project is expected to result in a less than significant impact to agricultural and forest resources and no further consideration of potential impacts to this resource is warranted.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

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

**Discussion:** According to 2018 PEIR, construction and operation of wells under the County’s Discretionary Well Permitting Program will result in less than significant impacts to air quality related to items “a” through “d” in the above checklist. These findings are applicable to the proposed project, which is located in an unincorporated area of Stanislaus County that is not under the authorization of a public water agency. The nearest single-family dwelling to the proposed project is located across Highway 132, approximately 800 feet to the south of Proposed Well Location #1.

It is worth noting that checklist items “a” through “d” in the table above reflect updates to Appendix G that were not included in the version of Appendix G used in the 2018 PEIR. Specifically, references to ozone, dust, and air quality standards are no longer included in the checklist. These changes do not affect the less than significant findings for the proposed project. Therefore, potential impacts to air quality associated with the proposed project are presumed to be less than significant and do not warrant further consideration.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

IV. BIOLOGICAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	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?		X		
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?		X		
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
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?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

**Discussion:** According to the 2016 IS, the construction and operation of wells under the County’s Discretionary Well Permitting Program will have no impact with respect to items “d” and “f” in the above checklist. For items “a”, “b”, “c”, the 2018 PEIR determined that impacts are less than significant with incorporation of mitigation measures BIO-1a, BIO-1b, and BIO-4 below. It is worth noting that implementation of mitigation measures BIO-1a and Bio-4 are complete. A biological resources field reconnaissance survey was completed by Tetra Tech on December 10, 2019. A desktop biological survey was completed March 30, 2020 by Tetra Tech and is included as Attachment 1. Item “e” was addressed in the desktop biological survey and no impacts are anticipated.

**Mitigation Measure BIO-1a.** A qualified biologist shall investigate the potential presence or absence of sensitive habitats and wetlands, and special-status plants or wildlife in areas that will be disturbed by well construction or conversion of rangelands to cultivated use that is made possible by the well, prior to well permit approval or project implementation. Documentation could involve any of these tasks:

Desktop review of existing site records through the county records and general plan, California Natural Diversity Database (CNDDDB), California Native Plant Society (CNPS) inventory, environmental documents and surveys to determine likelihood of

occurrence near (within ½ mile) the well site, any rangeland converted to cultivated agricultural use that is supplied by the well, and any related construction areas.

- Conduct field reconnaissance. A field reconnaissance survey shall be conducted, including a habitat assessment to determine whether suitable conditions exist for special-status species.
- Determine the need for additional species-specific surveys or wetland delineation. If warranted, coordinate with appropriate agencies (U.S. Fish and Wildlife Service [USFWS], California Department of Fish and Wildlife [CDFW], or U.S. Army Corps of Engineers [USACE]) as may be necessary to determine appropriate survey timing and effort.

Coordinate with appropriate agencies and the County as may be necessary based on the results of additional species-specific surveys or wetland delineation to identify and implement mitigation measures as necessary to avoid, minimize, or otherwise mitigate potential impacts to special-status species, wetlands or other habitat to a less-than-significant level

**Status:** Complete.

**Mitigation Measure BIO-1b.** The applicant shall endeavor to conduct any drilling, construction work and/or ground-disturbing activities associated with installation of the proposed well or the conversion of rangeland to cultivated agricultural use that will be irrigated using the well during the non-breeding season of any birds and raptors protected under the Migratory Bird Treaty Act (generally September 16 through January 31). If construction activities must be scheduled during the nesting season (generally February 1 to September 15), pre-construction surveys for raptors, migratory birds, and special-status bird species shall be done by a qualified biologist to identify active nests near the site. This shall include a buffer extending out from the construction or disturbance area to a distance of approximately ½ mile. If active nests are found, no drilling construction activities shall occur within 500 feet of the nest until the young have fledged and the nest is no longer active (as determined by the qualified biologist). Survey timing and frequency requirements differ among species; species-specific surveys should follow all timing and frequency requirements of CDFW and USFWS. Consultation with the CDFW and/or USFWS shall occur if required, and may result in additional requirements.

**Status:** To be completed, if drilling or construction activities are scheduled between February 1 and September 15.

**Mitigation Measure BIO-4.** Evaluate well construction permit applications to assess the potential conflicts with local policies or ordinances that project biological resources and consider mitigation measures for significant effects on the environment on a project-specific basis.

**Status:** Complete.

If ground-disturbing activities take place between February 1 and September 15, in accordance with Mitigation Measure BIO-1b, a pre-construction survey will be conducted by a qualified biologist, and buffers will be observed, if warranted, as described in Mitigation Measure BIO-1b.

The desktop biological survey identified a groundwater dependent ecosystem (GDE) wetland on the project Site, consisting of three contiguous lobes totaling approximately 41 acres. Chronic surface and groundwater overdraft near a GDE may produce long-term biological impacts. Groundwater drawdown based on two pumping scenarios in the project area are discussed in the GRIA, one depicting extraction of 1,300 acre-feet of water over 61 days, and another depicting extraction at an annualized average rate of 1,000 acre-feet per year over 20 years. Maximum drawdown over the course of 61 days is modeled to be 20 feet, while maximum drawdown over 20 years is modeled to be 5 feet. It is reasonable to assume that impacts to groundwater dependent ecosystems can result from groundwater extraction. To minimize potential impacts, the applicant provided mitigation measures in section 5.7 of the GRIA, in addition to the mitigation measures described above. These mitigation measures are anticipated to limit impacts to the wetlands located on the project Site to be less than significant.

**Mitigation:** Mitigation Measures BIO-1a, BIO-1b, and BIO-4, as described above. Mitigation Measures BIO-1a and BIO-4 have been completed, and BIO-1b will proceed if warranted based on the construction schedule.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.



V. CULTURAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

**Discussion:** According to 2016 IS and 2018 PEIR, the construction and operation of wells under the County’s Discretionary Well Permitting Program may present potentially significant impacts to cultural resources which require further evaluation. For items “a”, “b”, “c”, the 2018 PEIR determined that impacts are less than significant with incorporation of mitigation measures CUL-1a, CUL-1b, and CUL-1c below.

In accordance with Mitigation Measure CUL-1a, a qualified cultural resource professional conducted a desktop review of the project area. As part of the review, a record search was conducted via the Central California Information Center (CCIC) at California State University, Stanislaus on December 19, 2019 (Records Search File No.: 11267N) focused within one mile of the proposed well locations. Three prehistoric resources and one historic cultural resource were identified within the search area. Of the four cultural resources identified, three are located more than ½-mile from the proposed well locations, and will not be disturbed by project related activities.

One sensitive cultural resource was identified on the Site. No project work will occur in this cultural resource area. However, due to the sensitivity of the Site, there is the potential to impact previously unrecorded subsurface historical and archaeological resources. The proposed project would not include demolition, elimination, or manipulation of an historical or archaeological resource. Implementation of mitigation measures CUL-1b and CUL-1c will further ensure that there will be less than significant impacts to any previously unrecorded resources. Therefore, the proposed project would not cause substantial adverse change in the significance of a known historical or archaeological resource and impact is anticipated to be less than significant.

The results of the CCIC record search indicate the possibility of previously unknown occurrences of sensitive cultural resources. Existing regulations require that if human remains and/or cultural items defined by California Health and Safety Code, Section 7050.5, are inadvertently discovered, all work in the vicinity of the find would cease, and the Stanislaus County Coroner would be contacted immediately. If the remains are found to be Native American as delineated by Health and Safety Code, Section 7050.5, the coroner would contact the NAHC by telephone within 24 hours. Less than significant impact is anticipated because of the existing regulations and procedures regarding the discovery of human remains.

If any previously unidentified archaeological, historical or paleontological resources, or human remains are discovered during the course of well drilling or development, Mitigation Measure CUL-1b and CUL-1c shall be implemented.

**Mitigation Measure CUL-1a.** For projects with anticipated ground disturbance that would extend beyond previously disturbed soils, a qualified cultural resources professional shall investigate the potential presence of archaeological or historical resources in the vicinity of the well, the well pad, any appurtenant access drives and electrical service lines, and any rangeland tracts converted to cultivated agricultural use that will be irrigated by the well, through a desktop review. The review shall

include records at the Central California Information Center (CCIC), records at the University of California Berkeley Museum of Paleontology (UCMP), a Sacred Lands File search at the Native American Heritage Commission, Native American tribal consultation, California Register of Historical Resources (CRHR), and the National Register of Historic Places (NRHP).

**Status:** Complete

**Mitigation Measure CUL-1b.** If it is determined through implementation of Mitigation Measure CUL-1a that archaeological, historical or paleontological resources or human remains may be located on a site, or the area is judged to have a high degree of sensitivity relative to these resources, prior to any project-related ground disturbing or construction activities, a qualified archaeologist, historian or paleontologist (as applicable) shall conduct an archaeological/ historical/paleontological resources survey (as applicable). If it is determined that the proposed well is in an area adjacent to or in one of these resources, the well would be relocated and the project reconfigured to avoid substantial changes to the resource.

**Status:** To be scheduled to align with construction activities.

**Mitigation Measure CUL-1c.** If the construction staff or others observe previously unidentified archaeological, historical or paleontological resources, or human remains during drilling or other ground-disturbing activities associated with well construction or conversion of rangeland to cultivated agricultural use, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), immediately notify the lead agency, and retain a qualified archaeologist, historian or paleontologist (as applicable) to review the observed resources. Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the lead agency. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

**Status:** Will be implemented, if needed.

**Mitigation:** Mitigation measures CUL-1b and CUL-1c as described above.

#### **References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

VI. ENERGY:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?				X
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

**Discussion:** The version of Appendix G used for the 2016 IS and 2018 PEIR did not include a separate checklist for “Energy”. Therefore, potential impacts of the proposed project is evaluated independent of the IS and PEIR for this resource area.

Construction of the proposed wells would require fuel to power a drill rig, pipe truck, water truck, fork lift, support trucks and generators for a duration of two to three weeks at each well. The proposed wells would serve as a backup supply during times of drought when permitted diversions from the river could be decreased or curtailed. Therefore, energy demands associated with construction and operation of the proposed project would be limited and short term in nature and cause no impact associated with wasteful, inefficient, or unnecessary consumption of energy resources.

In 2015, Governor Brown signed Senate Bill 350 (SB350) to codify climate, clean energy, and energy efficiency goals. SB350 focuses on the generation of energy through renewable sources and increasing the energy efficiency of buildings. The proposed project does not include new facilities or permanent structures, and the energy demand associated with short-term use of the proposed wells is limited. Therefore, the proposed project would not conflict with or obstruct SB350 for renewable energy or energy efficiency.

In summary, the proposed project is expected to result in no impact to Energy resources.

**Mitigation:** None

**References:** California Legislative Information. 2015. SB-350 Clean Energy and Pollution Reduction Act of 2015. October. [https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB350](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350) (Accessed November 2019).

VII. GEOLOGY AND SOILS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.				X
ii. Strong seismic ground shaking?			X	
iii. Seismic related ground failure, including liquefaction?			X	
iv. Landslides?			X	
b. Result in substantial soil erosion or the loss of topsoil?			X	
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?			X	
d. Be located on expansive soil, as defined in Table 18-1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X
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?				X
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

**Discussion:** The 2016 IS determined that construction and operation of wells under the County’s Discretionary Well Permitting Program would result in no impacts pertaining to items “a(i)”, and “d” through “e” contained in the checklist above. Further, the 2016 IS determined that impacts associated with items “a(ii)” through a(iv)” were less than significant. In addition, the 2018 PEIR determined that impacts pertaining to item “c” are less than significant. The findings from the 2016 IS and 2018 PEIR apply to the proposed project.

The table above reflects 2019 updates to Appendix G. Specifically, item “a” now specifies “direct or indirect” impacts. The revision to item “a” does not affect the findings from the 2016 IS and 2018 PEIR as they apply to this project.

Checklist item “f” pertaining to unique paleontological or geologic resources was previously included in the “Cultural Resources” section of Appendix G. In the event that a unique paleontological resource is encountered during ground disturbing activities, then Mitigation Measure CUL-1c will be implemented as described below.

**Mitigation Measure CUL-1c.** If the construction staff or others observe previously unidentified archaeological, historical or paleontological resources, or human remains during drilling or other ground-disturbing activities associated with well

construction or conversion of rangeland to cultivated agricultural use, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), immediately notify the lead agency, and retain a qualified archaeologist, historian or paleontologist (as applicable) to review the observed resources. Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the lead agency. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

**Status:** To be implemented, if warranted.

**Mitigation:** Mitigation Measure CUL-1c, as described above.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

VIII. GREENHOUSE GAS EMISSIONS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

**Discussion:** The 2018 PEIR indicates that construction and operation of wells under the County’s Discretionary Well Permitting Program is expected to result in less than significant impacts to greenhouse gas emissions. These findings from the PEIR apply to the proposed project. Therefore, potential greenhouse gas emission impacts associated with the proposed project are presumed to be less than significant and do not warrant further consideration.

**Mitigation:** None

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

IX. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
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?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X

**Discussion:** The 2016 IS determined there is a less than significant impact related to checklist items “a” and “b” in the checklist above, and no impacts related to items “d” through “f”. Further, the 2018 PEIR found that impacts pertaining to item “c” were less than significant. These program level findings apply to the proposed project, which is located in an unincorporated area in Stanislaus County that is not under the jurisdiction of a public water agency.

Note: The above table reflect updates included in the 2019 version of Appendix G that were not included in the version of Appendix G in use for the 2016 IS or 2018 PEIR. Specifically, item “e” now specifies “excessive noise” as a consideration for projects located within an airport land use plan or within two miles of a public airport. The closest private airport to the Site is Mapes Ranch airstrip, located approximately 3 miles to the northwest of the site. The nearest public airport is Modesto City-County Airport, approximately 15 miles away. These criteria do not change the less than significant finding for this item. Item “g” was revised to specify consideration of “direct or indirect” impacts related to exposure to wildland fires. Due to its location, the proposed project will not result in direct, or indirect exposure to wildland fires, so there remains to be no impact pertaining to item “g”.

In summary, impacts related to hazards and hazardous materials for the proposed project are presumed to be less than significant.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.



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

**Discussion:** The Hydrology and Water Quality section included in the 2019 version of Appendix G includes numerous revisions. As a result, findings from the 2016 IS and 2018 PEIR are addressed individually below. Additional analysis regarding project hydrology is discussed in the attached Groundwater Resources Impact Assessment (GRIA – Attachment 2).

- a. **Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?** The 2018 PEIR concluded that construction and operation of wells under the County's Discretionary Well Permitting Program would have a less than significant impact with respect to applicable water quality standards and waste discharge requirements. The 2018 PEIR also concluded that the construction and operation of wells would not otherwise substantially degrade surface or groundwater quality. These findings apply to the proposed project. Therefore, a less than significant impact is assumed for this item.
- b. **Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?** The 2018 PEIR addressed this question through consideration of the following two questions that were developed for the PEIR to align with the County's Groundwater Ordinance and the Sustainable Groundwater Management Act (SGMA):

- Would the project cause interference drawdown to existing wells that substantially interferes with their ability to support existing land uses, or land uses for which permits have been granted?
- Would the project cause groundwater drawdown or storage depletion that will interfere with the ability of other well operators to support existing or permitting land uses, or that would substantially increase the cost to pump groundwater in the area.

The PEIR included the mitigation measures WAT-2 and WAT-3 to be implemented, as needed, to ensure impacts to groundwater supplies and recharge are less than significant.

**Mitigation Measure WAT-2:** Property owners and water agencies in the area where predicted drawdown exceeds 5 feet will be notified of the existence of the Interference Drawdown Monitoring and Mitigation Program, and will be invited to register any domestic wells in the predicted 5-foot drawdown area and any municipal, industrial, or irrigation wells in the predicted 20-foot drawdown area to participate in the program. To register for the program, well owners will be required to complete a Well Information Questionnaire regarding the construction, use, history and performance of their well, and to allow access for periodic measurement of water levels and assessment of well condition and performance by the County or a neutral third party. If well performance is found to be diminished by more than 20 percent or to be inadequate to meet pre-existing water demand due to interference drawdown, registered participants will be eligible to receive reimbursement for reasonable and customary costs for well replacement, deepening or rehabilitation, or pump lowering as needed to restore adequate well function. The cost of reimbursement shall be borne by the operator of the well causing the interference in proportion to the degree of their contribution to the drawdown that caused the diminished yield.

**Status:** Screening analysis completed (GRIA). Determined impacts less than significant.

To evaluate potential interference drawdown impacts associated with the proposed project, a Groundwater Resources Impact Assessment (GRIA) was completed and included in the supplemental well permit application packet. The GRIA evaluated two scenarios. Scenario 1 simulated the short-term effects associated with the maximum reasonably anticipated pumping scenario for the wells. Under this scenario, 1,300 acre-feet of groundwater would be withdrawn over a period of two months. Scenario 2 simulates the long-term effects of the maximum anticipated average groundwater extraction rate. Under this scenario, groundwater would be extracted at an annualized average rate of 1,000 AFY for a period of 20 years. Results from the GRIA indicated there are no domestic wells located within the maximum extent of the predicted 5-foot drawdown contour predicted in either scenario. These results indicate that interference drawdown impacts are less than significant, and that implementation of an Interference Drawdown Monitoring and Mitigation Program, as specified in Mitigation Measure WAT-2 is not warranted.

**Mitigation Measure WAT-3:** The County will identify additional Groundwater Level Management Zones in the unincorporated, non-district portions of the County where existing groundwater level trends constitute “chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon” as defined in Section 9.37.030(9)(a) of the Ordinance. In such areas, an applicant proposing installation of a new discretionary well is required to submit a Groundwater Extraction Offset Plan that describes how groundwater extraction from the well will be offset, resulting in no net additional groundwater demand to the pumped aquifer system. Alternatively, the applicant must do a Groundwater Resources Investigation and implement a Groundwater Level Monitoring Program that demonstrates the proposed extraction will not result in, or contribute to, Undesirable Results as defined in the Ordinance.

**Status:** Screening analysis completed (GRIA). Determined impacts less than significant.

The project is not located in a Groundwater Level Management Zone.

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 or through the addition of impervious surfaces, in a manner which would:**

i. **Result in substantial erosion or siltation on- or off-site?**

The 2018 PEIR determined that impacts associated with item “i” are less than significant with implementation of Mitigation Measure WAT-4.

**Mitigation Measure WAT-4:** Applications to construct new wells shall be evaluated to assess the potential for construction activities or conversion of previously uncultivated rangeland to change drainage patterns and result in significant on- or off-site erosion or sedimentation. If the potential for significant erosion or sedimentation is found to exist, the applicant will be required to prepare and submit and implement a Drainage, Erosion and Sedimentation Control Plan.

The proposed project involves the installation of three agricultural supply wells. The wells will be completed with small concrete pads at the surface and fitted with electrical line-shaft turbine pumps. Electrical service will be extended to the well locations. Fenced enclosures, typically measuring approximately 10 feet by 20 feet, may be constructed around each well. All work and ground disturbance will take place within the footprint of the existing agricultural operation in areas of previous ground disturbance or cultivation. Installation of these concrete pads and fenced enclosures is not anticipated to result in substantial changes to surface topography, construction of slopes, or concentration of flow. No substantial increase in the rate or amount of surface run off resulting in flooding or substantial erosion due to the construction of the well, or small concrete pads installed for the wells, on or off-site is anticipated.

Existing drainage patterns at the site are not anticipated to change based on the installation of the agricultural wells or their associated construction. Work areas for well installation are anticipated to be 50x100ft in already disturbed areas, after construction the majority of the disturbed work area will return to its previous state. Final well installation involves the installation of a small concrete pad at each well. The addition of a small impervious surface such as a small concrete pad is not anticipated to alter the drainage pattern in the area of the well installation. Therefore, a Drainage, Erosion and Sediment Control Plan, as specified under Mitigation Measure WAT-4 is not warranted. The impact associated with item “i” is presumed to be less than significant.

**Status:** Screening analysis completed (GRIA). Determined impacts less than significant.

ii. **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?**

The 2018 PEIR determined that impacts associated with item “ii” are less than significant with implementation of Mitigation Measure WAT-5,

**Mitigation Measure WAT-5.** Applications to construct new wells shall be evaluated to assess the potential for construction activities or conversion of previously uncultivated rangeland to change drainage patterns and result in an increase in runoff and significant on- or off-site flooding. If the potential for significant flooding is found to exist, the applicant will be required to prepare and submit and implement a Drainage, Erosion and Sedimentation Control Plan.

The proposed project is not expected to result in significant on- or off-site flooding. Therefore, impacts associated with item ii are presumed to be less than significant, and implementation of a Drainage, Erosion and Sedimentation Control Plan, as specified in Mitigation Measure WAT-5 is not warranted.

**Status:** Not warranted

**iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff**

The 2016 IS determined that impacts associated with item iii above for wells permitted under the County's Discretionary Well Permitting Program are less than significant. These findings applied to the proposed project.

**d) Would the project in a flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?**

The Site is not located in a tsunami or seiche zone. The Site is located in an area identified by the Federal Emergency Management Administration (FEMA) a Special Flood Hazard Area – Zone A. However, construction or operation of the proposed wells does not present a risk with respect to the release of pollutants during a flood event. Therefore, there is no impact with respect to this question.

**e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?** This question was addressed in part, in the 2018 PEIR. Specifically, the 2018 PEIR concluded that wells permitted under the County's Discretionary Well Permitting Program would have a less than significant impact with respect to degradation of water quality in excess of water quality objectives for beneficial uses identified in the California Regional Water Quality Control Board (RWQCB) Water Quality Plan.

Stanislaus County's Groundwater Ordinance is deliberately aligned with the requirements of Sustainable Groundwater Management Act (SGMA). Under the Ordinance, unless otherwise exempt, an applicant that wishes to install a new groundwater well must first provide substantial evidence the well is not unsustainably extracting groundwater as defined in the Ordinance and in SGMA. Based on the GRIA (Attachment 2) supplied by the applicant, the proposed project does not appear to conflict with or obstruct the implementation of a sustainable groundwater management plan. Therefore, no conflicts with the Stanislaus County's Groundwater Ordinance are anticipated.

As part of the Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary (Bay-Delta Plan), the State Water Resources Control Board (SWRCB) adopted flow objectives for the Lower San Joaquin River (LSJR). Based on conservative estimates in the GRIA (Attachment 2), pumping of groundwater from the proposed wells will result in some streamflow depletion. The minimum flow objectives for the LSJR will be fully implemented by 2022 (SWRCB, 2019). As the flow objectives have not been fully implemented, project related impacts can only be analyzed under the current plans. Less than significant impacts are anticipated based on current plans.

**Mitigation:** None

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

State Water Resources Control Board, 2019. Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. [https://www.waterboards.ca.gov/plans\\_policies/docs/2018wgcp.pdf](https://www.waterboards.ca.gov/plans_policies/docs/2018wgcp.pdf) December 12, 2018.

XI. LAND USE AND PLANNING -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a. Physically divide an established community?				<b>X</b>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			<b>X</b>	

**Discussion:**

The 2016 IS and the 2018 PEIR were prepared in consideration of the Stanislaus County General Plan. Findings from the 2016 IS determined that construction and operation of wells under the County's Discretionary Well Permitting Program would not result in the physical division of an established community. Further, the 2018 PEIR determined a less than significant impact due to a conflict with a land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect. These findings apply to the proposed project. Therefore, impacts to land use and planning associated with the proposed project are expected to be less than significant and no further consideration of this resource area is warranted.

**Mitigation:** None

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

XII. MINERAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	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?				X
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?				X

**Discussion:** The 2016 IS determined that construction and operation of wells under the County’s Discretionary Well Permitting Program would result in no impacts to items “a” or “b” above. These findings apply to the proposed project. The area encompassing the proposed project site was designated as Mineral Resource Zone (MRZ)-1i in the Mineral Land Classification of Stanislaus County Special Report 173. A designation of MRZ-1 indicates an area where available geologic information indicates there is little likelihood for the presence of significant mineral resources, the sub-category “i” indicates areas classified for deposits of industrial minerals only. In the event that mineral resources are located at the proposed project site, proposed project activities would not interfere with the potential extraction of a mineral resource. No additional consideration is required with respect to mineral resources.

**Mitigation:** None

**References:**

California Department of Conservation, Division of Mines and Geology, 1993. Mineral Land Classification of Stanislaus County, California, Special Report 173. Higgins, C., Dupras, D. 1993.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

XIII. NOISE -- Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b. Generation of excessive ground-borne vibration or ground-borne noise levels?				X
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

**Discussion:** The 2016 IS determined that construction or operation of wells under the County’s Discretionary Well Permitting Program would have no impact related to item “b” in the checklist above. The no impact determination for item “b” applies to the proposed project.

The table above reflects updates included in the 2019 version of Appendix G that were not considered when the 2016 IS or 2018 PEIR were completed. Specifically, item “c” was updated to include consideration of a project’s proximity to a private airstrip. The 2016 IS concluded there was no impact associated with item “c”, but proximity to a private airstrip was not considered at that time. The closest private airport to the Site is Mapes Ranch Airport, located approximately 3 miles to the northwest of the site. The nearest public airport is Modesto City-County Airport, approximately 15 miles away. Based on the distance to the closest private or public airports or airstrips, there is no expected impact pertaining to item “c”.

Item “a” essentially combines two items included in the previous version of Appendix G that had considered ambient noise levels and local noise standards separately. The 2018 PEIR determined that impacts pertaining to increases in ambient noise levels and generation of noise levels in excess of standards established in a local plan or ordinance are less than significant after mitigation measure NOI-1:

**Mitigation Measure NOI-1.** If well construction activities will take place closer than 200-feet from nearby sensitive receptors on non-agriculturally zoned parcels, the project shall employ noise attenuating measures and/or work schedules such that the project would comply with the Stanislaus County Noise Ordinance and General Plan Noise Element. Noise mitigation shall include a combination of the measures to achieve construction noise at or below the maximum allowable noise level of 75 A-weighted decibels from 7:00 p.m. to 7:00 a.m.

The Stanislaus County General Plan designates the proposed project site as “Agriculture” and the Stanislaus County Zoning Ordinance zones the site “General Agriculture – 40 Acre Minimum (A-2-40).” The proposed project Site is not located within 200-feet of a sensitive receptor or a non-agriculturally zoned parcel. The closest single-family dwelling is located approximately 800 ft south of proposed well location #1, and a small parcel zoned P-D is located approximately ½- mile from

proposed well location #3 (Figure 1b). Therefore, mitigation measure NOI-1 does not apply and a less than significant impact is expected for item “a” with no mitigation.

In summary, noise impacts associated with the proposed project are presumed to be less than significant.

**Mitigation:** None

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

Stanislaus County Airport Land Use Compatibility Plan adopted October 6, 2016  
[http://www.stancounty.com/planning/agenda-aluc/draft\\_alucp.pdf](http://www.stancounty.com/planning/agenda-aluc/draft_alucp.pdf) (Accessed November 2019)



XIV. POPULATION AND HOUSING -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

**Discussion:** Findings from the 2016 IS indicate that construction and operation of wells under the County’s Discretionary Well Permitting Program will have a less than significant impact on population growth and no impact on displacement of homes. These findings apply to the proposed project, which is located in an unincorporated area in Stanislaus County that is not under the jurisdiction of a public water agency

Note: Items “a” and “b”, as presented in the table above reflect 2019 updates to Appendix G. Specifically, item “a” is updated to specify “unplanned” population growth and item “b” considers displacement of “existing people”, in addition to homes. These updates to Appendix G do not result in a change in the impact determination for this resource area. Impacts to population and housing presumed to be less than significant and do not warrant further consideration.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

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

**Discussion:** Findings from the 2016 IS determined that construction and operation of wells permitted under the County’s Discretionary Well Permitting Program would result in less than significant impacts to the public services specified under “a” in the table above. Findings from the 2016 IS apply to the proposed project. Therefore, potential impacts to public services associated with the proposed project are presumed to be less than significant and do not warrant further consideration.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

XVI. RECREATION –	Potentially Significant Impact	Less Than Significant With Mitigation Included	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?			X	
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?				X

**Discussion:** Findings from the 2016 IS indicate that construction and operation of wells under the County’s Discretionary Well Permitting Program has a less than significant impact on use of existing recreational facilities and not result in additional recreational facilities. These findings apply to the proposed project. Therefore, potential impacts to recreation resources associated with the proposed project are presumed to be less than significant and do not warrant further consideration.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

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

**Discussion:** Findings from the 2016 IS indicate that the construction and operation of wells under the County’s Discretionary Well Permitting Program would have no impact related to transportation resources. These findings apply to the proposed project.

Note: Items “a” through “d” included in the above table reflect 2019 updates to Appendix G. Updates included deleting two questions and simplifying item “b”. These updates do not change the determination that the proposed project would have no impact on transportation, and no further evaluation of this resource area is warranted.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

XVIII. TRIBAL CULTURAL RESOURCES -- Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
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:				
a. 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			X	
b. 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

**Discussion:** The version of Appendix G in use when the 2016 IS and 2018 PEIR were completed did not include a separate section to address potential impacts to Tribal Cultural Resources. Therefore, the items above are addressed specifically in this section. The construction and operation of wells under the County’s Discretionary Well Permitting Program may present potentially significant impacts to tribal cultural resources which require further evaluation.

As mentioned in the Cultural Resources section above, a qualified cultural resource professional conducted a record search via the Central California Information Center (CCIC) at California State University, Stanislaus on December 19, 2019 (Records Search File No.: 11267N) focused within 1-mile of the proposed well locations. The Site contains one identified cultural resource that has not been evaluated for CRHR/NRHP eligibility. No project work will occur in this cultural resource area.

The Native American Heritage Commission (NAHC) was contacted on December 16, 2019 to review its Sacred Lands Files (SLF) for traditional resources located within the Site. The NAHC replied with positive results for Native American tribal cultural resources within the Site and provided a list of local Native American tribes to contact. The listed tribes were contacted on December 23, 2019, with a follow up phone call occurring on January 14, 2020; 3 Tribes (Northern Valley Yokut, California Valley Miwok Tribe, Tule River Indian Tribe) have requested to have a monitor present during initial well construction activities for each of the wells.

The PEIR discusses the discovery of unanticipated resources as follows, “In some cases, the drilling of a well boring may be the only ground disturbing activity, in which the likelihood of adversely affecting historical/paleontological resources would be minimal, and the only measure needed to prevent the potential for significant impacts would be a requirement to stop work if unanticipated resources are discovered during hand excavation of the upper 5 feet of the well boring.”

Mitigation Measure CUL-1b of the 2018 PEIR involves having a qualified individual present for ground disturbing and construction related activities in case unanticipated resources are uncovered. Because the NAHC replied with positive results for Native American tribal cultural resources, several tribes have requested to be present at ground disturbing activities, a mitigation measure similar to Mitigation Measure CUL-1b is proposed as TRI-1. The presence of a tribal monitor and the implementation of mitigation measure TRI-1 will ensure that there will be no impact to any previously unrecorded Tribal resources. The proposed project would not cause substantial adverse change in the significance of a listed or eligible for listing CRHR resource and less than significant impacts are anticipated.

**Mitigation:**

**Mitigation Measure TRI-1.** A Tribal Cultural Resources Monitor (Monitor) will be present to inspect the proposed work areas prior to any ground disturbance and during the subsurface drilling activities, per the discretion of the Monitor. If the Monitor observes previously unidentified Tribal or prehistoric resources, or human remains during drilling or other ground-disturbing activities associated with well construction, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area and review the observed resources. Construction will halt within the flagged or roped-off area. The Monitor will assess the resource as soon as possible and determine appropriate next steps. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

Status: To be implemented during construction activities.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

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

**Discussion:** The 2016 IS determined that construction and operation of wells under the County's Discretionary Well Permitting Program would have no impacts related to items "a", "c", and "e" in the table above. Further, the 2018 PEIR identified a less than significant impact associated with item "b" above. These determinations apply to the proposed project. Estimates provided in the GRIA also indicate that adequate groundwater supplies exist in the aquifer to supply the project's needs. Since the proposed wells may be used infrequently or not at all due to the seniority of the Pescadero Ranch water right, water supplies are anticipated to remain sufficient to suit the project's needs.

Note: The table above reflects updates included in the 2019 version of Appendix G. Specifically, item "d" was not included as written in the 2016 IS or the 2018 PEIR, so it is discussed here. The project will not generate solid waste requiring disposal, therefore there is no impact pertaining to item "d".

In summary, impacts to utilities and service systems associated with the proposed project are less than significant, and no further consideration of this resource area is warranted.

**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

XX. WILDFIRE – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

**Description:** The version of Appendix G in use when the 2016 IS and 2018 PEIR were completed did not include a separate section to address impacts to Wildfire. Therefore, the impacts identified in the checklist above are discussed here.

State Responsibility Areas are boundaries adopted by the Board of Forestry and Fire Protection. These designated State Responsibility Areas are areas where the California Department of Forestry and Fire (CAL FIRE), has a financial responsibility for fire suppression and prevention. These designated areas can be determined through review of the Stanislaus County Fire Hazard Severity Zone Maps for State Responsibility Area and Local Responsibility Area (CAL FIRE, 2007a and 2007b). Review of the Stanislaus County Fire Hazard Severity Zone Maps for State Responsibility Area and Local Responsibility Area indicate the proposed project is not located in a State Responsibility Area or Local Responsibility Area. The nearest such area is located approximately 0.5 miles northeast of the Site in the riparian corridor of the San Joaquin River.

The proposed project would not impair an adopted emergency response plan or emergency evacuation plan. The Project location is not in a State Responsibility Area or lands classified as very high fire hazard severity zones; the nearest is located approximately 0.6 miles south of the proposed project. Routine BMPs for construction activities address fire prevention methods such as:

- Restricting vehicles from driving or parking on dry vegetation during fire sensitive times of the year; and,



- Wetting dry areas before commencing activities, and wetting throughout the day, as appropriate, during fire sensitive times of the year.

The proposed project would not require the installation or maintenance of associated infrastructure (such as fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment and would not impair an adopted emergency response plan or emergency evacuation plan. The proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Based on these findings, there would be no impact.

**Mitigation:** None

**References:**

California Department of Forestry and Fire (CAL FIRE), 2007a. Stanislaus County Fire Hazard Severity Zone Maps in State Responsibility Area. November 7. <https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/> (Accessed November 13, 2019).

Cal Fire, 2007b. Stanislaus County Draft Fire Hazard Severity Zones in Local Responsibility Area. October 3. <https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/> (Accessed November 13, 2019).

XXI. MANDATORY FINDINGS OF SIGNIFICANCE --	Potentially Significant Impact	Less Than Significant With Mitigation Included	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?			X	
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.)			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

**Discussion:** Based on the evidence provided in this initial study, potential impacts related to mandatory findings of significance that are associated with the proposed project are presumed to be less than significant.

Per the GRIA, “Predictive modeling indicates that pumping from the proposed wells will contribute incrementally to a cone of depression west of the Site, approximately 0.5 to 1 foot, which represents approximately 5 to 10 percent of drawdown in the off Site cone of depression. The cone of depression is approximately 10 feet deep and has not resulted in reports of any of the undesirable results discussed in the GRIA. Long-term well hydrographs from the GRIA also indicate that water levels in two of three wells in this cone of depression have stabilized or started to increase. Ongoing trends to convert agricultural land in the area from annual to permanent crops may harden water demand and could contribute to increased regional drawdown during dry periods. However, the seniority of the Pescadero Ranch water right is expected to result in relatively infrequent pumping of the wells. In addition, the proximity of the wells to the river will provide the wells with a local source of induced recharge, resulting in less off-Site drawdown and storage depletion. The GSP (Groundwater Sustainability Plan) proposed for adoption for the northern and central portions of the DMS (Delta Mendota Subbasin) is intended to address this potential cumulative drawdown and storage depletion effects through effective conjunctive use, recharge projects, and if necessary, pumping and well spacing restrictions.” No cumulative impacts are anticipated due to the proposed project.

Furthermore, findings from the 2016 IS and 2018 PEIR indicate that construction and operation of wells under the County’s Discretionary Well Permitting Program has a less than significant impact on mandatory findings of significance. These findings apply to the proposed project. Therefore, potential impacts to mandatory findings of significance associated with the proposed project are presumed to be less than significant and do not warrant further consideration.

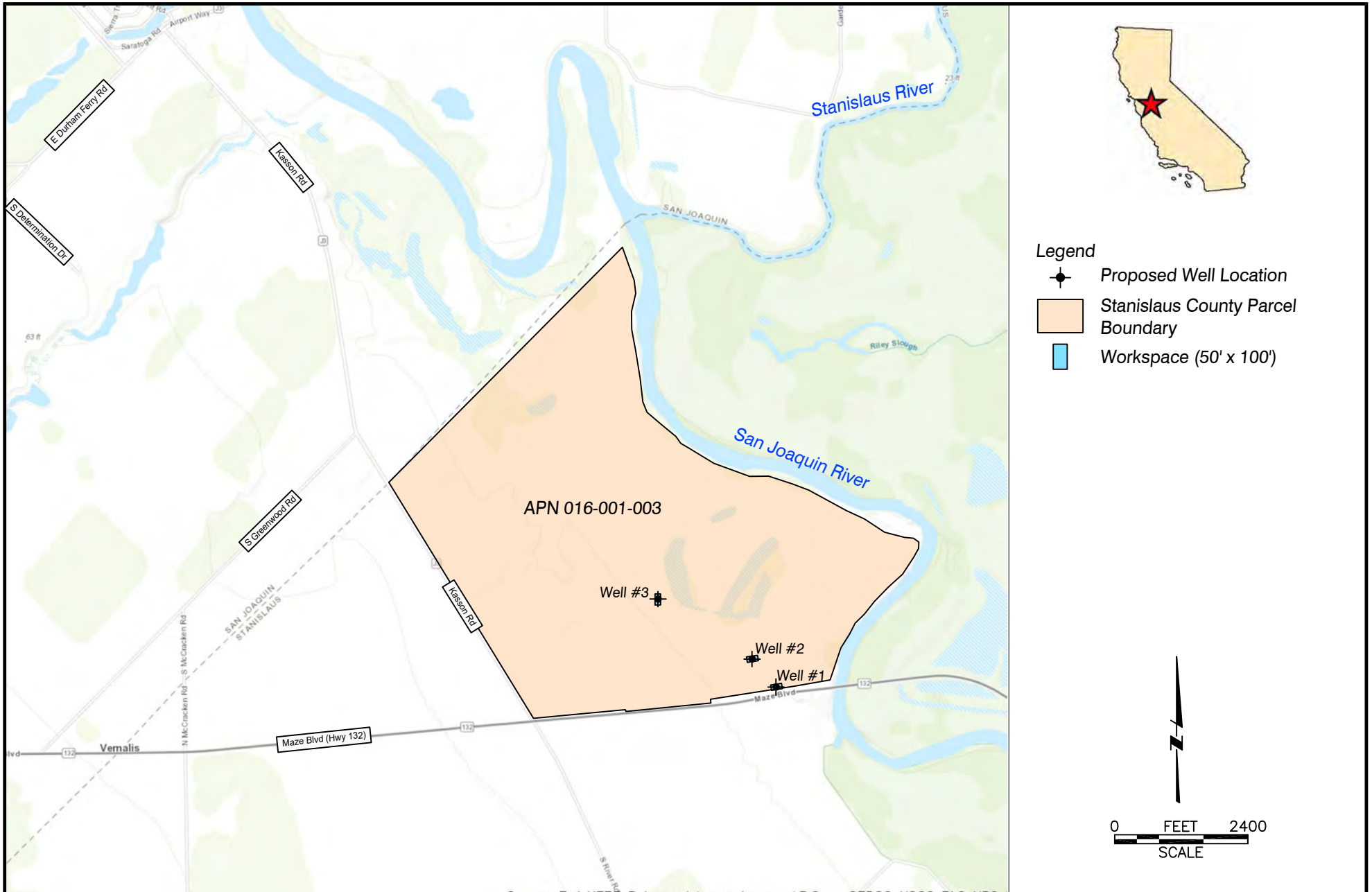
**Mitigation:** None.

**References:**

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2018. Final Program Environmental Impact Report for the Stanislaus County Discretionary Well Permitting and Management Program. Prepared for Stanislaus County Department of Environmental Resources. June 11.

Jacobson James & Associates, Inc. and Tetra Tech, Inc., 2016. Initial Study Discretionary Well Permitting and Management Program, Stanislaus County, California. October 3.

**FIGURES**

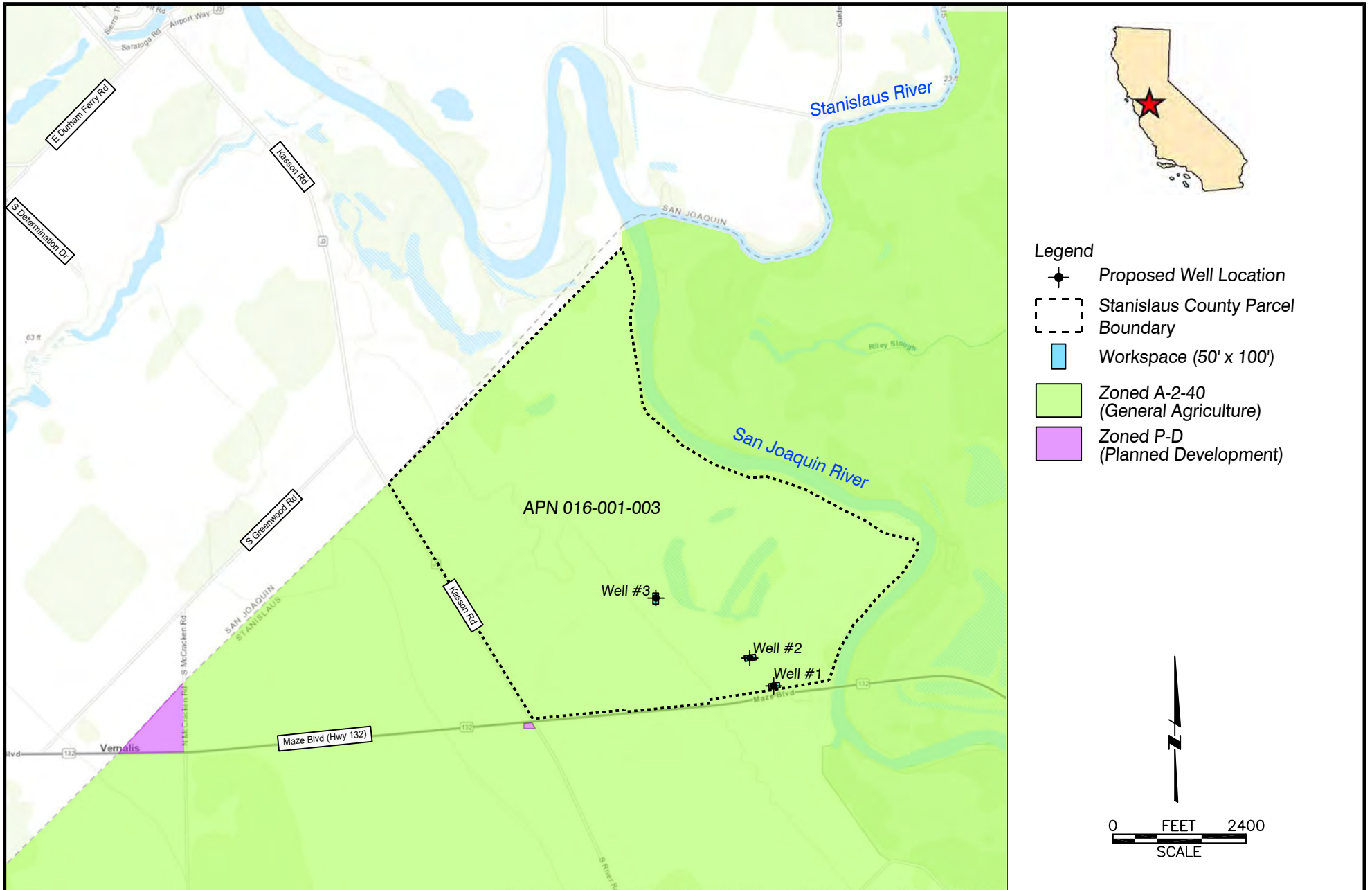







INITIAL STUDY/MITIGATED NEGATIVE  
DECLARATION SUPPLEMENTAL WELLS  
FOR PESCADERO RANCH  
STANISLAUS COUNTY, CALIFORNIA

PROJECT NO. <b>STANCO-001</b>	DATE <b>5/18/20</b>	DRAWN BY <b>ML</b>	APPROVED BY <b>RS</b>
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FIGURE 1a

**PROPOSED WELL LOCATIONS MAP**



- Legend**
-  Proposed Well Location
  -  Stanislaus County Parcel Boundary
  -  Workspace (50' x 100')
  -  Zoned A-2-40 (General Agriculture)
  -  Zoned P-D (Planned Development)

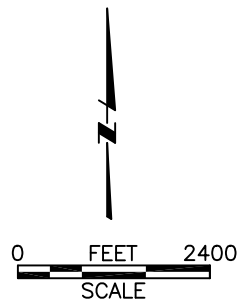


FIGURE 1b

LAND USE MAP



INITIAL STUDY/MITIGATED NEGATIVE  
DECLARATION SUPPLEMENTAL WELLS  
FOR PESCADERO RANCH  
STANISLAUS COUNTY, CALIFORNIA

PROJECT NO. <b>STANCO-001</b>	DATE <b>5/18/20</b>	DRAWN BY <b>ML</b>	APPROVED BY <b>RS</b>
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**FLOW CHARTS**

**TABLE 1**  
**EVALUATION, SCREENING ANALYSIS, AND RESOURCE INVESTIGATION FLOW CHART: BIOLOGICAL IMPACTS - BIO-1**  
 Discretionary Well Permitting Program  
 Stanislaus County, California

IMPACT BIO-1. 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 Wildlife or U.S. Fish and Wildlife Service?										
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION			
Direct Construction Impacts	Evaluation of the project description alone does not comprise an adequate impact analysis. A screening level analysis is required to evaluate potential impacts to special-status species.	➔	Proceed with Screening Analysis per Mitigation Measure BIO-1a	➔	Does a desktop study and site reconnaissance conducted by a qualified biologist indicate that conditions are NOT suitable for special-status species in the vicinity of the proposed well?  Specify Attachment No.: Bio Survey	➔	YES ➔ STOP. Conclude Less Than Significant Impact NO ➔ Proceed with a Resource Investigation per Mitigation Measure BIO-1a	➔	Does a species-specific investigation indicate that impacts will be less than significant?  Specify Attachment No.: _____	YES ➔ STOP. Conclude Less Than Significant Impact NO ➔ Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as necessary to identify and implement measures to avoid, minimize, or otherwise mitigate potential impacts to special-status species to a less-than-significant level.
	Will well construction work be conducted only during the <u>non-breeding season</u> of any birds and raptors protected under the Migratory Bird Treaty Act (MTBA, generally September 16 through January 31)?	Yes ➔ STOP. Conclude Less Than Significant Impact No ➔ Proceed with Resource Investigation per Mitigation Measure BIO-1b	➔		➔		➔		➔	Has a pre-construction survey for raptors, migratory birds, and special-status bird species by a qualified biologist determined that there are no active nests within ½ mile of the construction/disturbance zone?  Specify Attachment No.: _____



**TABLE 1**  
**EVALUATION, SCREENING ANALYSIS, AND RESOURCE INVESTIGATION FLOW CHART: BIOLOGICAL IMPACTS - BIO-1**  
 Discretionary Well Permitting Program  
 Stanislaus County, California

IMPACT BIO-1. 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 Wildlife or U.S. Fish and Wildlife Service?									
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION		
Direct Operation Impacts	Will the proposed well be located within 50 feet of an existing well completed in the same aquifer, and will the combined operation of the existing and proposed well result in no net increase in local groundwater demand?	Yes ➔	STOP. Conclude Less Than Significant Impact	Is the estimated drawdown beneath identified groundwater-dependent ecosystems (GDEs) that are hydraulically connected to the pumped aquifer less than 0.5 foot?  Specify Attachment No.: <u>GRIA</u>	YES ➔	STOP. Conclude Less Than Significant Impact	Has a GDE Impact Study determined impacts to GDEs will be less than significant?  Specify Attachment No.: <u>GRIA</u>	YES ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with a Screening Analysis per the Discretionary Well Permit Process under the County Groundwater Ordinance		NO ➔	Proceed with a GDE Impact Study per the Discretionary Well Permit Process under the County Groundwater Ordinance		NO ➔	Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as necessary to identify and implement measures to avoid, minimize, or otherwise mitigate potential impacts to special-status species to a less-than-significant level.
	For wells for which the answer to the above question is no, will the proposed well be located outside a County-designated Surface Water Protection Zone?	Yes ➔	STOP. Conclude Less Than Significant Impact				Has a Surface-Groundwater Interaction Study determined impacts special status aquatic species will be less than significant?  Specify Attachment No.: _____	YES ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with a Surface-Groundwater Interaction Study per the Discretionary Well Permit Process under the County Groundwater Ordinance					NO ➔	Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as necessary to identify and implement measures to avoid, minimize, or otherwise mitigate potential impacts to special-status species to a less-than-significant level.

<b>IMPACT BIO-1.</b> 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 Wildlife or U.S. Fish and Wildlife Service?									
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION		
<b>Indirect Impacts</b>	Does the proposed well serve only existing cultivated areas, AND no conversion of uncultivated land to cultivated use will be enabled by operating the proposed well?	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>	➔	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>	➔	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>
		NO ➔	Proceed with a Screening Analysis per Mitigation Measure BIO-1a.		NO ➔	Proceed with a Resource Investigation per Mitigation Measure BIO-1a.		NO ➔	Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to special-status species to a less-than-significant level.
		NO ➔	Proceed with a Screening Analysis per Mitigation Measure BIO-1b.		YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>		YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>
		NO ➔	Will ground disturbing work associated with conversion of range land to cultivated land be conducted only during <u>the non-breeding season</u> of any birds and raptors protected under the Migratory Bird Treaty Act (MTBA, generally September 16 through January 31)?		NO ➔	Proceed with a Resource Investigation per Mitigation Measure BIO-1b		NO ➔	Implement Remaining Portion of Mitigation Measure BIO-1b: No ground disturbing activities shall occur within 500 feet of the nest until the young have fledged and the nest is no longer active (as determined by the qualified biologist). Consultation with the CDFW and/or USFWS shall occur if required, and may result in additional requirements.
			Does a desktop study and site reconnaissance conducted by a qualified biologist indicate conditions are NOT suitable for special-status species in areas to be converted from rangeland to cultivated use as a result of the proposed well?  Specify Attachment No.: _____			Does a species-specific investigation—indicate that impacts to special status species will be less than significant?  Specify Attachment No.: _____			

**IMPACT BIO-1.** 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 Wildlife or U.S. Fish and Wildlife Service?

**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure BIO-1a.** A qualified biologist shall investigate the potential presence or absence of sensitive habitats and wetlands, and special-status plants or wildlife in areas that will be disturbed by well construction or conversion of rangelands to cultivated use that is made possible by the well, prior to well permit approval or project implementation. Documentation could involve any of these tasks:

- Desktop review of existing site records through the county records and general plan, CNDDDB, CNPS inventory, environmental documents and surveys to determine likelihood of occurrence near (within ½ mile) the well site, any rangeland converted to cultivated agricultural use that is supplied by the well, and any related construction areas.
- Conduct field reconnaissance. A field reconnaissance survey shall be conducted, including a habitat assessment to determine whether suitable conditions exist for special-status species.
- Determine the need for additional species-specific surveys or wetland delineation. If warranted, coordinate with appropriate agencies (USFWS, CDFW, or USACE) as may be necessary to determine appropriate survey timing and effort.
- Coordinate with appropriate agencies and the County as may be necessary based on the results of additional species-specific surveys or wetland delineation, to identify and implement mitigation measures as necessary to avoid, minimize, or otherwise mitigate potential impacts to special-status species, wetlands or other habitat to a less-than-significant level.

**Mitigation Measure BIO-1b.** The applicant shall endeavor to conduct any drilling, construction work and/or ground-disturbing activities associated with installation of the proposed well or the conversion of rangeland to cultivated agricultural use that will be irrigated using the well during the non-breeding season of any birds and raptors protected under the Migratory Bird Treaty Act (generally September 16 through January 31). If construction activities must be scheduled during the nesting season (generally February 1 to September 15), pre-construction surveys for raptors, migratory birds, and special-status bird species shall be done by a qualified biologist to identify active nests near the site. This shall include a buffer extending out from the construction or disturbance area to a distance of approximately ½ mile. If active nests are found, no drilling construction activities shall occur within 500 feet of the nest until the young have fledged and the nest is no longer active (as determined by the qualified biologist). Survey timing and frequency requirements differ among species; species-specific surveys should follow all timing and frequency requirements of CDFW and USFWS. Consultation with the CDFW and/or USFWS shall occur if required, and may result in additional requirements.

**Other (describe):**

**IMPACT BIO-2.** Would the project have a substantial adverse effect on any riparian habitat, groundwater-dependent ecosystem, groundwater-connected stream or reservoir, or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Less than Significant Impact with Mitigation Incorporated)?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION		2. SCREENING ANALYSIS		3. RESOURCE INVESTIGATION				
<b>Direct Construction Impacts</b>	Evaluation of the project description alone does not comprise an adequate impact analysis. A screening level analysis is required to evaluate potential impacts to sensitive habitats.	➔	Proceed with a Screening Analysis per Mitigation Measure BIO-1a	➔	Does a desktop study and site reconnaissance conducted by a qualified biologist indicate well construction will <u>not</u> affect riparian habitat, groundwater-dependent ecosystems, or other sensitive natural communities?  Specify Attachment No.: Bio Survey	YES ➔ STOP. Conclude Less Than Significant Impact  NO ➔ Proceed with a Resource Investigation per Mitigation Measure BIO-1a	➔	Does a biological resource investigation indicate that impacts to riparian habitat, groundwater-dependent ecosystems, or other sensitive natural communities will be less-than-significant?  Specify Attachment No.: _____	YES ➔ STOP. Conclude Less Than Significant Impact  NO ➔ Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to sensitive habitat to a less-than-significant level.

**IMPACT BIO-2.** Would the project have a substantial adverse effect on any riparian habitat, groundwater-dependent ecosystem, groundwater-connected stream or reservoir, or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Less than Significant Impact with Mitigation Incorporated)?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION		2. SCREENING ANALYSIS		3. RESOURCE INVESTIGATION		
<b>Direct Operation Impacts</b>	Will the proposed well be located within 50 feet of an existing well completed in the same aquifer, and will the combined operation of the existing and proposed well result in no net increase in local groundwater demand?	Yes → STOP. Conclude Less Than Significant Impact  No →	Is the estimated drawdown beneath identified groundwater-dependent ecosystems (GDEs) that are hydraulically connected to the pumped aquifer less than 0.5 foot?  Specify Attachment No.: <u>GRIA</u>	YES → STOP. Conclude Less Than Significant Impact  NO →	Does a GDE Impact Study indicate impacts to GDEs will be less than significant?  Specify Attachment No.: <u>GRIA</u>	YES → STOP. Conclude Less Than Significant Impact  NO → Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to sensitive habitat to a less-than-significant level.	
	For wells for which the answer to the above question is no, will the proposed well be located outside a County-designated Surface Water Protection Zone?	Yes → STOP. Conclude Less Than Significant Impact  No →	Proceed with a Surface-Groundwater Interaction Study per the Discretionary Well Permit Process under the County Groundwater Ordinance			Has a Surface-Groundwater Interaction Study determined aquatic habitat will be less than significant?  Specify Attachment No.: _____	YES → STOP. Conclude Less Than Significant Impact  NO → Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to sensitive habitat to a less-than-significant level.

**IMPACT BIO-2.** Would the project have a substantial adverse effect on any riparian habitat, groundwater-dependent ecosystem, groundwater-connected stream or reservoir, or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Less than Significant Impact with Mitigation Incorporated)?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION	2. SCREENING ANALYSIS	3. RESOURCE INVESTIGATION
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<b>Indirect Impacts</b>	Does the proposed well serve only existing cultivated areas, AND no conversion of uncultivated land to cultivated use will be enabled by operating the proposed well?	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>		NO ➔	Does a desktop study and site reconnaissance conducted by a qualified biologist indicate that areas to be converted from rangeland to cultivated use as a result of the proposed well <u>do not</u> include sensitive habitats?  Specify Attachment No.: _____	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>		NO ➔	<b>Proceed with Screening Analysis per Mitigation Measure BIO-1a.</b>		YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>		NO ➔	<b>Proceed with Resource Investigation per Mitigation Measure BIO-1a.</b>		YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>		NO ➔	<b>Implement Remaining Portion of Mitigation Measure BIO-1a:</b> Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to sensitive habitat to a less-than-significant level.	

**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure BIO-1a.** A qualified biologist shall investigate the potential presence or absence of sensitive habitats and wetlands, and special-status plants or wildlife in areas that will be disturbed by well construction or conversion of rangelands to cultivated use that is made possible by the well, prior to well permit approval or project implementation. Documentation could involve any of these tasks:

- Desktop review of existing site records through the county records and general plan, CNDDDB, CNPS inventory, environmental documents and surveys to determine likelihood of occurrence near (within ½ mile) the well site, any rangeland converted to cultivated agricultural use that is supplied by the well, and any related construction areas.
- Conduct field reconnaissance. A field reconnaissance survey shall be conducted, including a habitat assessment to determine whether suitable conditions exist for special-status species.
- Determine the need for additional species-specific surveys or wetland delineation. If warranted, coordinate with appropriate agencies (USFWS, CDFW, or USACE) as may be necessary to determine appropriate survey timing and effort.
- Coordinate with appropriate agencies and the County as may be necessary based on the results of additional species-specific surveys or wetland delineation, to identify and implement mitigation measures as necessary to avoid, minimize, or otherwise mitigate potential impacts to special-status species, wetlands or other habitat to a less-than-significant level.

**Other (describe):**



**TABLE 3**  
**EVALUATION, SCREENING ANALYSIS, AND RESOURCE INVESTIGATION FLOW CHART: BIOLOGICAL IMPACTS - BIO-3**  
 Discretionary Well Permitting Program  
 Stanislaus County, California

IMPACT BIO-3. Would the project have a substantial adverse effect on federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) or waters of the State through direct removal, filling, hydrological interruption, or other means?											
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION				
Direct Construction Impacts	Evaluation of the Project description alone does not comprise an adequate impact analysis. A screening level analysis is required to evaluate potential impacts to federally or State protected wetlands?	➔	Proceed with a Screening Analysis per Mitigation Measure BIO-1a	➔	Does a desktop study and site reconnaissance conducted by a qualified biologist indicate that the well construction will NOT affect a protected wetland?  Specify Attachment No.: Bio Survey	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Does a wetland delineation indicate well construction impacts will be less than significant?  Specify Attachment No.: _____	YES ➔	STOP. Conclude Less Than Significant Impact
						NO ➔	Proceed with a Wetland Delineation per Mitigation Measure BIO-1a		NO ➔	Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to protected wetlands to a less-than-significant level.	
Direct Operation Impacts	Will the proposed well be located within 50 feet of an existing well completed in the same aquifer, and will the combined operation of the existing and proposed well result in <u>no net increase</u> in local groundwater demand?	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Is the estimated drawdown beneath protected wetlands that are hydraulically connected to the pumped aquifer less than 0.5 foot?  Specify Attachment No.: GRIA	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Does a GDE Impact Study indicate impacts to protected wetlands will be less than significant?  Specify Attachment No.: GRIA	YES ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with a Screening Analysis per the Well Permitting Program under the County Groundwater Ordinance			NO ➔	Proceed with a GDE Impact Study per the Well Permitting Program under the County Groundwater Ordinance			NO ➔	Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to protected wetlands to a less-than-significant level.
Indirect Impacts	Does the proposed well serve only existing cultivated areas, AND no conversion of uncultivated land to cultivated use will be enabled by operating the proposed well?	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Does a desktop study and site reconnaissance conducted by a qualified biologist indicate that areas to be converted from rangeland to cultivated uses as a result of the proposed well do <u>not</u> include protected wetlands?  Specify Attachment No.: _____	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Does a biological resource investigation indicate that impacts to protected wetlands will be less than significant?  Specify Attachment No.: _____	YES ➔	STOP. Conclude Less Than Significant Impact
		NO ➔	Proceed with a Screening Analysis per Mitigation Measure BIO-1a.			NO ➔	Proceed with a Resource Investigation per Mitigation Measure BIO-1a.			NO ➔	Implement Remaining Portion of Mitigation Measure BIO-1a: Coordinate with appropriate agencies and the County as may be necessary to identify and implement mitigation measures to avoid, minimize, or otherwise mitigate potential impacts to protected wetlands to a less-than-significant level.

MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS
<p><b>Mitigation Measure BIO-1a.</b> A qualified biologist shall investigate the potential presence or absence of sensitive habitats and wetlands, and special-status plants or wildlife in areas that will be disturbed by well construction or conversion of rangelands to cultivated use that is made possible by the well, prior to well permit approval or project implementation. Documentation could involve any of these tasks:</p> <ul style="list-style-type: none"><li>• Desktop review of existing site records through the county records and general plan, CNDDDB, CNPS inventory, environmental documents and surveys to determine likelihood of occurrence near (within ½ mile) the well site, any rangeland converted to cultivated agricultural use that is supplied by the well, and any related construction areas.</li><li>• Conduct field reconnaissance. A field reconnaissance survey shall be conducted, including a habitat assessment to determine whether suitable conditions exist for special-status species.</li><li>• Determine the need for additional species-specific surveys or wetland delineation. If warranted, coordinate with appropriate agencies (USFWS, CDFW, or USACE) as may be necessary to determine appropriate survey timing and effort.</li><li>• Coordinate with appropriate agencies and the County as may be necessary based on the results of additional species-specific surveys or wetland delineation, to identify and implement mitigation measures as necessary to avoid, minimize, or otherwise mitigate potential impacts to special-status species, wetlands or other habitat to a less-than-significant level.</li></ul>
<p><b>Other (describe):</b></p>



**TABLE 4**  
**EVALUATION, SCREENING ANALYSIS, AND RESOURCE INVESTIGATION FLOW CHART: BIOLOGICAL IMPACTS - BIO-4**  
 Discretionary Well Permitting Program  
 Stanislaus County, California

IMPACT BIO-4. Would the project conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance?											
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION				
Direct Construction Impacts	Evaluation of the Project description alone does not comprise an adequate impact analysis. A screening level analysis is required to evaluate potential conflicts with local ordinances and policies.	➔	Proceed with a Screening Analysis per Mitigation Measure BIO-4	➔	Would construction of the proposed well be consistent with local policies or ordinances protecting biological resources, including but not limited to: -native hardwood habitats, -natural vegetation along streambanks, or -habitats for rare or endangered wildlife or fish species?	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Would the proposed mitigation measures or project changes decrease impacts to a less-than-significant level?	YES ➔	STOP. Conclude Less Than Significant Impact
						NO ➔	Consider Mitigation Measures or Project changes per Mitigation Measure BIO-4.			NO ➔	Deny Permit based on proposed project description or initiate the appropriate exemption process.
Direct Operation Impacts	Evaluation of the Project description alone does not comprise an adequate impact analysis. A screening level analysis is required to evaluate potential conflicts with local ordinances and policies.	➔	Proceed with a Screening Analysis per Mitigation Measure BIO-4	➔	Would operation of the proposed well be consistent with local policies or ordinances protecting biological resources, including but not limited to: -native hardwood habitats, -natural vegetation along streambanks, or -habitats for rare or endangered wildlife or fish species?	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Would the proposed mitigation measures or project changes decrease impacts to a less-than-significant level?	YES ➔	STOP. Conclude Less Than Significant Impact
						NO ➔	Consider Mitigation Measures or Project changes per Mitigation Measure BIO-4.			NO ➔	Deny Permit based on proposed project description or initiate the appropriate exemption process.
BIO-4. Indirect Impacts	Evaluation of the Project description alone does not comprise an adequate impact analysis. A screening level analysis is required to evaluate potential conflicts with local ordinances and policies.	➔	Proceed with a Screening Analysis per Mitigation Measure BIO-4	➔	Would conversion or rangeland to agricultural use or other activities made possible by the proposed well be consistent with local policies or ordinances protecting biological resources, including but not limited to: -native hardwood habitats, -natural vegetation along streambanks, or -habitats for rare or endangered wildlife or fish species?	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Would the proposed mitigation measures or project changes decrease impacts to a less-than-significant level?	YES ➔	STOP. Conclude Less Than Significant Impact
						NO ➔	Consider Mitigation Measures or Project changes per Mitigation Measure BIO-4.			NO ➔	Deny Permit based on proposed project description or initiate the appropriate exemption process.
<b>MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS</b>											
Mitigation Measure BIO-4. Evaluate well construction permit applications to assess potential conflicts with local policies or ordinances that protect biological resources, and consider mitigation measures for significant effects on the environment on a project-specific basis.											
Other (describe):											

IMPACT CUL-1. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?									
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION		
Direct Construction Impacts	Will ground disturbing work associated with well construction activities (including well drilling, well pad construction, and construction of access roads, electrical service lines, etc.) take place <u>entirely</u> within existing disturbed areas?	Yes ➔	STOP. Conclude Less Than Significant Impact	Do results from a desktop study conducted by a qualified cultural resources professional indicate a low potential for historical resources to be present in or adjacent to areas where ground disturbing work associated with well construction activities will take place?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact	Do results from a field survey conducted by a qualified historian indicate that historical resources are unlikely to be significantly impacted by construction of the well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with Screening Analysis per Mitigation Measure CUL-1a		No ➔	Proceed with Resource Investigation per Mitigation Measure CUL-1b		No ➔	Relocate Well or Reconfigure Project per Mitigation Measure CUL-1b
	Are any previously unidentified historical resources identified during well construction activities.	No ➔	Continue with project as planned.					✳️➔	STOP. Conclude Less Than Significant Impact
		Yes ➔	Implement Mitigation Measure CUL-1b: STOP ALL WORK IMMEDIATELY WITHIN 100-FEET OF FIND. Cordon off area. Notify lead agency.		Proceed with Resource Investigation per Mitigation Measure CUL-1c.		Do results from a field survey conducted by a qualified historian indicate that historical resources will not be impacted by construction of the well?  Specify Attachment No.: _____		Conduct Remaining Portion of Mitigation Measure CUL-1c: Protect resource from further disturbance or looting. Formally evaluate and record find. Determine appropriate next steps in coordination with lead agency.
Direct Operation Impacts	Not applicable								

**IMPACT CUL-1.** Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION		2. SCREENING ANALYSIS		3. RESOURCE INVESTIGATION			
Indirect Impacts	Will ground disturbing activities made possible by water supplied by the well take place entirely within existing disturbed areas (including that no rangeland will be converted to cultivated agricultural use as a result of the proposed well)?	Yes ➔	<b>STOP. Conclude Less Than Significant Impact</b>	Do results from a desktop study conducted by a qualified cultural resources professional indicate the potential presence of historical	NO ➔	<b>STOP. Conclude Less Than Significant Impact</b>		
		No ➔	Proceed with Screening Analysis per Mitigation Measure CUL-1a		YES ➔	Proceed with Resource Investigation per Mitigation Measure CUL-1b	Do results from a field survey conducted by a qualified historian indicate that sensitive resources are located in areas to be converted to cultivated agricultural use as a result of the proposed well?  Specify Attachment No.: _____	
	Are any previously unidentified historical resources identified during conversion of rangeland to cultivated agricultural use?	No ➔	<b>Continue with project as planned.</b>				NO ➔	<b>STOP. Conclude Less Than Significant Impact</b>
		Yes ➔	Implement Mitigation Measure CUL-1b: STOP ALL WORK IMMEDIATELY WITHIN 100-FEET OF FIND. Cordon off area. Notify lead agency.			Proceed with Resource Investigation per Mitigation Measure CUL-1c.	Do results from a field investigation conducted by a qualified historian indicate conversion of rangeland to cultivated agricultural use may disturb significant historical resources?  Specify Attachment No.: _____	YES ➔

**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure CUL-1a.** For projects with anticipated ground disturbance that would extend beyond previously disturbed soils, a qualified cultural resources professional shall investigate the potential presence of archaeological or historical resources in the vicinity of the well, the well pad, any appurtenant access drives and electrical service lines, and any rangeland tracts converted to cultivated agricultural use that will be irrigated by the well, through a desktop review. The review shall include records at the Central California Information Center, records at the University of California Berkeley Museum of Paleontology, a Sacred Lands File search at the Native American Heritage Commission, Native American tribal consultation, CRHR, and NRHP.

**Mitigation Measure CUL-1b.** If it is determined through implementation of Mitigation Measure CUL-1a that archaeological, historical or paleontological resources or human remains may be located on a site or the area is judged to have a high degree of sensitivity relative to these resources, prior to any project-related ground disturbing or construction activities, a qualified archaeologist, historian or paleontologist (as applicable) shall conduct an archaeological/historical/paleontological resources survey (as applicable). If it is determined that the proposed well is in an area adjacent to or in one of these resources, the well would be relocated and the project reconfigured to avoid substantial changes to the resource.

**Mitigation Measure CUL-1c.** If the construction staff or others observe previously unidentified archaeological, historical or paleontological resources, or human remains, during drilling or other ground disturbing activities associated with well construction or conversion of rangeland to cultivated agricultural use, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), immediately notify the lead agency, and retain a qualified cultural resources specialist to review the observed resources. Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the lead agency. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

IMPACT CUL-2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5 ?											
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION OR RESPOND TO DISCOVERY DURING CONSTRUCTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION				
Direct Construction Impacts	Will ground disturbing work associated with well construction activities (including well drilling, well pad construction, and construction of access roads, electrical service lines, etc.) take place <u>entirely</u> within existing disturbed areas?	Yes ➔	STOP. Conclude Less Than Significant Impact (see Other, below)	➔	Do results from a desktop study conducted by a qualified cultural resources professional indicate a low potential for sensitive archaeological resources to be present in or adjacent to areas where ground disturbing work associated with well construction activities will take place?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Do results from a field survey conducted by a qualified archaeologist indicate that archaeological resources are unlikely to be significantly impacted by construction of the well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with Screening Analysis per Mitigation Measure CUL-1a			No ➔	Proceed with Resource Investigation per Mitigation Measure CUL-1b			No ➔	Relocate Well per Mitigation Measure CUL-1b
Direct Construction Impacts	Are any previously unidentified archaeological resources identified during well construction activities?	No ➔	CONTINUE WITH PROJECT AS PLANNED.						Do results from a field survey conducted by a qualified archaeologist indicate that archaeological resources are unlikely to be significantly impacted by construction of the well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		Yes ➔	Implement Mitigation Measure CUL-1c: HALT WORK WITHIN 100-FT OF FIND. Flag or rope off area. Notify lead agency.	➔		➔	Proceed with Resource Investigation per Mitigation Measure CUL-1c.	➔		No ➔	Proceed with Remaining Portion of Mitigation Measure CUL-1c: Protect resource from further disturbance or looting. Formally evaluate and record find. Determine appropriate next steps in coordination with lead agency.
Direct Operation Impacts	Not applicable										

IMPACT CUL-2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5 ?												
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION OR RESPOND TO DISCOVERY DURING CONSTRUCTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION					
Indirect Impacts	Will ground disturbing activities made possible by water supplied from the well take place <u>entirely</u> within existing disturbed areas (including that no rangeland will be converted to cultivated agricultural use as a result of the proposed well)?	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Do results from a desktop study conducted by a qualified cultural resources professional indicate a low potential for sensitive archaeological resources to be present in areas that will be disturbed as a result of supplying water from the proposed well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Do results from a field survey conducted by a qualified archaeologist indicate that archaeological resources are unlikely to be significantly impacted in areas that will be disturbed as a result of supplying water from the proposed well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact	
		No ➔	Proceed with Screening Analysis per Mitigation Measure CUL-1a			No ➔	Proceed with Resource Investigation per Mitigation Measure CUL-1b			No ➔	Reconfigure Project per Mitigation Measure CUL-1b	
	Are any previously unidentified historical resources identified during conversion of rangeland to cultivated agricultural use?	No ➔	STOP. Conclude Less Than Significant Impact	➔	➔	➔	➔	➔	➔	Do results from a field survey conducted by a qualified archaeologist indicate that archaeological resources are unlikely to be significantly impacted by activities made possible as a result of supplying water from the proposed well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		Yes ➔	Implement Mitigation Measure CUL-1c: HALT WORK IMMEDIATELY WITHIN 100-FT OF FIND. Flag or rope off area. Notify lead agency.								➔	➔

**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure CUL-1a.** For projects with anticipated ground disturbance that would extend beyond previously disturbed soils, a qualified cultural resources professional shall investigate the potential presence of archaeological or historical resources in the vicinity of the well, the well pad, any appurtenant access drives and electrical service lines, and any rangeland tracts converted to cultivated agricultural use that will be irrigated by the well, through a desktop review. The review shall include records at the Central California Information Center, records at the University of California Berkeley Museum of Paleontology, a Sacred Lands File search at the Native American Heritage Commission, Native American tribal consultation, CRHR, and NRHP.

**Mitigation Measure CUL-1b.** If it is determined through implementation of Mitigation Measure CUL-1a that archaeological, historical or paleontological resources or human remains may be located on a site or the area is judged to have a high degree of sensitivity relative to these resources, prior to any project-related ground disturbing or construction activities, a qualified archaeologist, historian or paleontologist (as applicable) shall conduct an archaeological/historical/paleontological resources survey (as applicable). If it is determined that the proposed well is in an area adjacent to or in one of these resources, the well would be relocated and the project reconfigured to avoid substantial changes to the resource.

**Mitigation Measure CUL-1c.** If the construction staff or others observe previously unidentified archaeological, historical or paleontological resources, or human remains, during drilling or other ground disturbing activities associated with well construction or conversion of rangeland to cultivated agricultural use, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), immediately notify the lead agency, and retain a qualified cultural resources specialist to review the observed resources. Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the lead agency. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

**Other (describe):** A previously proposed well location returned positive results from the Native American Heritage Commission Sacred Land Files search. As a result, listed tribes were contacted and requested to be present at any ground disturbing activity in the Site. As a result, the mitigation measure below was included as TRI-1.

Mitigation Measure TRI-1. A Tribal Cultural Resources Monitor (Monitor) will be present to inspect the proposed work areas prior to any ground disturbance and during the subsurface drilling activities, per the discretion of the Monitor. If the Monitor observes previously unidentified Tribal or prehistoric resources, or human remains during drilling or other ground-disturbing activities associated with well construction, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area and review the observed resources. Construction will halt within the flagged or roped-off area. The Monitor will assess the resource as soon as possible and determine appropriate next steps. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

IMPACT CUL-3. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?											
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION				
Direct Construction Impacts	Will ground disturbing work associated with well construction activities (including well drilling, well pad construction, and construction of access roads, electrical service lines, etc.) take place <u>entirely</u> within existing disturbed areas?	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Do results from a desktop study conducted by a qualified cultural resources professional indicate a low potential for paleontological resources or unique geological features to be present in, or adjacent to, areas where ground disturbing work associated with well construction activities will take place?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Do results from a field survey conducted by a qualified paleontologist indicate that sensitive resources are unlikely to be significantly impacted by construction of the well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with Screening Analysis per Mitigation Measure CUL-1a			No ➔	Proceed with Resource Investigation per Mitigation Measure CUL-1b			No ➔	Relocate Well per Mitigation Measure CUL-1b
	Are any previously unidentified paleontological resources identified during well construction activities?	No ➔	STOP. Conclude Less Than Significant Impact						Do results from a field survey conducted by a qualified paleontologist indicate that sensitive resources are unlikely to be significantly impacted by construction of the well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		Yes ➔	Implement Mitigation Measure CUL-1c: IMMEDIATELY STOP ALL WORK WITHIN 100-FT OF FIND. Flag or rope off area. Notify lead agency.	➔		➔	Proceed with Resource Investigation per Mitigation Measure CUL-1c.	➔		No ➔	Proceed with Remaining Portion of Mitigation Measure CUL-1c: Protect resource from further disturbance or looting. Formally evaluate and record find. Determine appropriate next steps in coordination with lead agency.
Direct Operation Impacts	Not Applicable.										



**IMPACT CUL-3. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION		2. SCREENING ANALYSIS		3. RESOURCE INVESTIGATION	
Indirect Impacts	<p>Will ground disturbing activities made possible by water supplied by the well take place <u>entirely</u> within existing disturbed areas (including that no rangeland will be converted to cultivated agricultural use as a result of the proposed well)?</p>	<p>Yes ➔</p>	<p><b>STOP. Conclude Less Than Significant Impact</b></p>	<p>Do results from a desktop study conducted by a qualified cultural resources professional indicate a low potential for paleontological resources or unique geological features to be present in, or adjacent to, areas that will be disturbed as a result of supplying water from the proposed well?</p> <p>Specify Attachment No.: _____</p>	<p>Yes ➔</p>	<p><b>STOP. Conclude Less Than Significant Impact</b></p>
		<p>No ➔</p>	<p>Proceed with Screening Analysis per Mitigation Measure CUL-1a</p>		<p>No ➔</p>	<p>Proceed with Resource Investigation per Mitigation Measure CUL-1b</p>
	<p>Are any previously unidentified paleontological resources identified during conversion of rangeland to cultivated agricultural use?</p>	<p>No ➔</p>	<p><b>STOP. Conclude Less Than Significant Impact</b></p>	<p>Do results from a field survey conducted by a qualified paleontologist indicate that sensitive resources are unlikely to be significantly impacted in areas that will be disturbed as a result of supplying water from the proposed well?</p> <p>Specify Attachment No.: _____</p>	<p>Yes ➔</p>	<p><b>STOP. Conclude Less Than Significant Impact</b></p>
		<p>Yes ➔</p>	<p>Implement Mitigation Measure CUL-1c: IMMEDIATELY STOP ALL WORK WITHIN 100-FEET OF FIND. Cordon off area. Notify lead agency.</p>		<p>No ➔</p>	<p>Proceed with Remaining Portion of Mitigation Measure CUL-1c: Protect resource from further disturbance or looting. Formally evaluate and record find. Determine appropriate next steps in coordination with lead agency.</p>

**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure CUL-1a.** For projects with anticipated ground disturbance that would extend beyond previously disturbed soils, a qualified cultural resources professional shall investigate the potential presence of archaeological or historical resources in the vicinity of the well, the well pad, any appurtenant access drives and electrical service lines, and any rangeland tracts converted to cultivated agricultural use that will be irrigated by the well, through a desktop review. The review shall include records at the Central California Information Center, records at the University of California Berkeley Museum of Paleontology, a Sacred Lands File search at the Native American Heritage Commission, Native American tribal consultation, CRHR, and NRHP.

**Mitigation Measure CUL-1b.** If it is determined through implementation of Mitigation Measure CUL-1a that archaeological, historical or paleontological resources or human remains may be located on a site or the area is judged to have a high degree of sensitivity relative to these resources, prior to any project-related ground disturbing or construction activities, a qualified archaeologist, historian or paleontologist (as applicable) shall conduct an archaeological/historical/paleontological resources survey (as applicable). If it is determined that the proposed well is in an area adjacent to or in one of these resources, the well would be relocated and the project reconfigured to avoid substantial changes to the resource.



**Mitigation Measure CUL-1c.** If the construction staff or others observe previously unidentified archaeological, historical or paleontological resources, or human remains, during drilling or other ground disturbing activities associated with well construction or conversion of rangeland to cultivated agricultural use, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), immediately notify the lead agency, and retain a qualified cultural resources specialist to review the observed resources. Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the lead agency. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

**Other (describe):**

IMPACT CUL-4. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?									
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION		
Direct Construction Impacts	Will ground disturbing work associated with well construction activities (including well drilling, well pad construction, and construction of access roads, electrical service lines, etc.) take place <u>entirely</u> within existing disturbed areas?	Yes ➔	STOP. Conclude Less Than Significant Impact	Do results from a desktop study conducted by a qualified cultural resources professional indicate no reason to suspect the presence of a burial site in, or adjacent to areas where ground disturbing work associated with well construction activities will take place?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact	Do results from a field survey conducted by a qualified cultural resources professional indicate that human remains are unlikely to be significantly impacted by construction of the well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with Screening Analysis per Mitigation Measure CUL-1a		No ➔	Proceed with Resource Investigation per Mitigation Measure CUL-1b		No ➔	Relocate Well per Mitigation Measure CUL-1b
Direct Construction Impacts	Are previously unidentified human remains identified during well construction activities?	No ➔	STOP. Conclude Less Than Significant Impact	Implement Mitigation Measure CUL-1c: IMMEDIATELY STOP ALL WORK WITHIN 100-FT OF FIND. Flag or rope off area. Notify County Coroner and Lead Agency.	Proceed with Resource Investigation per Mitigation Measure CUL-1c.	Do results from a field survey conducted by a qualified cultural resources professional indicate that human remains are unlikely to be significantly impacted by construction of the well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact	
		Yes ➔					No ➔	Proceed with Remaining Portion of Mitigation Measure CUL-1c: Protect resource from further disturbance or looting. Formally evaluate and record find. Determine appropriate next steps in coordination with lead agency and the County Coroner.	
Direct Operation Impacts	Not applicable								

IMPACT CUL-4. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?											
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION				
Indirect Impacts	Will ground disturbing activities made possible by water supplied by the well take place <u>entirely</u> within existing disturbed areas (including that no rangeland will be converted to cultivated agricultural use as a result of the proposed well)?	Yes ➔	STOP. Conclude Less Than Significant Impact		Do results from a desktop study conducted by a qualified cultural resources professional indicate no reason to suspect the presence of a burial site in, or adjacent to areas that will be disturbed as a result of the supplying water from proposed well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact		Do results from a field survey conducted by a qualified cultural resources professional indicate that human remains are unlikely to be significantly impacted in areas that will be disturbed as a result of supplying water from the proposed well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		No ➔	Proceed with Screening Analysis per Mitigation Measure CUL-1a	➔		No ➔	Proceed with Resource Investigation per Mitigation Measure CUL-1b	➔		No ➔	Reconfigure Project per Mitigation Measure CUL-1b
	Are previously unidentified human remains identified during conversion of rangeland to cultivated agricultural use?	No ➔	STOP. Conclude Less Than Significant Impact						Do results from a field survey conducted by a qualified cultural resources professional indicate that human remains are unlikely to be significantly impacted in areas that will be disturbed as a result of supplying water from the proposed well?  Specify Attachment No.: _____	Yes ➔	STOP. Conclude Less Than Significant Impact
		Yes ➔	Implement Mitigation Measure CUL-1c: HALT WORK IMMEDIATELY WITHIN 100-FT OF FIND. Flag or rope off area. Notify County Coroner and Lead Agency.	➔		➔	Proceed with Resource Investigation per Mitigation Measure CUL-1c.	➔		No ➔	Proceed with Remaining Portion of Mitigation Measure CUL-1c: Protect resource from further disturbance or looting. Formally evaluate and record find. Determine appropriate next steps in coordination with lead agency and the County Coroner.
<b>MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS</b>											
<p><b>Mitigation Measure CUL-1a.</b> For projects with anticipated ground disturbance that would extend beyond previously disturbed soils, a qualified cultural resources professional shall investigate the potential presence of archaeological or historical resources in the vicinity of the well, the well pad, any appurtenant access drives and electrical service lines, and any rangeland tracts converted to cultivated agricultural use that will be irrigated by the well, through a desktop review. The review shall include records at the Central California Information Center, records at the University of California Berkeley Museum of Paleontology, a Sacred Lands File search at the Native American Heritage Commission, Native American tribal consultation, CRHR, and NRHP.</p> <p><b>Mitigation Measure CUL-1b.</b> If it is determined through implementation of Mitigation Measure CUL-1a that archaeological, historical or paleontological resources or human remains may be located on a site or the area is judged to have a high degree of sensitivity relative to these resources, prior to any project-related ground disturbing or construction activities, a qualified archaeologist, historian or paleontologist (as applicable) shall conduct an archaeological/historical/paleontological resources survey (as applicable). If it is determined that the proposed well is in an area adjacent to or in one of these resources, the well would be relocated and the project reconfigured to avoid substantial changes to the resource.</p>											

**Mitigation Measure CUL-1c.** If the construction staff or others observe previously unidentified archaeological, historical or paleontological resources, or human remains, during drilling or other ground disturbing activities associated with well construction or conversion of rangeland to cultivated agricultural use, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), immediately notify the lead agency, and retain a qualified cultural resources specialist to review the observed resources. Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the lead agency. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

**Other (describe):**

**IMPACT LAN-1.** Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION	2. SCREENING ANALYSIS	3. RESOURCE INVESTIGATION
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<b>Direct Construction Impacts</b>	Evaluation of the Project Description alone does not comprise an adequate impact analysis. A screening level analysis is required to evaluate if proposed project would conflict with land use plans, policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect.	➔	<b>Proceed with Screening Analysis.</b>	➔	Perform a screening analysis including the following steps: 1. List all applicable land use plans, policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect; 2. Evaluate whether the project could directly or indirectly conflict with the listed standards; and 3. Review the results of impact analyses for the remaining resource areas and determine whether potential conflicts with the listed standards are addressed.  Based on the screening analysis, are potential conflicts with land use plans, policies and regulations adopted for the purpose of avoiding or mitigating environmental effects adequately addressed?  Specify Attachment No.:GRIA/Bio Survey	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>	➔	Proceed with applicable resource investigation in consultation with the Responsible Agency focused on addressing the specific conflict and identify mitigation measures or permit conditions that address the conflict.	➔	Do results from a resource investigation(s) conducted by qualified specialist(s), including any identified permit conditions and/or mitigation measures, indicate project will comply with the applicable land use plan, policy or regulation?  Specify Attachment No.: _____	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>
						NO ➔	Deny Permit based on proposed Project Description or adopt Statement of Overridign Considerations						

<b>Direct Operation Impacts</b>	Same as above: Direct Construction Impacts
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<b>Indirect Impacts</b>	Same as above: Direct Construction Impacts
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**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure BIO-4.** Evaluate well construction permit applications to assess potential conflicts with local policies or ordinances that protect biological resources, and consider mitigation measures for significant effects on the environment on a project-specific basis.

<p><b>Mitigation Measure CUL-1a.</b> For projects with anticipated ground disturbance that would extend beyond previously disturbed soils, a qualified cultural resources professional shall investigate the potential presence of archaeological or historical resources in the vicinity of the well, the well pad, any appurtenant access drives and electrical service lines, and any rangeland tracts converted to cultivated agricultural use that will be irrigated by the well, through a desktop review. The review shall include records at the Central California Information Center, records at the University of California Berkeley Museum of Paleontology, a Sacred Lands File search at the Native American Heritage Commission, Native American tribal consultation, CRHR, and NRHP.</p>
<p><b>Mitigation Measure CUL-1b.</b> If it is determined through implementation of Mitigation Measure CUL-1a that archaeological, historical or paleontological resources or human remains may be located on a site or the area is judged to have a high degree of sensitivity relative to these resources, prior to any project-related ground disturbing or construction activities, a qualified archaeologist, historian or paleontologist (as applicable) shall conduct an archaeological/historical/paleontological resources survey (as applicable). If it is determined that the proposed well is in an area adjacent to or in one of these resources, the well would be relocated and the project reconfigured to avoid substantial changes to the resource.</p>
<p><b>Mitigation Measure CUL-1c.</b> If the construction staff or others observe previously unidentified archaeological, historical or paleontological resources, or human remains, during drilling or other ground disturbing activities associated with well construction or conversion of rangeland to cultivated agricultural use, they will halt work within a 100-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), immediately notify the lead agency, and retain a qualified cultural resources specialist to review the observed resources. Construction will halt within the flagged or roped-off area. The archaeologist will assess the resource as soon as possible and determine appropriate next steps in coordination with the lead agency. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.</p>
<p><b>Mitigation Measure WAT-2.</b> Property owners and water agencies in the area where predicted drawdown exceeds 5 feet will be notified of the existence of the Interference Drawdown Monitoring and Mitigation Program, and will be invited to register any domestic wells in the predicted 5-foot drawdown area and any municipal, industrial, or irrigation wells in the predicted 20-foot drawdown area to participate in the program. To register for the program, well owners will be required to complete a Well Information Questionnaire regarding the construction, use, history and performance of their well, and to allow access for periodic measurement of water levels and assessment of well condition and performance by the county or a neutral third party. If well performance is found to be diminished by more than 20 percent or to be inadequate to meet pre-existing water demand due to interference drawdown, registered participants will be eligible to receive reimbursement for reasonable and customary costs for well replacement, deepening or rehabilitation, or pump lowering as needed to restore adequate well function. The cost of reimbursement shall be borne by the operator of the well causing the interference in proportion to the degree of their contribution to the drawdown that caused the diminished yield.</p>
<p><b>Mitigation Measure WAT-3.</b> The County will identify additional Groundwater Level Management Zones in the unincorporated, non-district portions of the County where existing groundwater level trends constitute “chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon” as defined in Section 9.37.030(9)(a) of the Ordinance. In such areas, an applicant proposing installation of a new discretionary well is required to submit a Groundwater Extraction Offset Plan that describes how groundwater extraction from the well will be offset, resulting in no net additional groundwater demand to the pumped aquifer system. Alternatively, the applicant must do a Groundwater Resources Investigation and implement a Groundwater Level Monitoring Program that demonstrates the proposed extraction will not result in, or contribute to, Undesirable Results as defined in the Ordinance.</p>
<p><b>Mitigation Measure NOI-1.</b> If well construction activities will take place closer than 200-feet from a nearby sensitive receptor on non-agriculturally zoned parcels, the project shall employ noise attenuating measures and/or work schedules such that the project would comply with the Stanislaus County Noise Ordinance and General Plan Noise Element. Noise mitigation shall include a combination of the measures to achieve construction noise at or below the maximum allowable noise level of 75 A-weighted decibels from 7:00 p.m. to 7:00 a.m. If a well is located closer than 70 feet to sensitive receptors on non-agriculturally zoned parcels, operating noise mitigation measures shall be implemented such that the project will comply with the Stanislaus County Noise Ordinance.</p>
<p><b>Other (describe):</b></p>

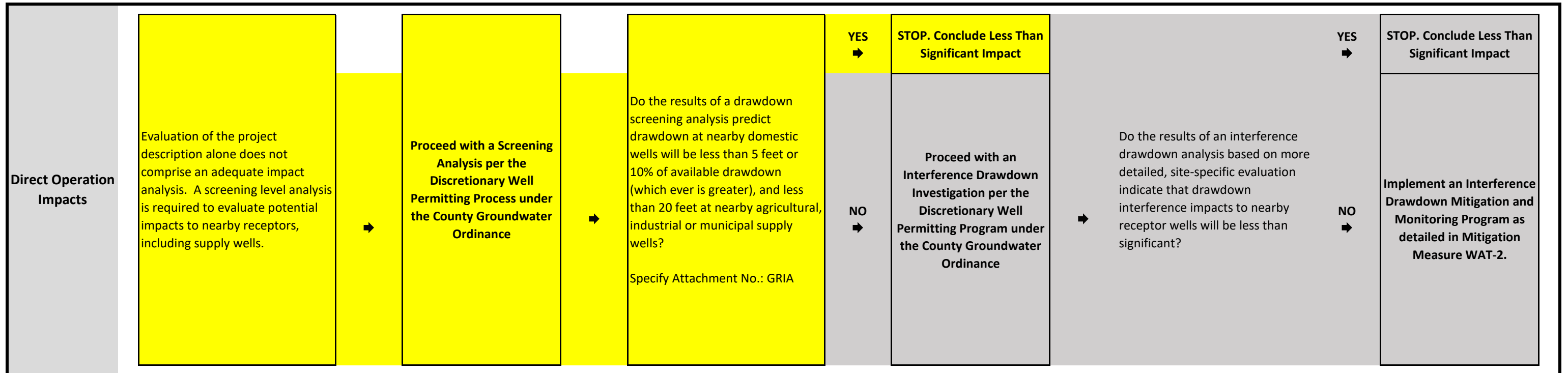
**TABLE 10**  
**EVALUATION, SCREENING ANALYSIS, AND RESOURCE INVESTIGATION FLOW CHART: NOISE IMPACTS - NOI-1**  
 Discretionary Well Permitting Program  
 Stanislaus County, California

<b>IMPACT NOI-1.</b> Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?											
POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION			2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION				
Direct Construction Impacts	Is the proposed well located on an agriculturally-zone parcel <u>and</u> more than 200 feet from any non-agriculturally zoned parcels?	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Are sensitive receptors (including, but not limited to residences, schools, hospitals, etc.) located more than 200 feet from the proposed well location?	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	➔	➔	Conduct drilling activities between 7am and 7pm and/or utilize measures such as sound barriers and engine mufflers to reduce noise level to 75 dBA at the property line.
		No ➔	Proceed with Screening Analysis per NOI-1			No ➔	Implement Remaining Portion of Mitigation Measure NOI-1				
Direct Operation Impacts	Is the proposed well located on an agriculturally-zone parcel <u>and</u> more than 70 feet from any non-agriculturally zoned parcels?	Yes ➔	STOP. Conclude Less Than Significant Impact	➔	Are sensitive receptors (including, but not limited to, residences, schools, hospitals, etc.) located more than 70 feet from the proposed well location?	Yes ➔	STOP. Conclude Less Than Significant Impact				Limit hours of operation for pumping to between 7am and 7pm and/or utilize measures such as a well pump sound enclosure to reduce noise level to 75 dBA at the property line.
		No ➔	Proceed with Screening Analysis per NOI-1								
<b>MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS</b>											
<p><b>Mitigation Measure NOI-1.</b> If well construction activities will take place closer than 200-feet from a nearby sensitive receptor on non-agriculturally zoned parcels, the project shall employ noise attenuating measures and/or work schedules such that the project would comply with the Stanislaus County Noise Ordinance and General Plan Noise Element. Noise mitigation shall include a combination of the measures to achieve construction noise at or below the maximum allowable noise level of 75 A-weighted decibels from 7:00 p.m. to 7:00 a.m. If a well is located closer than 70 feet to sensitive receptors on non-agriculturally zoned parcels, operating noise mitigation measures shall be implemented such that the project will comply with the Stanislaus County Noise Ordinance.</p>											
Other (describe):											

**IMPACT WAT-2.** Would the project cause interference drawdown to existing wells that substantially interferes with their ability to support existing land uses, or land uses for which permits have been granted?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION	2. SCREENING ANALYSIS	3. RESOURCE INVESTIGATION
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<b>Direct Construction Impacts</b>	Not applicable
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<b>Indirect Impacts</b>	Not applicable
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**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure WAT-2.** Property owners and water agencies in the area where predicted drawdown exceeds 5 feet will be notified of the existence of the Interference Drawdown Monitoring and Mitigation Program, and will be invited to register any domestic wells in the predicted 5-foot drawdown area and any municipal, industrial, or irrigation wells in the predicted 20-foot drawdown area to participate in the program. To register for the program, well owners will be required to complete a Well Information Questionnaire regarding the construction, use, history and performance of their well, and to allow access for periodic measurement of water levels and assessment of well condition and performance by the county or a neutral third party. If well performance is found to be diminished by more than 20 percent or to be inadequate to meet pre-existing water demand due to interference drawdown, registered participants will be eligible to receive reimbursement for reasonable and customary costs for well replacement, deepening or rehabilitation, or pump lowering as needed to restore adequate well function. The cost of reimbursement shall be borne by the operator of the well causing the interference in proportion to the degree of their contribution to the drawdown that caused the diminished yield.



**IMPACT WAT-3.** Would the project cause groundwater drawdown or storage depletion that does not recover over a period of years that includes wet and dry periods, and that will interfere with the ability of other well operators to support existing or permitted land uses, or that will substantially increase the cost to pump groundwater in the area?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION	2. SCREENING ANALYSIS	3. RESOURCE INVESTIGATION
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<b>Direct Construction Impacts</b>	Not applicable		
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<b>Direct Operation Impacts</b>	Is the proposed well located within the Northern Triangle AND outside of the County-designated Groundwater Level Management Zone in the memorandum dated October 26, 2017?	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Does a Hydrograph Analysis performed using the methodology described in the October 26, 2017 memorandum indicate groundwater drawdown and storage depletion in the area surrounding the proposed well will not be significant and unreasonable over the SGMA planning horizon under current management conditions?  Specify Attachment No.: <u>GRIA</u>	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Does the Groundwater Extraction Offset Plan demonstrate how the proposed groundwater demand will be completely offset, or do the results of a Groundwater Resource Investigation demonstrate that the proposed extraction will <u>not</u> result in, or contribute to, "Undesirable Results" as defined in the County Groundwater Ordinance?  Specify Attachment No.: _____	YES ➔	STOP. Conclude Less Than Significant Impact
		NO ➔	Proceed with a Hydrograph Analysis per the Discretionary Well Permit Program under the County Groundwater Ordinance.			NO ➔	Proceed with a Groundwater Resources Investigation per the Discretionary Well Permitting Program under the County Groundwater Ordinance.  OR  Prepare a Groundwater Extraction Offset Plan per the Discretionary Well Permitting Program under the County Groundwater Ordinance.			NO ➔	Deny Permit based on proposed project description or Submit to Board of Supervisors with Statement of Overriding Considerations

<b>Indirect Impacts</b>	Not applicable		
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**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure WAT-3.** The County will identify additional Groundwater Level Management Zones in the unincorporated, non-district portions of the County where existing groundwater level trends constitute "chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon" as defined in Section 9.37.030(9)(a) of the Ordinance. In such areas, an applicant proposing installation of a new discretionary well is required to submit a Groundwater Extraction Offset Plan that describes how groundwater extraction from the well will be offset, resulting in no net additional groundwater demand to the pumped aquifer system. Alternatively, the applicant must do a Groundwater Resources Investigation and implement a Groundwater Level Monitoring Program that demonstrates the proposed extraction will not result in, or contribute to, Undesirable Results as defined in the Ordinance.



**IMPACT WAT-4.** 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 that would result in substantial erosion or siltation on- or off-site?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION	2. SCREENING ANALYSIS	3. RESOURCE INVESTIGATION
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<b>Direct Construction Impacts</b>	Evaluation of the project description alone does not comprise an adequate impact analysis. A screening analysis is required to evaluate potential for significant erosion or sedimentation.	➔	Proceed with a Screening Analysis per Mitigation Measure WAT-4.	➔	Does a Screening Analysis indicate construction of the proposed well and appurtenances (including well pads, access roads and service line routes) will <u>not</u> change drainage patterns, potentially resulting in significant on- or off-site erosion or sedimentation?  Reference.: 2018 PEIR, 2020 IS/MND	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>	➔	Is the Drainage, Erosion and Sediment Control Plan (DESCP) sufficient to prevent significant significant on- or off-site erosion or sedimentation?	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>
						NO ➔	Submit and Implement a Drainage, Erosion, and Sedimentation Control Plan per Mitigation Measure WAT-4.			NO ➔	Deny Permit based on proposed DESCP or revise DESCP

<b>Direct Operation Impacts</b>	Less than significant Impact, No Analysis Needed.
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<b>Indirect Impacts</b>	Evaluation of the project description alone does not comprise an adequate impact analysis. A screening analysis is required to evaluate potential for significant erosion or sedimentation.	➔	Proceed with a Screening Analysis per Mitigation Measure WAT-4.	➔	Does a Screening Analysis indicate conversion of uncultivated rangeland to developed agricultural land made possible by the proposed well will <u>not</u> change drainage patterns, potentially resulting in significant on- or off-site erosion or sedimentation?  Reference.: 2018 PEIR, 2020 IS/MND	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>	➔	Is the Drainage, Erosion and Sediment Control Plan (DESCP) sufficient to prevent significant significant on- or off-site erosion or sedimentation?	YES ➔	<b>STOP. Conclude Less Than Significant Impact</b>
						NO ➔	Submit and Implement a Drainage, Erosion, and Sedimentation Control Plan per Mitigation Measure WAT-4.			NO ➔	Deny Permit based on proposed DESCP or revise DESCP

**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure WAT-4.** Applications to construct new wells shall be evaluated to assess the potential for construction activities or conversion of previously uncultivated rangeland to change drainage patterns and result in significant on- or off-site erosion or sedimentation. If the potential for significant erosion or sedimentation is found to exist, the applicant will be required to prepare and submit and implement a Drainage, Erosion and Sedimentation Control Plan.

**IMPACT WAT-5.** Would the project substantially alter the existing drainage pattern of the site or area, including through the alternation of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?

POTENTIAL IMPACT	1. EVALUATE PROJECT DESCRIPTION		2. SCREENING ANALYSIS			3. RESOURCE INVESTIGATION					
Direct Construction Impacts	Evaluation of the project description alone does not comprise an adequate impact analysis. A screening analysis is required to evaluate potential for significant flooding.	➔	Proceed with a Screening Analysis per Mitigation Measure WAT-5.	➔	Does a Screening Analysis indicate construction of the proposed well and appurtenances (including well pads, access roads and service line routes) will <u>not</u> change drainage patterns, potentially resulting in significant on- or off-site flooding?  Reference.: 2018 PEIR, 2020 IS/MND	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Is the Drainage, Erosion and Sediment Control Plan (DESCP) sufficient to prevent significant on- or off-site flooding?	YES ➔	STOP. Conclude Less Than Significant Impact
						NO ➔	Submit and Implement a Drainage, Erosion, and Sedimentation Control Plan per Mitigation Measure WAT-4.			NO ➔	Deny Permit based on proposed DESCP or revise DESCP
Direct Operation Impacts	Less than significant Impact, No Analysis Needed.										
Indirect Impacts	Evaluation of the project description alone does not comprise an adequate impact analysis. A screening analysis is required to evaluate potential for significant flooding.	➔	Proceed with a Screening Analysis per Mitigation Measure WAT-5.	➔	Does a Screening Analysis indicate conversion of uncultivated rangeland to developed agricultural land made possible by the proposed well will <u>not</u> change drainage patterns, potentially resulting in significant on- or off-site flooding?  Reference.: 2018 PEIR, 2020 IS/MND	YES ➔	STOP. Conclude Less Than Significant Impact	➔	Is the Drainage, Erosion and Sediment Control Plan (DESCP) sufficient to prevent significant on- or off-site flooding?	YES ➔	STOP. Conclude Less Than Significant Impact
						NO ➔	Submit and Implement a Drainage, Erosion, and Sedimentation Control Plan per Mitigation Measure WAT-4.			NO ➔	Deny Permit based on proposed DESCP or revise DESCP

**MITIGATION MEASURES OR COUNTY WELL PERMIT CONDITIONS**

**Mitigation Measure WAT-5.** Applications to construct new wells shall be evaluated to assess the potential for construction activities or conversion of previously uncultivated rangeland to change drainage patterns and result in an increase in runoff and significant on- or off-site flooding. If the potential for significant flooding is found to exist, the applicant will be required to prepare and submit and implement a Drainage, Erosion and Sedimentation Control Plan.



**ATTACHMENT 1**  
**BIOLOGICAL RESOURCES SURVEY**

# Pescadero Ranch Supplemental Wells Biological Resources Initial Study

## Project Description:

The applicant proposes to develop an almond orchard on approximately 1,300 acres of land located in northern Stanislaus County, California. Under pre-1914 and riparian rights licenses held by the applicant, up to 15,897.8 acre-feet/year (AFY) of water may be diverted from the San Joaquin River between March 1 and October 15 and used to irrigate up to 2,359 acres of land. In order to supplement the existing surface water supplies, the applicant proposes to install three supply wells to serve as a backup supply during times of drought when permitted diversions from the river could be decreased or curtailed. Based on the seniority of the surface water right used to supply the orchard, the maximum anticipated groundwater extraction from these wells is 1,300 acre-feet during a two-month period during June and July, during the height of the irrigation season. The long-term average groundwater demand is not expected to exceed 1,000 (AFY). The individual wells will be pumped at peak rates between 1,000 and 2,000 gallons per minute (gpm). Wells will be constructed to extract water from an unconfined aquifer system approximately 300 feet in depth.

The wells are proposed to be constructed using 16-inch diameter steel casings and screens completed in 26-inch diameter boreholes with annular filter packs. Sanitary seals are expected to extend from the ground surface to depths of 100 feet. The wells will be completed with small concrete pads at the surface and fitted with electrical line-shaft turbine pumps. Electrical service will be extended to the well locations. Fenced enclosures, typically measuring approximately 10 feet by 20 feet, may be constructed around each well.

All work and ground disturbance will take place within the footprint of the existing agricultural operation in areas of previous ground disturbance or cultivation. Temporary well construction work areas will be established around each well site. The work areas will measure up to approximately 100 by 200 feet, located in existing cleared, level areas and accessed using existing dirt and gravel roads. The wells will be constructed using the reverse mud rotary method. Drilling equipment, typically consisting of a drilling rig, pipe truck water truck, forklift, compressors, pumps, light stands, desander, mud pit and support trucks will be mobilized for approximately two to three weeks at each drilling location. Work during drilling of the wells will be conducted utilizing shift work, 24 hours per day, seven days per week until the wells are constructed. Well development, pump testing, pump installation and surface completion will be conducted over the course of an additional month during regular working hours. Equipment utilized during this time will include development rigs, jib cranes and work trucks.

## Project Location

The Project Site, 136 Kasson Road, is located in a rural agricultural area of Stanislaus County east of Interstate 5, approximately 13 miles from Tracy, California and approximately 3 miles from Vernalis, California. The Pescadero Ranch property is approximately 1.6 square miles (1,000 acres) with perimeter boundaries delineated by Kasson road to the west, the Stanislaus County border to the north,

Maze Road (Route 132) to the south, and the San Joaquin River levee to the east. The northwest boundary of the San Joaquin River National Wildlife Refuge administered by the United States Fish and Wildlife Service is located immediately east of the property, beyond the western bank of the San Joaquin River.



Figure 1: Overview Pescadero Ranch – 136 Kasson Road - Proposed Irrigation Backup Well Locations

## CEQA Program Environmental Impact Report (PEIR)

This project qualifies for CEQA programmatic review under guidelines contained in the PEIR: *Discretionary Well Permitting and Management Program, Stanislaus County, California (2018)*. Under this framework, certain Well Construction activities that may result in Potentially Significant impacts (PEIR Impacts) may be reduced to a Less than Significant (LTS) level by incorporating mitigation measures (PEIR Mitigation Measures) and supplemented with additional Stanislaus County Well Permit Best Management Practices (BMP's) or conservation measures as warranted on a site-specific basis.

### PEIR 2018 Impact Categories

- **Impact BIO-1.** 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 Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS).
- **Impact BIO-2.** Substantial adverse effect on any riparian habitat, groundwater-dependent ecosystem, groundwater-connected stream or reservoir, or other sensitive natural community



identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service

- **Impact BIO-3.** Substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) or waters of the State through direct removal, filling, hydrological interruption, or other means.
- **Impact BIO-4.** Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

### PEIR 2018 Mitigation Measures

- **Mitigation Measure BIO-1a.** A qualified biologist shall investigate the potential presence or absence of sensitive habitats and wetlands, and special-status plants or wildlife in areas that will be disturbed by well construction or conversion of rangelands to cultivated use that is made possible by the well, prior to well permit approval or project implementation.
- **Mitigation Measure BIO-1b.** The applicant shall endeavor to conduct any drilling, construction work and/or ground-disturbing activities associated with installation of the proposed well or the conversion of rangeland to cultivated agricultural use that will be irrigated using the well during the non-breeding season of any birds and raptors protected under the Migratory Bird Treaty Act (generally September 16 through January 31). If construction activities must be scheduled during the nesting season (generally February 1 to September 15), preconstruction surveys for raptors, migratory birds, and special-status bird species shall be done by a qualified biologist to identify active nests near the site. This shall include a buffer extending out from the construction or disturbance area to a distance of approximately ½ mile. If active nests are found, no drilling construction activities shall occur within 500 feet of the nest until the young have fledged and the nest is no longer active (as determined by the qualified biologist). Survey timing and frequency requirements differ among species; species-specific surveys should follow all timing and frequency requirements of CDFW and USFWS. Consultation with the CDFW and/or USFWS shall occur if required and may result in additional requirements.
- **Mitigation Measures Bio-1 and Bio-2.** These measures are designed to also satisfy Impact Bio-3 criteria concerning Section 404 of the Clean Water Act and wetland habitat assessments.
- **Mitigation Measure BIO-4.** Evaluate well construction permit applications to assess potential conflicts with local policies or ordinances that protect biological resources and consider mitigation measures for significant effects on the environment on a project-specific basis.

### Well Permit Best Management Practices (BMP's)

The following BMP measures are proposed to satisfy Stanislaus County well permit conditions and supplement PEIR 2018 Mitigation Measures as needed in order to reduce project activity impacts to Less Than Significant levels.

**BMP-1 Access Routes and Staging Areas.** When working near wetland areas or floodplains, disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities will avoid and limit disturbance to sensitive habitats (e.g., ponds, stream channels, and riparian habitat).

**BMP-2 Spill Prevention and Water Pollution Control Measures.** Contractors will exercise every reasonable precaution to protect state and federally listed species and their critical habitats from construction byproducts and pollutants, such as construction chemicals, tailings, fresh cement, or other deleterious materials including fuels, oils, or lubricants from equipment. Fueling and equipment maintenance will be conducted offsite or at designated areas a minimum of 100 feet away from wetland or riparian areas. Fresh cement or uncured concrete will not be allowed to come into contact with any waterway or wetland areas. Water containing mud, silt, concrete, or other byproducts or pollutants from construction activities will be treated by filtration, retention in a settling pond, or similar measures. If leaks or spills are encountered, the source of the leak will be identified, leaked material will be cleaned up, and the cleaning materials will be collected and properly disposed. Construction waste will be collected and transported to an authorized upland disposal area, as appropriate, and per Federal, State, and local laws and regulations.

**BMP-3 Waste Management and Disposal.** No food waste from work crews that could attract wildlife should be left onsite overnight or over the weekend. A sealed garbage container should be used for disposal of any food or organic waste and removed from the premises each day. All construction materials, wastes, debris, sediment, rubbish, trash, and fencing will be removed from the site once project construction is complete and transported to an authorized disposal area, as appropriate, in compliance with applicable Federal, State, and local laws and regulations. No disposal of construction materials or debris will occur in a floodplain. No storage of construction materials or debris will occur in a floodplain during flood season.

**BMP-4 Wildlife Entrapment Prevention.** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches will be covered with plywood or similar materials at the close of each working day. If pipes are stored onsite or in associated staging areas, they will be capped or plugged when not in use. Construction materials that have the potential to entangle or entrap wildlife will be properly contained so that wildlife cannot interact with the materials.

**BMP-5 Wildlife Exclusion Fencing.** Prior to the start of construction, Wildlife Exclusion Fencing (WEF) will be installed at the edge of the project footprint in all areas where California red-legged frogs, California tiger salamanders, or giant garter snakes could enter the construction area. Exclusion fencing will be at least 3 feet high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. This measure will also reduce the opportunity of entrapment or inadvertent harm to T&E mammals described in this document. The temporary exclusionary fencing should be reviewed before the beginning of each work day to insure no wildlife entanglement has occurred overnight. Removal of the exclusion fencing will occur after well construction is completed.

**BMP-6 Encounters with Species.** If a federal or state listed species is identified onsite, crews will immediately stop work within 50 feet of the individual and inform the construction supervisor. The first priority is to avoid contact with the animal and allow it to move out of the project footprint and hazardous situation on its own to a safe location. Species encounters will be treated on a case-by-case



basis in coordination with either the CDFW or USFWS which should be contacted immediately if any T&E species are observed in the project work areas.

## Database Review, Habitat Analysis, and Reconnaissance Surveys.

The following procedures were implemented to satisfy general requirements under PEIR Mitigation Measure BIO-1a:

- 1) Desktop review of existing site records and the following biological resources databases:
  - a. California Natural Diversity Database (CNDDDB) and RareFind Database
  - b. California Native Plant Society (CNPS)
  - c. USFWS Information for Planning and Consultation (IPaC)
  - d. USFWS National Wildlife Refuge System
  - e. USFWS Geospatial Services National Cadastral Data
  - f. California Department of Water Resources (CADWR) Sustainable Groundwater Management - NC Dataset Viewer
  - g. National Wetlands Inventory
- 2) A biological resources field reconnaissance survey was conducted on December 10, 2019.
- 3) A habitat assessment was conducted based on field observations and results from the biological resource databases to determine whether suitable conditions exist for special-status species or the need for additional species-specific surveys or wetland delineation based on site-specific conditions according to regulations and guidelines established by the USFWS, and the CDFW.

### IPaC and CNDDDB desktop analysis and database results

A California Natural Diversity Database (CNDDDB) and Information for Planning and Consultation (IPaC) review was initiated to identify documented State and Federally listed Threatened and Endangered (T&E) species with potential to occur on site. This search included the USGS 7.5' Ripon quadrangle which contains the Pescadero Ranch property, and a review of the adjacent Vernalis, Westley, and Solyo USGS 7.5' quadrangles.

United States Fish and Wildlife Service - IPaC Species Summary Table		
COMMON NAME	GENUS - SPECIES	FED STATUS
Riparian brush rabbit	<i>Sylvilagus bachmani riparius</i>	Endangered
San Joaquin valley riparian woodrat	<i>Neotoma fuscipes riparia</i>	Endangered
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened
Giant garter snake	<i>Thamnophis gigas</i>	Threatened
California red-legged frog	<i>Rana draytonii</i>	Threatened
California tiger salamander	<i>Ambystoma californiense</i>	Threatened
Delta smelt	<i>Hypomesus transpacificus</i>	Threatened
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Endangered
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Endangered
* No USFWS designated Critical Habitats are within the project action area for any species listed above		

## CNDDDB Results

Based on CNDDDB review, twelve documented Threatened and Endangered (T&E) species within the CNDDDB Ripon quadrat include: tricolored blackbird (*Agelaius tricolor*), California tiger salamander (*Ambystoma californiense*), Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), Swainson's hawk (*Buteo swainsoni*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Delta button-celery (*Eryngium racemosum*), vernal pool tadpole shrimp (*Lepidurus packardii*), riparian San Joaquin Valley woodrat (*Neotoma fuscipes riparia*), Central Valley DPS steelhead (*Oncorhynchus mykiss irideus*), and riparian brush rabbit (*Sylvilagus bachmani riparius*). (See Attachments: CNDDDB Table; CNDDDB Occurrences).

The CNDDDB research indicates that documented observations of Swainson's hawk have occurred within the Pescadero Ranch property and in areas east of the San Joaquin River, within the vicinity of the San Joaquin River National Wildlife Refuge. Observations of San Joaquin kit fox recorded in the CNDDDB within the Vernalis, Westley, and Solyo USGS 7.5' quadrangles to the west and south of the Project Area and date back about 25 years or more. The closest documented occurrence is a roadkill specimen from year 1990 located 9.5 miles due south of the Project Area. Tiger salamander observations were reported at one location approximately 4.5 miles east of the Project Site, and east of the San Joaquin River. Tricolor blackbird, yellow-billed cuckoo, riparian woodrat, and riparian brush rabbit are indicated within a 2-mile radius of the property. Riparian brush rabbit, Swainson's hawk, and Tricolor blackbird are presumed extant on the property. The valley elderberry beetle, Delta button-celery, conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp are not recorded within the APE of the Project Site. Central Valley steelhead and Delta smelt are expected to occur in the San Joaquin River, but not on premise given the lack of natural tributaries on the property and isolation of the levee system. (See Attachments: CNDDDB Map 2 Mile; CNDDDB Map 5 Mile).

## Biological Resources Field Reconnaissance Survey Results

On December 10, 2019 a biological resources field reconnaissance survey was conducted to characterize biological resources, habitats, and vegetation communities existing within or bordering Pescadero Ranch and to investigate whether the Project Site contains habitat suitable to Federal and State listed species. The site survey occurred one day after a week-long period of winter rainfall in the Central Valley. The majority of agricultural areas within Pescadero Ranch including levee banks and areas adjacent to internal irrigation canals were devoid of trees, grass, or other vegetation. Conditions were muddy with small areas of pooled water observed between orchard furrows and alongside internal farm roads. Roads were recently plowed and tracks from typical agricultural machinery (i.e. tractors, trucks, backhoes) were noted in non-gravel paved areas and farm access roads. All cultivated, canal access points, and farm roads within the Area of Potential Effect (APE) are devoid of vegetative cover and exhibit signs of recent grading activity by heavy machinery.

Based on satellite imagery analysis captured in August 2018, parcels of Pescadero Ranch, now serving as a mono-crop almond orchard, were planted with row crops such as corn and beans. Some residual sprouting of these plants was noted in the soil during the site visit. Recently, the agricultural areas were

planted with almond tree seedlings (approximately 2 to 3 feet tall). A new drip line irrigation system was installed on top of the mounded rows along the base and root system of the almond trees. The dripline irrigation system is expected to provide significantly more efficient water transfer for the almond orchard than traditional furrow, flood, or basin irrigation methods.

### Habitat Assessment and Species Analysis

The following analysis of habitats onsite are organized based on geotechnical test boreholes which were drilled to facilitate hydrologic and geologic engineering design criteria in the vicinity of permanent well locations.

#### Test Borehole Locations

*Borehole #1:* (37.64146, -121.23221) is located approximately 200 feet north of road 132, and immediately below and adjacent to irrigation canal on graded farm perimeter road approximately 650 feet due west of borehole #2.

*Borehole #2:* (37.64186, -121.23009) is located approximately 200 feet north of Maze Road (Route 132), and immediately below and adjacent to irrigation canal on a graded farm perimeter road. Proposed wells are located approximately .25 miles west of, and below an approximately 30-foot-tall San Joaquin River levee which channelizes the primary flow of the San Joaquin River.

Borehole #1 and Borehole #2 exhibit identical contextual geographic, hydrologic, geologic, and biologic features. Both well sites are located within the context of chronically and recently disturbed sandy loam soils which have been graded and compacted to form irrigation canals, farm equipment access roads, and inter-crop furrows. Freshwater bivalves (clams) approximately 1 cm wide on average were distributed homogeneously across exposed muddy surfaces around the sites. These are likely *Corbicula fluminea*, a species of invasive Asian freshwater clams of the family Cyrenidae that are deposited from canal overflow of the Pescadero Ranch river water intake and pump station (37.64187, -121.23007), located on top of the San Joaquin River levee approximately 250 feet east of these borehole locations.

*Borehole #3:* (37.64586, -121.23933) is located immediately adjacent to a mature, perennial wetland area, and approximately 15 feet below a graded berm and irrigation canal access area that currently serves as the location for a recently installed fertilization mixture and pumping station. A 24-inch diameter standpipe pumps irrigation overflow (tail water) into an irrigation pond holding area (37.64595, -121.23930) is approximately 35 feet northeast of Borehole #3.

#### Wetland and Riparian Habitat

A perennial palustrine wetland area onsite is defined by three contiguous lobes totaling 41 acres and is in low lying areas located entirely within the agricultural parcels of Pescadero Ranch. These areas are thought to be oxbow type vestiges of the natural course of the San Joaquin River that is now channelized in a levee system approximately 2000 feet to the east. Irrigation tail water flowing through a tile drainage system into this area supplement natural groundwater recharge. This marshy area is mapped and identified as a Groundwater Dependent Ecosystem (GDE). The NWI database classifies this area as: Palustrine, Emergent, Persistent, Unconsolidated Bottom, Permanently Flooded.

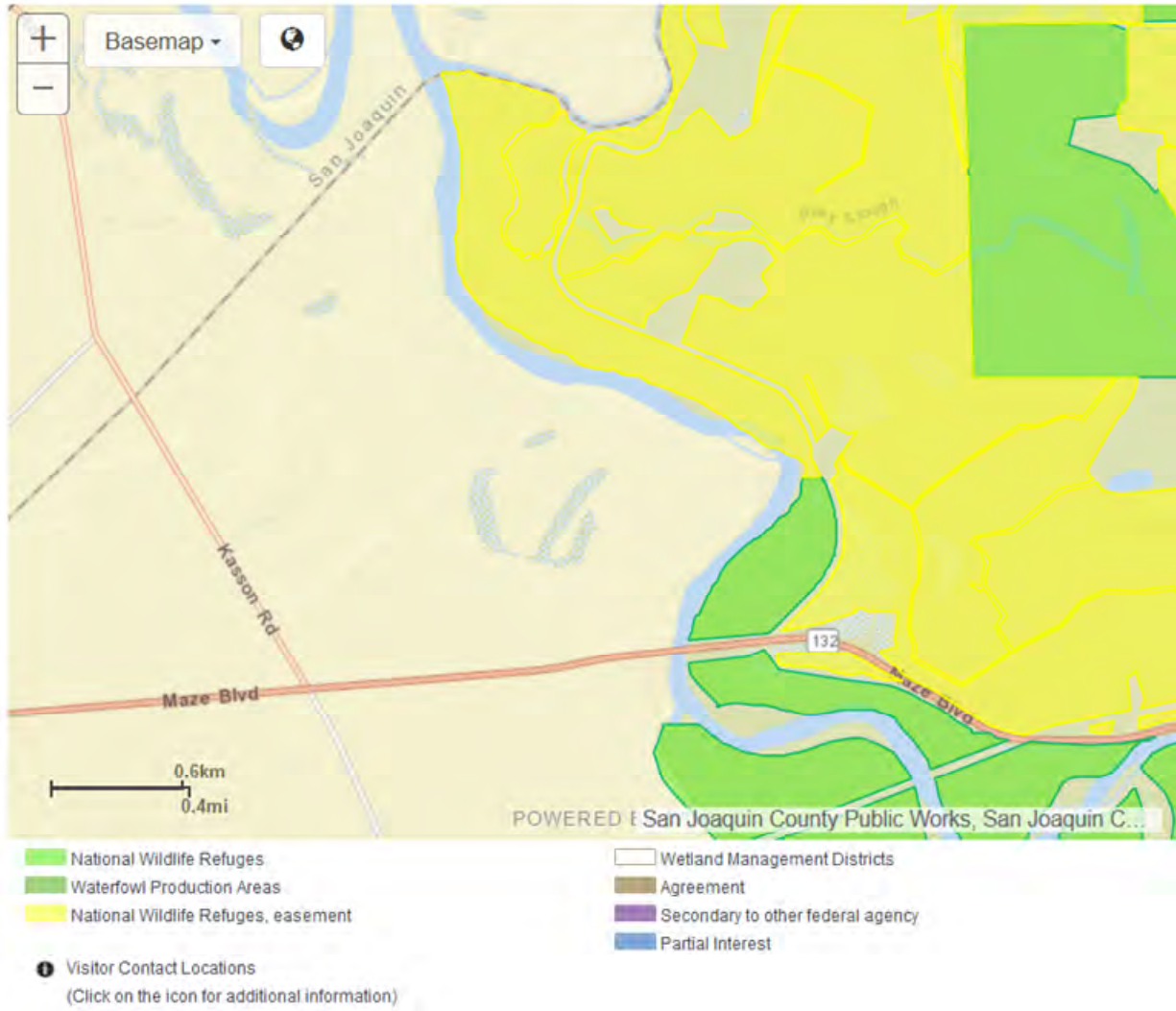


Figure 2: GDE areas located within Pescadero Ranch noted as “Partial Interest” to USFWS in San Joaquin River National Wildlife Refuge Map: [https://www.fws.gov/Refuge/San\\_Joaquin\\_River/map.html](https://www.fws.gov/Refuge/San_Joaquin_River/map.html)

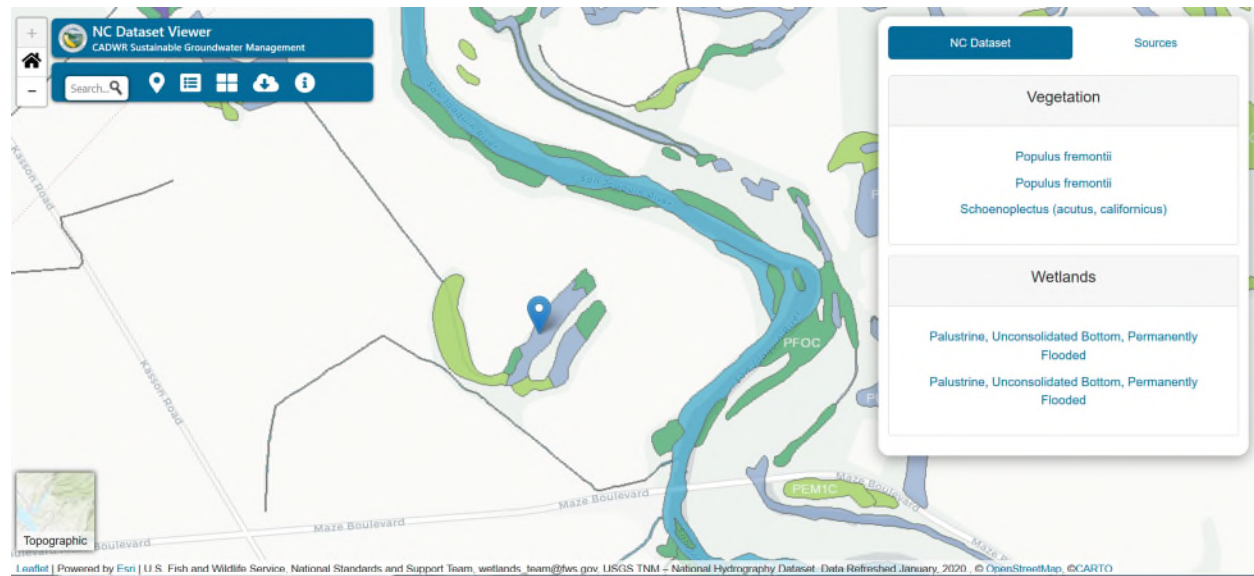


Figure 3: GDE Results from NC Dataset Viewer

## Tree Canopy

Natural vegetation communities within the wetland area onsite can be generally classified as a mature example of Great Valley Mixed Riparian Forest and phreatophyte woodlands. The reconnaissance survey identified stands of Fremont cottonwood (*Populus fremontii*), multiple willow (*Salix spp.*) [i.e. Red willow (*Salix laevigata*), Goodding’s Willow (*Salix gooddingii*), Narrow Leaf Willow (*Salix exigua*), Box Elder (*Acer negundo*)] and valley oak (*Quercus lobate*) as dominant overstory canopy. Planted almond trees comprise all other vegetative cover within the agricultural parcels.

## Aquatic Vegetation

Characteristic freshwater wetland understory hydrophilic and submerged vegetation observed include common tule (*Schoenoplectus acutus*), narrowleaf cattail (*Typha angustifolia*), broadleaf cattail (*Typha latifolia*), common reed (*Phragmites australis*), Bullrush (*Schoenoplectus acutus*), and (*Schoenoplectus californicus*) common spikerush (*Eleocharis macrostachya*), tall flatsedge and other sedges (*Carex spp.*) and rushes (*Juncus spp.*). Duckweed (*Lemna spp./Spirodela spp.*) species were noted on the surface of open water areas.

## Wildlife

Animal tracks from raccoon (*Procyon lotor*), coyote (*Canis latrans*), and/or fox (*Vulpes spp.*) were observed in muddy areas along the perimeter of this wetland. A hawk was observed flying above the central tree canopy of the wetland, however species identification was not possible given the distance from the observer. Songbirds were heard, but not seen during inspections of the wetland perimeter. Nesting birdboxes were placed at methodic intervals around edges of the interior wetland. No amphibious species were directly observed. Additionally, no freshwater seeps, vernal pools, elderberry bush or special status flora were observed within the Project Site or APE. No other wildlife was noted within the almond orchard.





Figure 4: Locations of Proposed Permanent Wells and Geotechnical Test Borehole Locations

## Proposed Permanent Well Locations

**Well #1:** (37.641244, -121.232557) Well #1 proposed placement is located just above the irrigation canal across from test bore #1.

**Well #2:** (37.642649, -121.234065) Well #2 proposed placement was moved northwest of test bore #2 away from the San Joaquin levee to provide a permanent buffer for any direct impacts to species utilizing the riparian corridor on the other side of the levee.

**Well #3:** (37.645675, -121.239865) Well #3 proposed placement was moved approximately 200 feet west of test bore #3 and away from the edge of the GDE and irrigation tail water ponds to provide a permanent buffer to ameliorate direct impacts to species utilizing the wetland areas during well construction and operations.



Figure 5: Detail of Well #3 Proposed Location in relation to GDE areas. Location of proposed well was moved approximately 200 feet away from edge of wetland to reduce species impacts on birds, amphibians, and reptiles.

## Discussion of Potential Impacts

### PEIR Impact BIO-1 (Impacts to T&E species)

Based on the Scope of Work (SOW) provided in the project description, construction and equipment staging areas will be confined to a maximum footprint of 200 feet by 100 feet surrounding wellhead placement and contained within previously disturbed agricultural areas devoid of natural vegetation. BMP 1, BMP 2, and BMP 3 contain additional provisions for equipment staging, spill prevention and waste management for all well sites during construction and maintenance phases of well boring and pump placement.

According to directives included in the PEIR, the applicant shall endeavor to conduct any drilling, construction work and/or ground-disturbing activities associated with installation of the proposed well during the *non-breeding* season of any birds and raptors protected under the Migratory Bird Treaty Act (generally September 16 through January 31). Assuming project construction activities are conducted within the timeframe September 16 – January 31, the lack of trees and groundcover particularly near well locations #1 and #2, and the additional setback for well location #3 from the GDE suggest Less than Significant impacts to MBTA bird species (i.e. western yellow-billed cuckoo, Swainson’s hawk, tricolored blackbird, least Bell's vireo). However, because all proposed well locations are located within a 0.5 mile buffer zone (Figure 1); if construction activities must be scheduled during the nesting season (February 1 to September 15), the PEIR requires preconstruction surveys for raptors, migratory birds, and special-

status bird species be conducted by a qualified biologist to reduce Potentially Significant Impacts to Less than Significant levels.

Short term noise impacts of well drilling equipment listed in the project description is unlikely to disturb wildlife located in riparian areas beyond the San Joaquin River levee given the distance to source and location of well drilling sites 15 to 30 feet below levee grade. Long term impacts resulting from pump motor noise are not expected to rise above the ambient noise of the existing river water intake and fertilizer/drip line irrigation pumping stations operating onsite or the routine operational noise of farming equipment and are therefore considered Less than Significant for all species discussed in this document.

Motile mammals such as the riparian brush rabbit, San Joaquin valley riparian woodrat, and San Joaquin kit fox have the potential to traverse wellhead areas during construction phases, but given the lack of vegetative ground cover or opportunity to borrow, are not expected to otherwise forage, predate, or seek refuge within the project footprint surrounding the well location work sites. Additionally, BMP 3, BMP 4, BMP 5 and BMP 6 will help avoid, limit, or inhibit T&E reptilian, amphibious, and mammalian species and other non-listed wildlife (i.e. common species of fox, coyote, rabbit, raccoon, squirrel etc..) from moving opportunistically within the well sites during construction and boring phases.

The potential for the occurrence of the following species (giant garter snake, California red-legged frog, California tiger salamander) is presumed to be higher near Well #3 given the proximity to a palustrine wetland, however the well's location upslope (on a graded berm above and away from the wetland edge) significantly reduces the likelihood of these reptiles and amphibians from co-occurring within the well construction footprint or equipment and materials staging areas. BMP's 4, 5, and 6 are designed to avoid incidental take or other impacts to reptilian or amphibious species during well construction at all 3 well locations areas.

No natural tributaries intersect the Pescadero Ranch, therefore Central Valley steelhead or Delta smelt are not expected to occur within the APE therefore the project activities will have no effect on these species. No vernal pools or freshwater seeps were observed on the property and given the lack of suitable habitat, no impacts to any crustaceans (3 shrimp species discussed in this document) are foreseen. Similarly lack of onsite vegetation around well locations suggests that the Valley elderberry longhorn beetle is not expected to occur within the APE.

No (post construction) long-term impacts of routine well operations are anticipated for any species discussed. Nonetheless, prolonged or complex well bore or pump machinery replacement, maintenance and repairs should incorporate all supplemental BMP's (1-6) also implemented for initial construction activities discussed in this document. Any changes to well locations would require separate biological resources impact analysis for federal and state listed T&E species.

## PEIR Impact BIO-2 (Impacts to riparian areas and GDE's)

### Riparian Areas

Aside from the wetland habitat located within the property, the Project Site and majority of the APE consists of historically disturbed and cultivated agricultural land that provides limited habitat, migratory, or nursery opportunities for most sensitive species identified in this analysis.



Riparian areas located along the San Joaquin river are located .25 miles or more away from the proposed well locations and further isolated from the agricultural areas by a 30-foot-high levee road. Although San Joaquin River riparian areas are located within a 0.5 mile buffer zone radius of the wellheads, Less than Significant impacts are expected for MBTA bird species located in San Joaquin River riparian habitats if project construction activities are conducted within the timeframe September 16 – January 31 (Mitigation Measure BIO 1-b).

### Ground Water Dependent Ecosystems (GDE)

The Sustainable Groundwater Management Act (SGMA) defines GDEs as "*ecological communities and species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface*". GDE flora and fauna rely on permanent groundwater for most water needs and are often supported by multiple water sources including surface water, stormwater, and irrigation tail water.

Direct impacts to onsite irrigation tailwater GDE recharge processes resulting from accidental spills or waste discharge are avoided or reduced through incorporating BMP 1, BMP 2, and BMP 3 during short term Well construction phases and will be Less than Significant.

Chronic surface and groundwater overdraft near a GDE may produce long-term biological impacts which desiccate phreatophyte tree assemblages via loss of hydraulic redistribution capacity of embedded root systems. Consequent loss of hydrophilic vegetation (i.e. sedge - bulrush alliances) in the GDE's in turn can produce secondary deleterious effects on insect, aquatic, and animal species through degradation or loss of wetland shelter and foraging habitat, loss of primary productivity, nutrient cycling interruptions, and disruption of reliant food webs.

It is reasonable to assume that ecosystem impacts will be more concentrated in the vicinity of subsurface water pumping. Excessive seasonal drawdown of existing water tables affecting vegetation within the Pescadero Ranch GDE are expected to be compounded by extended drought periods and further stressed through seasonal hydrological interruption during periods of low storm water discharge lack of irrigation tailwater replenishment, or reduced flow of the San Joaquin River which likely coincide with the increased need to use backup wells to sustain orchard irrigation.

### Groundwater Resources Impact Assessment

Modeling of 61-day, 276-day, and 20-year water extraction results from two distinct pumping rate scenarios are discussed in Section 4.0 of the February 2020 Groundwater Resources Impact Assessment (GRIA): Supplemental Wells for Pescadero Ranch Stanislaus County, California. A maximum rate scenario where 1,300 acre-feet of groundwater would be withdrawn over a period of two months (61-days) results in a 5-foot drawdown encompassing the well sites and the GDE located onsite. A 20-foot drawdown scenario intersects the GDE and is most pronounced near well #3 after the same time period of 61 days. A 5-foot drawdown surrounding the GDE is expected after 20 years with groundwater extracted at an annualized average rate of 1,000 AFY for a period of 20 years.

Adhering to covenants stipulating seasonal periodicity and limits on groundwater extraction as specified in the Stanislaus County PEIR (Mitigation Measure WAT-3) could limit chronic or cumulative biological

impacts to the GDE wetland located within the property. A groundwater level monitoring program and applicant-provided mitigation measures are proposed in section 5.7 of the 2020 GRIA to further decrease the potential for unanticipated adverse impacts.

**PEIR Impact BIO-3 (Impacts to Wetlands & CWA Sec 404)**

No direct removal or filling of state or federally protected wetlands is anticipated at or near any of the proposed well sites. No in-water work is necessary for this project, and as such, impacts to fish or fisheries were discounted in this analysis. Implementation of BMP 1, BMP 2, and BMP 3 will avoid or reduce direct impacts to water quality and wetland areas from accidental spills or waste discharge during well construction phases. Chronic impacts

**PEIR Impact BIO-4 (Conflicts with local policy & ordinances)**

Construction and operation of the three wells would be consistent with land use goals and policies of Stanislaus County that are directed towards supporting agricultural activity on productive lands designated and zoned for such uses. The Project Site and APE is designated General Agriculture under county zoning regulations and no conversion of rangeland to farmland will occur. No trees (other than planted almond trees) are located within construction or equipment staging areas and no vegetation clearing is required for this project.

The Project Site is not subject to an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan that would conflict with the proposed Project. No conflicts with local ordinances are anticipated resulting in a determination of No Impact, and Mitigation Measure BIO-4 provisions would not apply.

<b>General CEQA Biological Resources Summary Table</b>				
<b>IV. BIOLOGICAL RESOURCES -- Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Included</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		<b>X</b>		
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?		<b>X</b>		

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		<b>X</b>		
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?			<b>X</b>	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				<b>X</b>
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?				<b>X</b>

<b>Summary Table of Stanislaus County PEIR Impacts and Mitigation Measures</b>			
<b>Potentially Significant (PS); Less Than Significant with Mitigation (LTSM); Less Than Significant (LTS); No Impact (NI)</b>			
<b>PEIR Impacts</b>	<b>Description</b>	<b>Determinations:</b>	<b>Mitigation Measure (MM) / Best Management Practice (BMP's)</b>
Impact BIO-1	Impacts to federal and state listed species / habitat	LTS If well construction restricted between September 16-January 31 for MBTA wildlife.	MM BIO-1a, MM BIO-1b, BMP-1, BMP-2, BMP-3, BMP-4, BMP-5, BMP-6
Impact BIO-2	Impacts to riparian, GDE, sensitive natural communities	LTS If well construction restricted between September 16-January 31 for MBTA wildlife.  LTSM for cumulative drawdown and diminution of GDE water supply	MM BIO-1a, MM BIO-1b, BMP-1, BMP-2, BMP-3 WAT-3; pond level monitoring and/or mitigation proposals in section 5.7 of the 2020 GRIA
Impact BIO-3	Impacts to wetlands; CWA Sect 404	LTS Short term construction impacts  LTS with Mitigation for cumulative drawdown and diminution of wetland area.	BMP-1, BMP-2, BMP-3
Impact BIO-4	Conflicts with local bio-resource policies and ordinances	NI	Non-Applicable

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## Photos of Existing Site Conditions

The following photos taken during the reconnaissance site visit on December 10, 2019 are representative of proposed well locations, existing agricultural use, and characteristics of natural habitats described in the previous sections.

### Biological Resource Reconnaissance Survey Photos – 10 December 2019



Overview of Pescadero Ranch almond orchard looking east from 136 Kasson Road main gate entrance.





Borehole #2 view to south west (Maze Road Route 132 in background).



View from Maze Road (Route 132) looking north along the San Joaquin levee road. Pescadero Ranch almond orchard to the left and the San Joaquin River to the right.



Borehole #2. View to the east toward San Joaquin River levee (ridge background) and Pescadero Ranch river water intake pumping station (caged facility in background).





Irrigation canal located adjacent to Borehole #2



Borehole #1 located approximately 650 feet west of Borehole #2 (adjacent to irrigation canal). San Joaquin River levee in the distance on the horizon.



View from Borehole #1 looking northwest towards GDE wetland area located in the middle of Pescadero Ranch almond orchard.





Borehole #3 location at edge of irrigation water tail pond



Culvert for irrigation tailwater and surface runoff located approximately 35 east feet from Borehole #3



View from Borehole #3 to proposed location to place Well #3 (on top of berm behind fertilizing mixing and pumping station, near power pole and abandoned drip irrigation spools)





View of GDE wetland located within Pescadero Ranch property showing typical vegetative communities.



Typical hydrophytic and marsh vegetation within wetland. Note example of bird nesting box which were situated methodically around the Pescadero Ranch wetland / GDE.





Fox and/or coyote tracks at edge of GDE wetland.

**Attachments:**

- CNDDDB Summary Table
- CNDDDB Occurrences
- CNDDDB Map 2 Mile
- CNDDDB Map 5 Mile



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Query Criteria:** Quad (Ripon (3712162)) AND (Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Candidate Endangered OR Candidate Threatened))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Agelaius tricolor</i> tricolored blackbird	G2G3 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	40 75	955 S:4	0	0	0	0	0	4	3	1	4	0	0
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	40 65	1213 S:3	0	0	0	0	2	1	3	0	1	1	1
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	G2 S2	Endangered None	IUCN_EN-Endangered	35 35	43 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	35 40	770 S:3	0	0	1	0	0	2	3	0	3	0	0
<i>Buteo swainsoni</i> Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	23 45	2518 S:23	0	0	0	0	0	23	12	11	23	0	0
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	25 25	156 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	G3T2 S2	Threatened None		30 40	271 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Eryngium racemosum</i> Delta button-celery	G1 S1	None Endangered	Rare Plant Rank - 1B.1	40 40	26 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	40 40	325 S:2	0	0	0	0	0	2	0	2	2	0	0





## Summary Table Report

### California Department of Fish and Wildlife California Natural Diversity Database



Name (Scientific/Common)	CNDDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Neotoma fuscipes riparia</i> riparian (=San Joaquin Valley) woodrat	G5T1Q S1	Endangered None	CDFW_SSC-Species of Special Concern	25 50	3 S:3	0	0	0	0	0	3	2	1	3	0	0
<i>Oncorhynchus mykiss irideus pop. 11</i> steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened		31 S:2	0	0	0	1	0	1	0	2	2	0	0
<i>Sylvilagus bachmani riparius</i> riparian brush rabbit	G5T1 S1	Endangered Endangered		30 50	16 S:3	0	1	0	0	1	1	1	2	2	1	0



**Multiple Occurrences per Page**  
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**Query Criteria:** Quad<span style='color:Red'> IS </span>(Ripon (3712162))<br /><span style='color:Red'> AND </span>Federal Listing Status<span style='color:Red'> IS </span>(Endangered<span style='color:Red'> OR </span>Threatened<span style='color:Red'> OR </span>Proposed Endangered<span style='color:Red'> OR </span>Proposed Threatened<span style='color:Red'> OR </span>Candidate)<span style='color:Red'> AND </span>State Listing Status<span style='color:Red'> IS </span>(Endangered<span style='color:Red'> OR </span>Threatened<span style='color:Red'> OR </span>Candidate Endangered<span style='color:Red'> OR </span>Candidate Threatened)

<b>Ambystoma californiense</b>		<b>Element Code:</b> AAAAA01180	
California tiger salamander			
<b>Listing Status:</b>	<b>Federal:</b> Threatened	<b>CNDDB Element Ranks:</b>	<b>Global:</b> G2G3
	<b>State:</b> Threatened		<b>State:</b> S2S3
	<b>Other:</b> CDFW_WL-Watch List, IUCN_VU-Vulnerable		
<b>Habitat:</b>	<b>General:</b> CENTRAL VALLEY DPS FEDERALLY LISTED AS THREATENED. SANTA BARBARA AND SONOMA COUNTIES DPS FEDERALLY LISTED AS ENDANGERED.		
	<b>Micro:</b> NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, AND VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.		

<b>Occurrence No.</b>	33	<b>Map Index:</b>	11958	<b>EO Index:</b>	28428	<b>Element Last Seen:</b>	1912-04-06
<b>Occ. Rank:</b>	None	<b>Presence:</b>	Extirpated	<b>Site Last Seen:</b>		1912-04-06	
<b>Occ. Type:</b>	Natural/Native occurrence	<b>Trend:</b>	Unknown	<b>Record Last Updated:</b>		2015-01-07	

<b>Quad Summary:</b>	Salida (3712161), Ripon (3712162)						
<b>County Summary:</b>	San Joaquin, Stanislaus						
<b>Lat/Long:</b>	37.73520 / -121.12660		<b>Accuracy:</b>	1 mile			
<b>UTM:</b>	Zone-10 N4178087 E665076		<b>Elevation (ft):</b>	65			
<b>PLSS:</b>	T02S, R08E, Sec. 30, NE (M)		<b>Acres:</b>	0.0			
<b>Location:</b>	RIPON.						
<b>Detailed Location:</b>	MAPPED TO PROVIDED LOCALITY "RIPON."						
<b>Ecological:</b>	MUCH OF AREA APPEARS DEVELOPED (NAIP 2010 AERIAL IMAGERY).						
<b>General:</b>	2 COLLECTED BY STORER ON 2 (NON-REPRODUCTIVE FEMALE) & 4 APR 1912 (MVZ #8240). JENNINGS CONSIDERS THIS SITE EXTIRPATED.						
<b>Owner/Manager:</b>	UNKNOWN						

<b>Occurrence No.</b>	119	<b>Map Index:</b>	20949	<b>EO Index:</b>	17606	<b>Element Last Seen:</b>	1992-02-19
<b>Occ. Rank:</b>	Unknown	<b>Presence:</b>	Presumed Extant	<b>Site Last Seen:</b>		1992-02-19	
<b>Occ. Type:</b>	Natural/Native occurrence	<b>Trend:</b>	Unknown	<b>Record Last Updated:</b>		2008-11-25	

<b>Quad Summary:</b>	Westley (3712152), Ripon (3712162)						
<b>County Summary:</b>	Stanislaus						
<b>Lat/Long:</b>	37.62378 / -121.15429		<b>Accuracy:</b>	2/5 mile			
<b>UTM:</b>	Zone-10 N4165675 E662880		<b>Elevation (ft):</b>	40			
<b>PLSS:</b>	T03S, R07E, Sec. 36, SW (M)		<b>Acres:</b>	0.0			
<b>Location:</b>	ALONG PARADISE ROAD, IN THE VICINITY OF ITS JUNCTION WITH CALIFORNIA AVENUE AND HUNTINGTON ROAD, 8 MILES WNW OF MODESTO.						
<b>Detailed Location:</b>	SPECIMENS IN 1991 WERE FOUND IN THE VICINITY OF HUNTINGTON RD X PARADISE RD; THE 1990 AND 1992 SPECIMENS WERE FOUND ALONG CALIFORNIA AVENUE, NEAR PARADISE ROAD.						
<b>Ecological:</b>	HABITAT CONSISTS OF VERNAL POOLS.						
<b>General:</b>	1 CTS FOUND DOR ON 14 JANUARY 1990. 5 LARVAE COLLECTED (MRJ-0512, O513, O625, CAS #179030), 3 APR 1991. SHAFFER SITE 136, 1991. 1992: 2 CTS OBSERVED DURING INTERMITTENT RAIN, 19:15-20:30 HRS (MEASUREMENTS AS FOLLOWS: 85 MM-SVL, 10 MM-SVL).						
<b>Owner/Manager:</b>	UNKNOWN						



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<b>Occurrence No.</b>	617	<b>Map Index:</b> 46500	<b>EO Index:</b> 46500	<b>Element Last Seen:</b> 1973-XX-XX
<b>Occ. Rank:</b>	None		<b>Presence:</b> Possibly Extirpated	<b>Site Last Seen:</b> 1973-XX-XX
<b>Occ. Type:</b>	Natural/Native occurrence		<b>Trend:</b> Unknown	<b>Record Last Updated:</b> 2009-05-21
<b>Quad Summary:</b>	Ripon (3712162)			
<b>County Summary:</b>	Stanislaus			
<b>Lat/Long:</b>	37.64029 / -121.15905		<b>Accuracy:</b> nonspecific area	
<b>UTM:</b>	Zone-10 N4167499 E662423		<b>Elevation (ft):</b> 40	
<b>PLSS:</b>	T03S, R07E, Sec. 26, SE (M)		<b>Acres:</b> 24.4	
<b>Location:</b>	ALONG GATES ROAD NEAR HWY 132. ABOUT 1.9 MILES EAST OF FINNEGAN CUT (SAN JOAQUIN RIVER), WEST OF MODESTO.			
<b>Detailed Location:</b>	FOUND AT A RANCH HOUSE ON GATES ROAD.			
<b>Ecological:</b>	2008 AERIAL PHOTO SHOWS THAT THE AREA HAS BEEN COMPLETELY CONVERTED TO AGRICULTURE.			
<b>General:</b>	OBSERVATION IN FALL 1973.			
<b>Owner/Manager:</b>	UNKNOWN			

<b><i>Coccyzus americanus occidentalis</i></b>		<b>Element Code:</b> ABNRB02022
western yellow-billed cuckoo		
<b>Listing Status:</b>	<b>Federal:</b> Threatened	<b>CNDDDB Element Ranks: Global:</b> G5T2T3
	<b>State:</b> Endangered	<b>State:</b> S1
<b>Habitat:</b>	<b>Other:</b> BLM_S-Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	
	<b>General:</b> RIPARIAN FOREST NESTER, ALONG THE BROAD, LOWER FLOOD-BOTTOMS OF LARGER RIVER SYSTEMS.	
	<b>Micro:</b> NESTS IN RIPARIAN JUNGLES OF WILLOW, OFTEN MIXED WITH COTTONWOODS, WITH LOWER STORY OF BLACKBERRY, NETTLES, OR WILD GRAPE.	

<b>Occurrence No.</b>	141	<b>Map Index:</b> 11753	<b>EO Index:</b> 25566	<b>Element Last Seen:</b> 1973-06-24
<b>Occ. Rank:</b>	None		<b>Presence:</b> Possibly Extirpated	<b>Site Last Seen:</b> 1977-06-30
<b>Occ. Type:</b>	Natural/Native occurrence		<b>Trend:</b> Unknown	<b>Record Last Updated:</b> 1989-08-10
<b>Quad Summary:</b>	Ripon (3712162), Vernalis (3712163)			
<b>County Summary:</b>	San Joaquin, Stanislaus			
<b>Lat/Long:</b>	37.66538 / -121.23596		<b>Accuracy:</b> 1 mile	
<b>UTM:</b>	Zone-10 N4170153 E655585		<b>Elevation (ft):</b> 25	
<b>PLSS:</b>	T03S, R07E, Sec. 19 (M)		<b>Acres:</b> 0.0	
<b>Location:</b>	MOUTH OF STANISLAUS RIVER.			
<b>Detailed Location:</b>				
<b>Ecological:</b>				
<b>General:</b>	NUMEROUS CUCKOO OBSERVATIONS FROM 1962-73, REPORTED IN AFN AND AB; 5 INDIVIDUALS OBSERVED IN 1962; ONLY ONE OBSERVED IN 1973.			
<b>Owner/Manager:</b>	PVT			

<b><i>Sylvilagus bachmani riparius</i></b>		<b>Element Code:</b> AMAEB01021
riparian brush rabbit		
<b>Listing Status:</b>	<b>Federal:</b> Endangered	<b>CNDDDB Element Ranks: Global:</b> G5T1
	<b>State:</b> Endangered	<b>State:</b> S1
<b>Habitat:</b>	<b>Other:</b>	
	<b>General:</b> RIPARIAN AREAS ON THE SAN JOAQUIN RIVER IN NORTHERN STANISLAUS COUNTY.	
	<b>Micro:</b> DENSE THICKETS OF WILD ROSE, WILLOWS, AND BLACKBERRIES.	



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<b>Occurrence No.</b>	1	<b>Map Index:</b> 11683	<b>EO Index:</b> 62743	<b>Element Last Seen:</b>	1932-11-04
<b>Occ. Rank:</b>	None		<b>Presence:</b> Possibly Extirpated	<b>Site Last Seen:</b>	1932-11-04
<b>Occ. Type:</b>	Natural/Native occurrence		<b>Trend:</b> Unknown	<b>Record Last Updated:</b>	2014-03-21
<b>Quad Summary:</b>	Ripon (3712162), Vernalis (3712163)				
<b>County Summary:</b>	San Joaquin, Stanislaus				
<b>Lat/Long:</b>	37.64776 / -121.25945		<b>Accuracy:</b>	1 mile	
<b>UTM:</b>	Zone-10 N4168159 E653548		<b>Elevation (ft):</b>	50	
<b>PLSS:</b>	T03S, R06E, Sec. 25 (M)		<b>Acres:</b>	0.0	
<b>Location:</b>	VICINITY OF KINCAIDS RANCH, ABOUT 2 MILES NORTHEAST OF VERNALIS ON THE WEST SIDE OF THE SAN JOAQUIN RIVER.				
<b>Detailed Location:</b>	MAPPED TO INCLUDE LOCALITIES GIVEN FOR CAS SPECIMENS, "VERNALIS, 2 MILES NE" AND MVZ SPECIMENS, "KINCAID'S RANCH, 2 MI NE VERNALIS." EXACT COLLECTION LOCATIONS UNKNOWN.				
<b>Ecological:</b>	SURVEYS 1971-85 & 1986 CONDUCTED JUST NE OF MAPPED AREA INDICATED LOCAL EXTIRPATION, BUT ARE INCONCLUSIVE DUE TO LIKELY LESS-THAN-EXHAUSTIVE METHODS.				
<b>General:</b>	1 MALE & 1 FEMALE CAUGHT 5 MAR AND 3 SEP 1931 (CAS #8004 & 8005). 1 FEMALE CAUGHT 11 NOV 1931 (MVZ #57348, TYPE SPECIMEN). 1 MALE & 1 FEMALE CAUGHT 3 & 4 NOV 1932 (MVZ #55133 & 55134).				
<b>Owner/Manager:</b>	UNKNOWN				
<b>Occurrence No.</b>	2	<b>Map Index:</b> 25495	<b>EO Index:</b> 5675	<b>Element Last Seen:</b>	2011-XX-XX
<b>Occ. Rank:</b>	Good		<b>Presence:</b> Presumed Extant	<b>Site Last Seen:</b>	2011-XX-XX
<b>Occ. Type:</b>	Natural/Native occurrence		<b>Trend:</b> Fluctuating	<b>Record Last Updated:</b>	2014-07-07
<b>Quad Summary:</b>	Ripon (3712162)				
<b>County Summary:</b>	San Joaquin, Stanislaus				
<b>Lat/Long:</b>	37.69193 / -121.18600		<b>Accuracy:</b>	nonspecific area	
<b>UTM:</b>	Zone-10 N4173184 E659934		<b>Elevation (ft):</b>	40	
<b>PLSS:</b>	T03S, R07E, Sec. 10 (M)		<b>Acres:</b>	294.0	
<b>Location:</b>	CASWELL MEMORIAL STATE PARK (CMSP) AND ADJACENT LANDS, ABOUT 4 MILES SW OF RIPON.				
<b>Detailed Location:</b>	DETECTIONS HAVE BEEN RECORDED FROM THROUGHOUT THE PARK SINCE 1986. COMMONLY DETECTED IN CAMPGROUND AREA AT NE END OF PARK THROUGH 1993, BUT NONE THERE FROM 2002-2010. MAPPED TO INCLUDE ENTIRE PARK.				
<b>Ecological:</b>	258 AC PARK W/ MATURE VALLEY RIPARIAN/FLOODPLAIN VEGETATION. FLOODS CAUSE POPULATION BOTTLENECKS: EST POP <10 AFTER MAR 1986 FLOOD, SIMILAR LOW PRESUMED AFTER '97 FLOOD. 2011 STUDY FOUND CMSP POP GENETICALLY DISTINCT FROM SOUTH DELTA POP.				
<b>General:</b>	SMALL, "NONPRODUCTIVE" POPULATION. MONITORING BEGUN JAN 1993, WHEN POP ESTIMATED AT 241, THOUGHT TO BE CARRYING CAPACITY. # TRAPPED/YR: 41/1993, 0/1997, 6/1998, 2/1999, 5/2000, 2/2001, 16/2002, 13-14/2003, 15/2004, 5-6/2005, 9/2006, 1/2008.				
<b>Owner/Manager:</b>	DPR-CASWELL MEMORIAL SP				



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<b>Occurrence No.</b>	16	<b>Map Index:</b>	91811	<b>EO Index:</b>	92882	<b>Element Last Seen:</b>	2012-11-XX
<b>Occ. Rank:</b>	Unknown	<b>Presence:</b>	Presumed Extant	<b>Site Last Seen:</b>		2012-11-XX	
<b>Occ. Type:</b>	Introduced Back into Native Hab./Range	<b>Trend:</b>	Unknown	<b>Record Last Updated:</b>		2014-03-24	

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<b>Quad Summary:</b>	Westley (3712152), Ripon (3712162)		
<b>County Summary:</b>	Stanislaus		

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<b>Lat/Long:</b>	37.62365 / -121.19665	<b>Accuracy:</b>	nonspecific area
<b>UTM:</b>	Zone-10 N4165589 E659141	<b>Elevation (ft):</b>	30
<b>PLSS:</b>	T03S, R07E, Sec. 33 (M)	<b>Acres:</b>	4200.0

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<b>Location:</b>	SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE.
<b>Detailed Location:</b>	MAPPED TO REFUGE PARCEL INCLUDING ORIGINAL RELEASE PENS (37.613, -121.196) & (37.624, -121.202), TELEMETRY PTS & 2004 & '07 COLLECTION LOCATIONS. RELEASES BEGUN IN '05/'06 ON NEWLY-ACQUIRED FAITH RANCH & BUFFINGTON TRACT, LOCATIONS UNKNOWN.
<b>Ecological:</b>	CAPTIVE-BRED RABBITS (FROM OCC#15) INTRODUCED INTO SOFT-RELEASE PENS ON REFUGE, THEN ALLOWED TO DISPERSE. SURVIVAL RATE AFTER 1 YEAR 49% FOR '02 COHORT, 42% FOR '03. EXTANT DESERT COTTONTAIL POPULATION MAY HAVE CO-OPTED BEST HABITAT.
<b>General:</b>	49 RABBITS RELEASED IN 2002, 187 IN 2003. POPULATION SUPPLEMENTED ANNUALLY 2005-10. 2 MORTALITIES IN 2004, 10 IN '05, & 3 IN '07 COLLECTED FOR SPECIMENS. 2010 THESIS PREDICTED EXTINCTION, BUT 2013 REPORT CLAIMED POPULATION WAS "REBOUNDING."
<b>Owner/Manager:</b>	USFWS-SAN JOAQUIN RIVER NWR

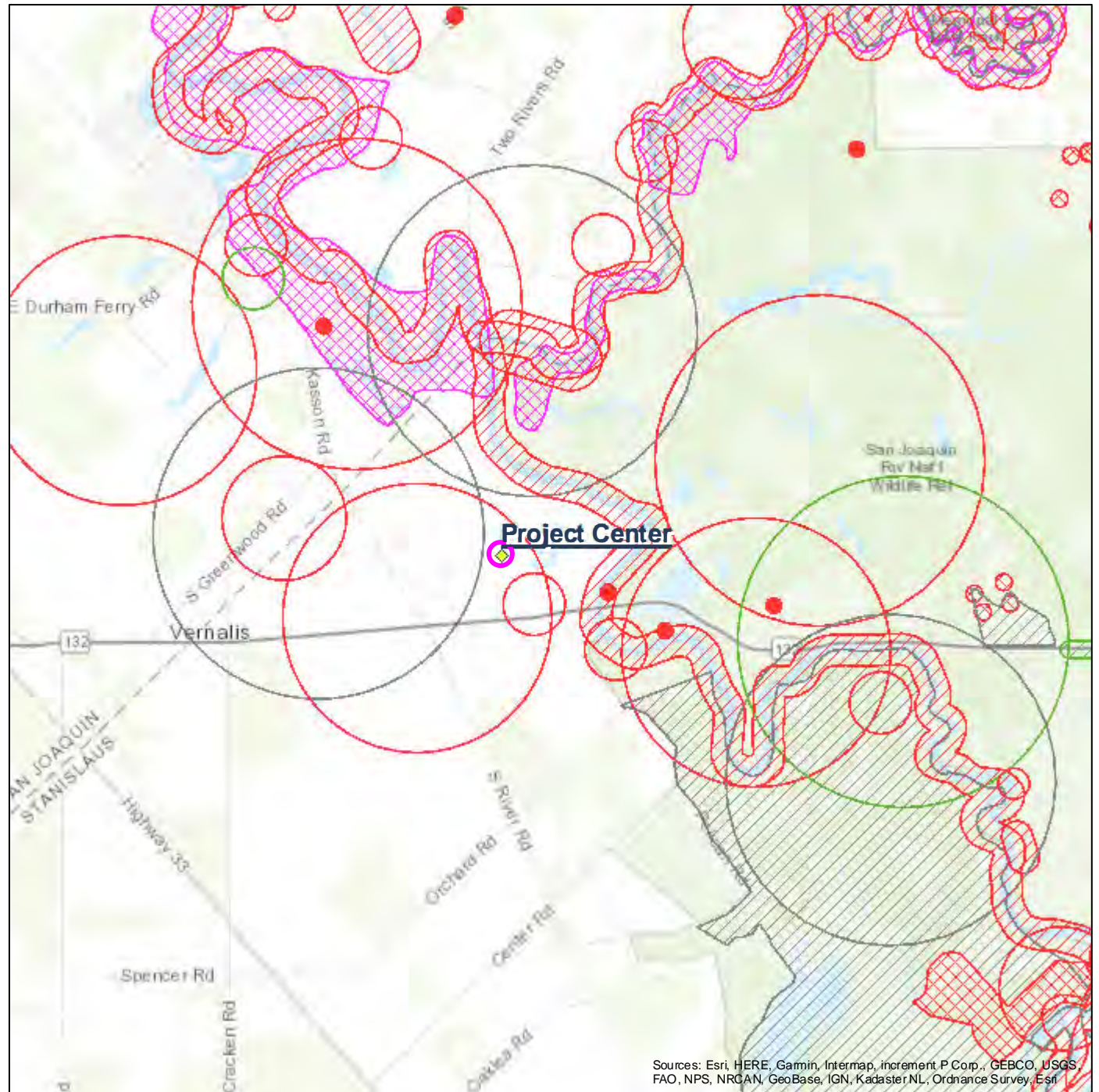
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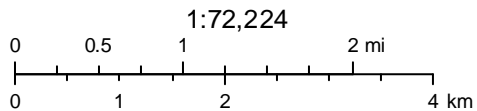
# Map of Project Area 5 Mile Radius

## California Natural Diversity Database (CNDDDB) Commercial [ds85]

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (80m)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Aquatic Comm. (80m)
- Aquatic Comm. (specific)
- Aquatic Comm. (non-specific)
- Aquatic Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)



1:72,224

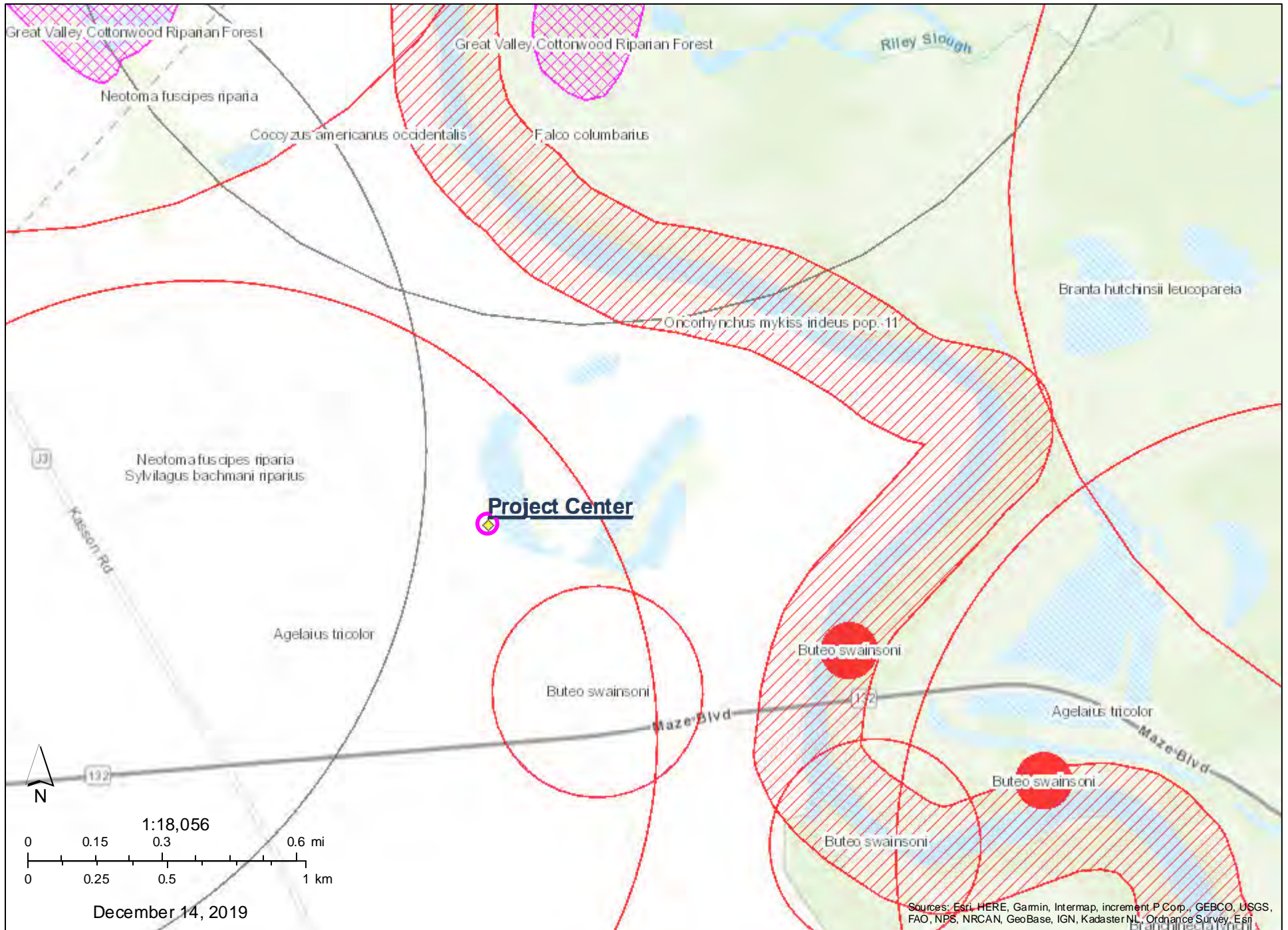


December 14, 2019

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri



# Map of Project Area



**ATTACHMENT 2**

**GROUNDWATER RESOURCES IMPACT ASSESSMENT**



**Groundwater Resources Impact Assessment**  
Supplemental Wells for Pescadero Ranch  
Stanislaus County, California

Prepared for:  
**NBInv. AP6, LLC**

Prepared by:  
**Formation Environmental**



**FEBRUARY 19, 2020**

## PROFESSIONAL CERTIFICATION

---

The following certified professional has reviewed the report entitled Groundwater Resources Impact Assessment, Supplemental Wells for Pescadero Ranch, Stanislaus County, California. His signature and stamp appear below.



---

Mike Tietze, PG, CHG, CEG  
Senior Engineering Geologist / Hydrogeologist  
Formation Environmental, LLC  
February 19, 2020

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Appendix A – WELL CONSTRUCTION PERMIT APPLICATION
Appendix B – SUPPLEMENTAL APPLICATION PACKAGE
Appendix C – TEST WELLS
Appendix D – GROUNDWATER ELEVATION CONTOUR MAPS

## LIST OF ABBREVIATIONS

---

AFY	acre-feet per year
amsl	above mean sea level
APN	Assessor's Parcel Number
bgs	below ground surface
CASEGEM	California Statewide Groundwater Elevation Monitoring Program
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CVHM	Central Valley Hydrologic Model
CVP	Central Valley Project
DMS	Delta-Mendota Subbasin
DWR	California Department of Water Resources
ft <sup>3</sup> /day	cubic feet per day
ft <sup>3</sup> /sec	cubic feet per second
GAMA	Groundwater Ambient Monitoring and Assessment Program
GDE	Groundwater Dependent Ecosystem
gpm	gallon per minute
GRIA	Groundwater Resources Impact Assessment
GSP	Groundwater Sustainability Plan
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
NCCAG	Natural Communities Commonly Associated with Groundwater
SCHM	Stanislaus County Hydrologic Model
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	total dissolved solids

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCR	Well Completion Report

# 1 INTRODUCTION

## 1.1 BACKGROUND

NBInv. AP6, LLC proposes to develop an almond orchard on land operated as part of Pescadero Ranch located in northern rural Stanislaus County just west of the San Joaquin River near the community of Vernalis. The orchard will be supplied by surface water diverted from the San Joaquin River; however, NBInv. AP6 proposes to supplement this supply with groundwater in case surface water diversions are curtailed, and has submitted applications to construct three irrigation wells on the property. Because the proposed wells will be located in unincorporated Stanislaus County in an area that is not served by a water agency operating in compliance with a Groundwater Management Plan, NBInv. AP6 is subject to the requirements of the Stanislaus County Groundwater Ordinance (County Code Chapter 37-009), which requires that applicants complete a supplemental application and provide “substantial evidence” that groundwater extraction from their proposed wells will be sustainable, as defined under the Ordinance. This Groundwater Resources Impact Assessment (GRIA) provides the required substantial evidence of sustainable extraction. A completed supplemental well permit application package is enclosed (Appendix A and B). The GRIA and supplemental well permit application are being submitted to Stanislaus County to support preparation of an environmental document that complies with the requirements of the California Environmental Quality Act (CEQA) and the Groundwater Ordinance.

## 1.2 ORGANIZATION

This report includes the following sections:

- Chapter 1, *Introduction*, which provides the background, purpose and scope of the Project.
- Chapter 2, *Project Description*, which provides a brief overview of the Project and discusses the anticipated water demand and development of the proposed groundwater supply.
- Chapter 3, *Project Setting*, which provides an overview of the project setting, with a particular focus on hydrogeology and groundwater resources.
- Chapter 4, *Evaluation of Hydrogeologic Effects*, which presents the methods and results of an evaluation of proposed groundwater extraction on groundwater levels and flow.
- Chapter 5, *Impact Evaluation*, which presents a reasoned analysis of the potential impacts of the proposed groundwater supply development associated with the project on the environment.
- Chapter 6, *References*, which includes a list of documents cited in this report.

# 2 PROJECT DESCRIPTION

## 2.1 PROJECT OVERVIEW

NBInv. AP6 proposes to develop an almond orchard on approximately 1,300 acres of land located at 136 South Kasson Road in northern Stanislaus County, California. The orchard will be located on Assessor Parcel Numbers (APNs) 016-010-002 and -003, north of State Highway 132 and west of the San Joaquin River, approximately 1 mile northeast of the unincorporated community of Vernalis. The property location is shown on Figure 1. The property layout is shown in Figure 2 and property parcels are shown

on Figure 3. As shown on Figure 3, the orchard will also include two parcels located northwest of Stanislaus County in San Joaquin County. In past years, the parcels have been used to grow alfalfa, corn, vegetables, tomatoes, fruit and almonds. As of the date of this report, the parcels have been planted with almond saplings and an irrigation system has been installed.

Parcel 016-010-003 is located adjacent to the west bank of the San Joaquin River, and water for irrigation of the parcels is diverted from the river under pre-1914 and riparian rights from Points of Diversion 52089 and 52091 under License No. 004934. Up to 15,897.8 acre-feet/year (AFY) of water may be diverted from the San Joaquin River between March 1 and October 15. In past years, crops have been irrigated using flood and drip irrigation. Tailwater is captured for reuse in several on-site ponds which are shown on Figure 2. A drip irrigation system has been installed to irrigate the recently planted almond orchard.

To supplement the existing surface water supplies, the applicant proposes to install three supply wells at the locations shown on Figure 3, in the eastern portion of APN 016-010-003 (hereinafter referred to as the Site). Permit applications for construction of these wells are included as Appendix A and a Supplemental Application Package to comply with the County Groundwater Ordinance is included as Appendix B. The wells will serve as a backup supply during times of drought when permitted diversions from the river could be decreased. We understand that because of the seniority of the surface water right, curtailment of diversions was not required even during the recent drought. As such, construction of the proposed wells will help assure availability of a water supply under potential future scenarios with a relatively low probability. Based on our conversation with the ranch operator, Mr. Stephen Perez, the maximum anticipated groundwater extraction from the proposed wells is 1,300 acre-feet during a two-month period from June to July, during the height of the irrigation season. The long-term average groundwater demand is not expected to exceed 1,000 AFY. The individual wells will be pumped at peak rates between 1,000 and 2,000 gallons per minute (gpm).

Based on a test well program implemented by Canepa and Sons Drilling in June 2019 (Appendix C), the wells will be constructed to extract water from the unconfined aquifer system above the Corcoran Clay, where water of adequate quality and quantity is expected to be encountered. The estimated well depths are approximately 300 feet. The wells are proposed to be constructed using 16-inch diameter steel casing and screen completed in 26-inch diameter boreholes with annular filter packs. A steel conductor casing will be installed in the upper portion of the wells. Sanitary seals are expected to extend from the ground surface to depths of approximately 100 feet. The wells will be completed at the surface with small concrete pads, and fitted with electrical line-shaft turbine pumps. Electrical service will be extended to the well locations from existing distribution lines. Fenced enclosures, typically measuring approximately 10 feet by 20 feet, may be constructed around each well. Well construction and development work is anticipated to take place during the spring of 2020.

The wells will be located immediately adjacent to existing dirt and gravel ranch roads. Temporary well construction work areas will be established around each well site during drilling. The work areas will measure up to approximately 50 by 100 feet, and will be located in existing level areas that are cleared and used for ranch road, parking or storage purposes, and were previously used for agricultural purposes. Access to the areas will be via existing dirt and gravel ranch roads. The upper approximately 20 feet of the well borings will be drilled to a diameter of approximately 30 to 35 inches using a bucket auger and a



steel conductor casing will be installed. The wells will be constructed using the mud rotary method by drilling through the inside of the conductor casings. Drilling equipment, typically consisting of a drilling rig, pipe truck water truck, forklift, compressors, pumps, light stands, desander, mud pit and support trucks will be mobilized for approximately two to three weeks at each drilling location. Work during drilling of the wells will be conducted during normal working hours, but may be conducted utilizing shift work, 24 hours per day, seven days per week, depending upon conditions. Well development, pump testing, pump installation and surface completion will be conducted over the course of an additional month during regular working hours. Equipment will include development rigs, jib cranes and work trucks. Construction of irrigation wells is an agricultural activity, and is exempt from the County Noise Ordinance.

## 2.2 APPLICABLE REGULATIONS

The Site is not located in an adjudicated basin or in a special act district that regulates the extraction of groundwater. The applicant would be able to supply groundwater for beneficial use on the properties to be irrigated under an overlying (correlative) groundwater right. No new entitlements would be required. Construction and operation of the wells must comply with the Stanislaus County Groundwater Ordinance adopted in November 2014 (Chapter 9.37 of the Stanislaus County Code), which codifies requirements, prohibitions, and exemptions for permitting new wells with the intent of supporting sustainable groundwater extraction. In addition, the Project will have to comply with the requirements of a Groundwater Sustainability Plan (GSP) that will be adopted for the area by 2020 under California's new Sustainable Groundwater Management Act (SGMA). Stanislaus County's Groundwater Ordinance is deliberately aligned with the requirements of SGMA. Under the Ordinance, unless otherwise exempt, an applicant that wishes to install a new groundwater well must first provide substantial evidence the well is not unsustainably extracting groundwater as defined in the Ordinance and in SGMA. The County has determined that the proposed wells are not exempt from these requirements. The Ordinance and SGMA define unsustainable extraction as causing undesirable results, which are defined as meaning one or more of the following:

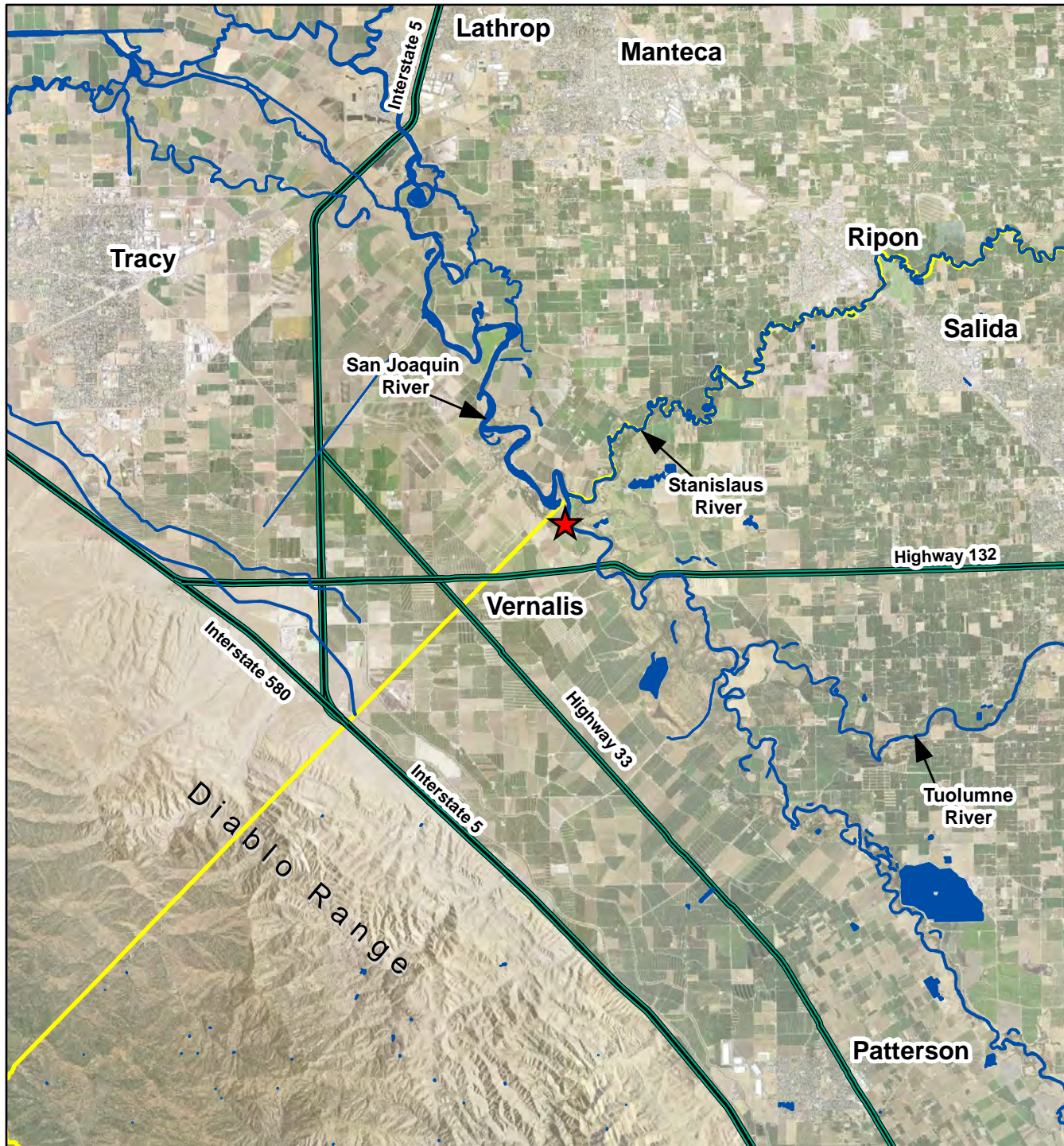
- a. *Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.*
- b. *Significant and unreasonable reduction of groundwater storage.*
- c. *Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.*
- d. *Significant and unreasonable land subsidence that substantially interferes with surface land uses.*
- e. *Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water.*

The compliance of the proposed wells with these requirements is evaluated in Section 5 of this report. Prior to issuing a permit to construct the wells, the County will review this information and make a determination whether the proposed groundwater extraction will not cause or contribute to one or more of the above undesirable results. In addition, because the permits are discretionary, the County must complete a review





of the proposed well construction under CEQA. To that end, it should be noted that the undesirable results listed above are aligned with questions contained in Appendix G of the State CEQA Guidelines.

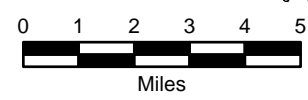
Anticipated permit conditions are summarized in JJ&A 2018 and include the following:

- **Special Well Construction Requirements.** The permit will specify any special well construction requirements, such as logging, seal depths and maximum well depths or other requirements. Non-exempt wells are required to have grout seals that extend to a depth of at least 100 feet below the ground surface in order to reduce the potential for interaction with surface water and GDEs.
- **Well Testing.** The permit will specify any special well testing requirements. It is anticipated that specific capacity tests for the proposed wells will be required to be reported to the County.
- **Water Use Accounting.** The maximum average annual volume of groundwater that may be extracted will be specified in the permit based on information provided by the applicant and the results of the application review. The well owner will be required to install and maintain a metering device as part of the water supply and distribution system to document groundwater extraction from the well in gallons per month. Proof that the device is installed and operational (a manual and photos) will be required prior to beginning extraction, and the device will be required to be maintained for the life of the well. By January 31 of each year, the well owner will be required to submit an annual groundwater extraction report for the prior year that details the volume of groundwater extracted each month from the well for the prior year in gallons and acre-feet per month.
- **Groundwater Level Monitoring.** Within 30 days after receiving the well construction permit, the applicant will be required to submit, for review and approval, a brief monitoring plan that outlines the procedures to be used to obtain groundwater level measurements at the site. A table presenting the date of each measurement, the depth to groundwater measured to the nearest 0.1 foot below ground surface, and the length of time in days since the well was last operated, must be submitted to the County for each year by January 31 of the following year.
- **Additional General Requirements.** This section specifies any additional requirements, such as adherence to general well construction permit conditions, state and county well construction standards, and Mitigation Monitoring and Reporting requirements resulting from the CEQA review, if any.
- **Permit Terms.** A Consumptive Use Permit will be issued that would specify the term under which groundwater may be withdrawn from the well prior to renewal. The permit will be issued for a term that coincides with the adoption of a GSP for the area, and every five-year update cycle thereafter (i.e., the initial permit term would be through January 31, 2025). With each renewal, the permit conditions will be updated as needed to be consistent with the requirements of the GSP in-force at that time.



**Legend**

-  Site Location
-  Surface Water
-  Major Highways
-  Stanislaus County Boundary



**Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells**

**Figure 1. Location Map**

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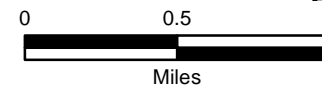




### Legend

-  Proposed Well Locations
-  Agricultural Return Ponds
-  Site Boundary
-  Stanislaus County Boundary
-  Canals / Ditches
-  Surface Water
-  Kasson Road
-  Major Highways

Source: <http://www.sjmap.org/DistrictViewer/>;  
Stanislaus County IT Central Public Inquiry Map



**Groundwater Resources Impact Assessment,  
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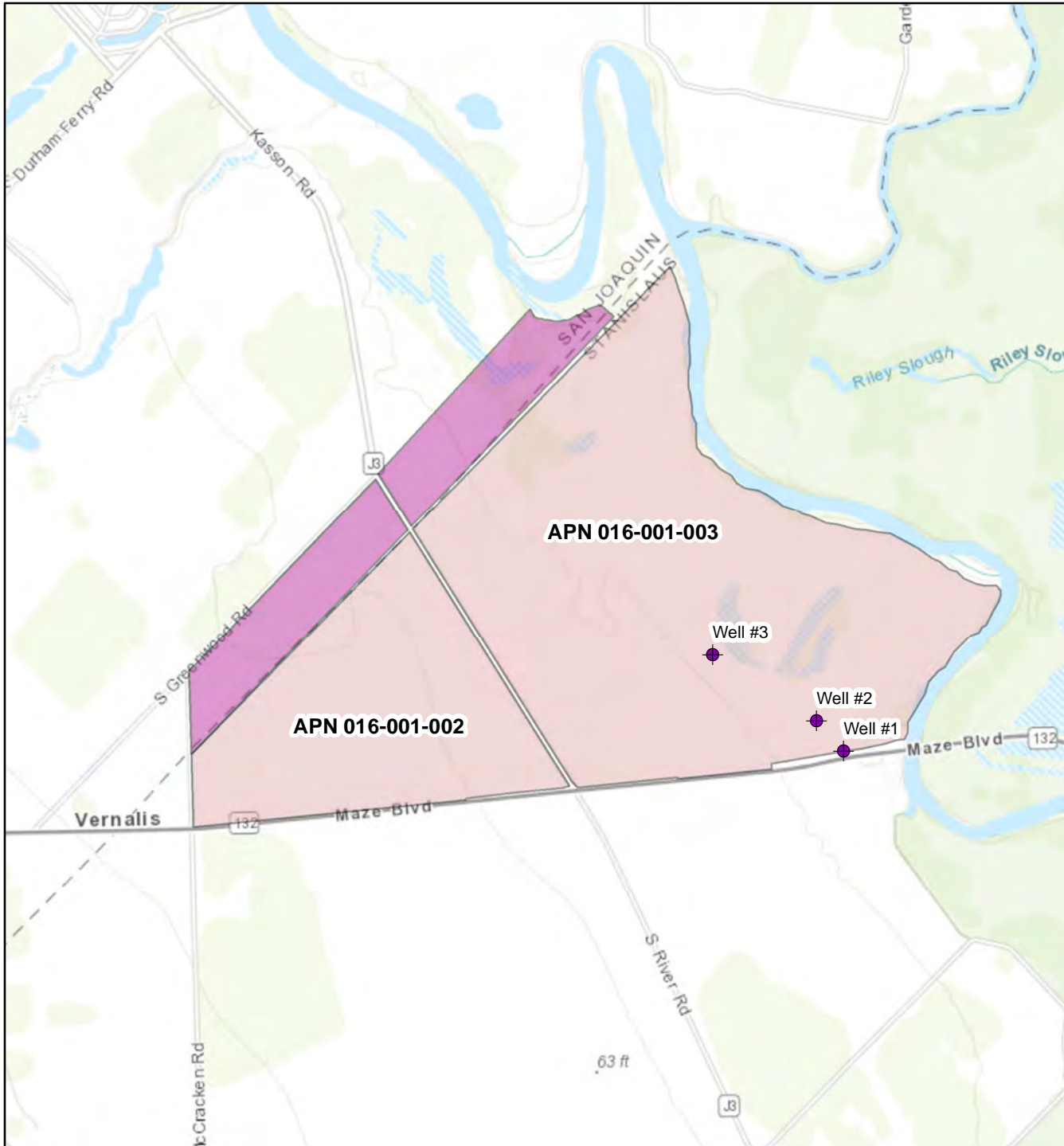
**Figure 2. Site Layout**

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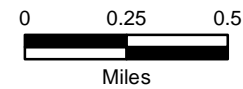
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**Legend**

-  Proposed Well Location
-  Stanislaus County Parcel Boundaries
-  San Joaquin County Parcel Boundaries

Source: <http://www.sjmap.org/DistrictViewer/>;  
Stanislaus County IT Central Public Inquiry Map



**Groundwater Resources Impact Assessment,  
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**Figure 3. Parcels to be Served  
by Proposed Wells**

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## **3 PROJECT SETTING**

### **3.1 SITE LOCATION AND LAND USE**

The proposed wells will be located on parcel APN 016-001-003 (the Site). This 934-acre parcel is located in northern Stanislaus County bounded by State Highway 132 to the south, South Kasson Road to the west, the San Joaquin River to the east, and the Stanislaus County line to the north. The Site is situated approximately 11 miles south-southeast of Tracy, 10 miles west of Modesto, 12 miles north of Patterson and 2 miles northeast of the unincorporated community of Vernalis. This parcel, and additional parcels on which an almond orchard will be developed, is zoned for agricultural use and part of a ranch that has been cultivated for over 100 years. The majority of the parcel was previously used to cultivate annual crops. The proposed well sites are located in the eastern portion of the parcel, approximately 1,000 to 2,600 feet from the San Joaquin River, and adjacent to existing ranch roads within the cultivated area. The surrounding land use is primarily agricultural. Some of the agricultural parcels in the area include residences. The San Joaquin River National Wildlife Refuge is located to the east and southeast along the San Joaquin River and is separated from the Site by relatively tall flood levees. The Hetch Hetchy Pipeline passes approximately 0.6 mile south of the Site.

### **3.2 PHYSIOGRAPHIC SETTING**

The Site is located on the floor of the northern San Joaquin Valley along the western bank of the of the San Joaquin River, opposite the confluence of the Stanislaus and San Joaquin Rivers (Figure 1). It is located approximately 10 miles east of the Diablo Range. The San Joaquin Valley comprises the southernmost portion of the Great Valley Geomorphic Province in California, an elongated, asymmetrical basin that extends north-northwest between the Coast Range and the Sierra Nevada for over 400 miles. In the area surrounding the Site, mountains of the Diablo Range rise abruptly to the west, giving way to low hills and dissected alluvial fans at their base. These transition into alluvial and flood plains of the valley floor, where the Site is located. The southwestern portion of the Site has a gentle slope to the northeast with an elevation of approximately 54 feet above mean sea level (amsl) near the southwest corner. Halfway across the Site, a northwest trending break in slope gives way to a flat floodplain with an elevation of approximately 23 feet amsl.

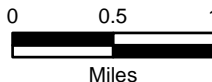
### **3.3 SURFACE HYDROLOGY**

The San Joaquin River is the primary river draining the San Joaquin Valley, flowing north into the Sacramento and San Joaquin Delta before ultimately discharging into San Francisco Bay. The San Joaquin River flows along the eastern margin of the Site and is joined by the Stanislaus River near the northern corner of the Site (Figure 4). The San Joaquin and Tuolumne rivers converge approximately 6 miles southwest of the Site. The Diablo Range is drained mostly by eastward flowing ephemeral streams that, with few exceptions, are absorbed into the valley alluvium and only reach the San Joaquin River during periods of high flow. Major ephemeral creeks draining the Diablo Range near the Site include Corral Hollow, Hospital, and Ingram creeks. Of these, Hospital Creek is the closest and terminates about 7 miles west of the Site. The San Joaquin River National Wildlife Refuge lies east of the Site on the other side of



**Legend**

- Site Boundary
- Lakes and Ponds
- Reservoir
- Rivers
- Streams
- Pipeline
- Canals / Ditches
- GDE Wetlands
- GDE Vegetation
- Kason Road
- Major Highways



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**Figure 4. Hydrologic Features**

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the San Joaquin River. The refuge includes 7,000 acres of managed habitat and wetlands that encompass the confluence of the Stanislaus, San Joaquin, and Tuolumne rivers. Several ponds are located on the Site and collect irrigation return flow water, tile drainage and surface runoff. These ponds exist as part of the irrigation management system for Pescadero Ranch.

The Delta Mendota Canal and the California Aqueduct are located approximately 5.5 and 6 miles southwest of the Site, respectively. The Site's location is not served by surface water deliveries from the Central Valley Project (CVP) or State Water Project (SWP); however, the area of the valley located immediately west and southwest of the proposed almond orchard is served by several water districts (JJ&A 2018). West Stanislaus Irrigation District delivers water diverted from the San Joaquin River as well as CVP water to agricultural customers in a 21,774-acre service territory. Farther west, Del Puerto Irrigation District delivers CVP water to a service territory of approximately 53,000 acres. Similarly, El Solyo Water District, which is located southwest of the Site, delivers San Joaquin River water to approximately 4,060 acres.

### **3.4 CLIMATE**

The area has a "Mediterranean" climate characterized by hot, dry summers and short, wet winters, and averages over 260 sunny days per year. The average annual precipitation at the Modesto meteorological station is just over 13 inches per year, with 88 percent of the precipitation occurring between November and April (Turlock Irrigation District 2012; Sperling's Best Places 2016).

Much of California, including the Central Valley, has experienced unprecedented drought conditions over the last four years. As a result, water conservation measures have been mandated, delivery of surface water from the state and federal water systems has been curtailed, and reliance on groundwater resources for agricultural uses has increased.

### **3.5 GEOLOGY**

The region surrounding the Site is underlain by Late Tertiary to Quaternary continental basin fill deposits (USGS 2009; DWR 2006). Water-bearing formations include the Tulare Formation and overlying alluvium, terraces, and flood basin deposits. The cumulative thickness of these stratigraphic units ranges from a few hundred feet at the base of the Diablo Range to 3,000 feet near the center of the San Joaquin Valley.

Alluvial units extend from the base of the Diablo Range as foothills. Younger alluvial units deposited in the Holocene are present in active stream beds and include associated bank and terrace deposits. This highly permeable layer is less than 100 feet thick and consists of unconsolidated silt, fine- to medium-grained sand, and gravel. Older alluvial units dating to the Pliocene and Pleistocene consist of compacted sand, silt, and gravel. Older alluvial sediment is moderately to highly permeable and can have a thickness of up to approximately 150 feet.

The Tulare Formation is the primary water-bearing formation in this region. It is exposed in certain areas along the base of the Diablo Range before dipping eastward toward the axis of the San Joaquin Valley. This moderately permeable formation can be up to 1,400 feet thick and consists of semi-consolidated, poorly sorted, discontinuous deposits of clay, silt, and gravel. Tongues of sediment are alternately



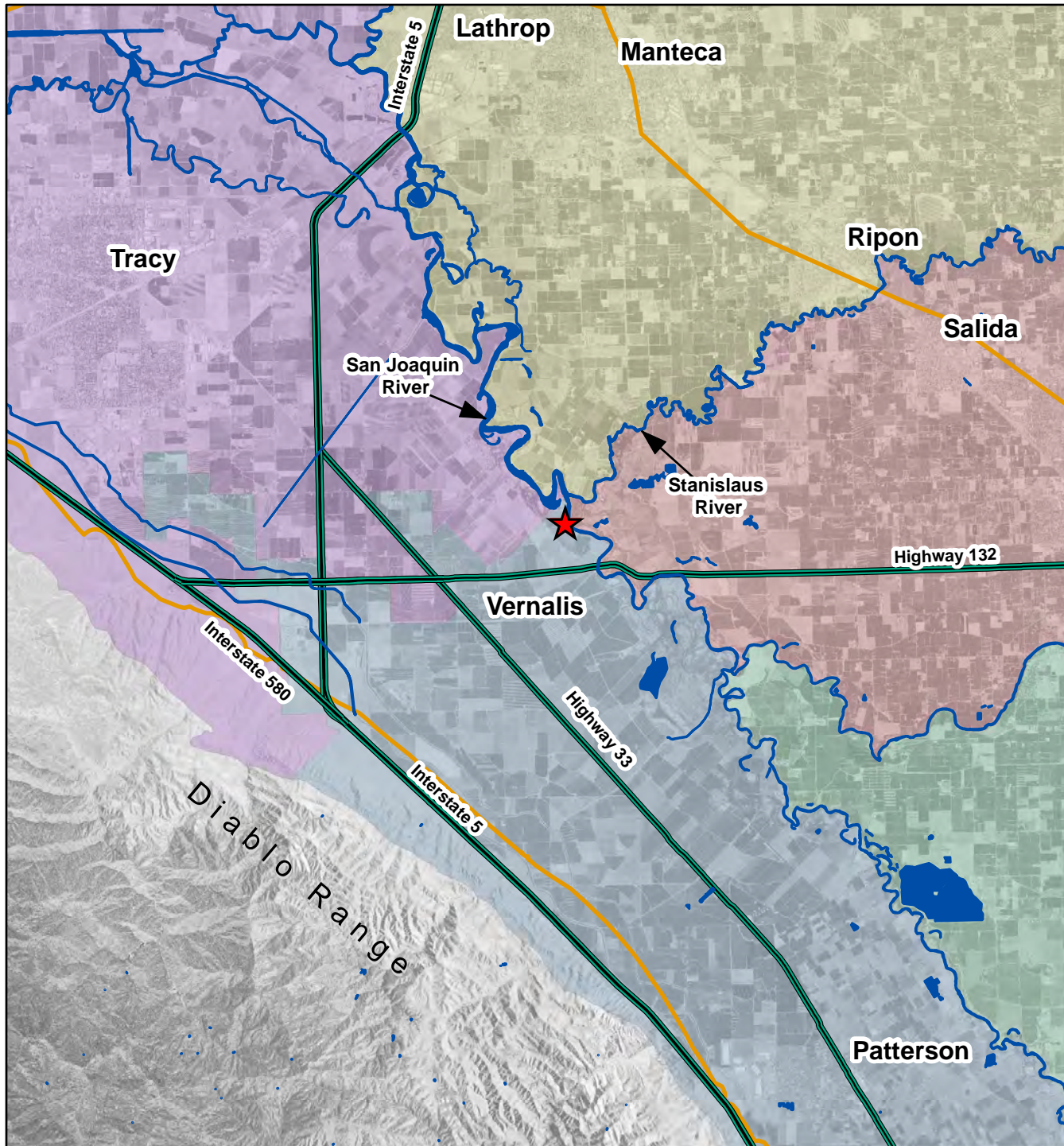
deposited in oxidizing and reducing environments. The Corcoran Clay is a laterally extensive lacustrine unit of the Upper Tulare Formation. It acts as a regional aquitard dividing groundwater deposits into an upper unconfined to semi-confined aquifer and a lower confined aquifer. At the Site, the depth to the Corcoran Clay is reported to be approximately 200 feet below ground surface (bgs) (USGS 2009); however, test wells drilled at the Site encountered the Corcoran Clay at depths ranging from approximately 250 to 300 feet bgs. Logs for the test wells are included as Appendix C. The Corcoran Clay is reported to be approximately 40 feet thick in this area (USGS 2009).

### **3.6 HYDROGEOLOGY**










As shown in Figure 5, the Site is located in the Delta-Mendota Subbasin (DMS) of the San Joaquin Valley Groundwater Basin (DWR Basin Number 5-022.07; DWR 2006). The DMS extends from San Joaquin County along the west side of the San Joaquin Valley for approximately 80 miles, crossing a total of four counties and encompassing an area of approximately 747,000 acres. The northern portion of the DMS in Stanislaus County is bounded by the Tracy Subbasin to the northwest and the Modesto and Turlock Subbasins to the northeast, on the opposite side of the San Joaquin River (Figure 5). The boundary between the DMS and the Tracy Subbasin was recently adjusted to follow the jurisdictional boundaries of the Western San Joaquin and Del Puerto Irrigation Districts, which extend from Stanislaus County into San Joaquin County. To the southwest, the DMS is bounded by relatively impermeable Pre-Tertiary rocks of the Diablo Range. The southwestern margin of the DMS consists of low hills and dissected alluvial fans at the foot of the Diablo Range. A short distance to the east of the Diablo Range, elevations drop off into alluvial and flood plains associated with the San Joaquin River. The Delta Mendota Canal and California Aqueduct run along the western margin of the DMS.

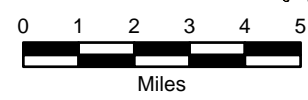
Groundwater in the DMS occurs in the Tulare Formation and overlying Holocene alluvium. The top of the Corcoran Clay occurs at depths of approximately 100 to 300 feet below ground surface in this area, and extends from near the western margin of the DMS to beneath the San Joaquin River. Near the western margin of the DMS, the Corcoran Clay divides the Tulare Formation into an upper aquifer system that is unconfined to semi-confined and a lower aquifer system that is confined. The Tulare Formation extends to a depth of over 1,000 feet and includes other lacustrine clay units; however, the Corcoran Clay is the most prominent and continuous. Portions of the San Joaquin River are hydraulically connected to the upper aquifer system. The San Joaquin River is reported to be gaining (i.e., groundwater is discharging to the river) in the reaches near the Site (USGS 1989).

DWR has included the DMS on the list of critically overdrafted basins, largely due to subsidence reported outside Stanislaus County to the south (DWR 2016). Nevertheless, the unreliability of surface-water deliveries from state and federal water projects has resulted in an increase in agricultural and municipal groundwater demand in some portions of the DMS in Stanislaus County. This trend is expected to continue in the future as climatic conditions and environmental flow requirements continue to affect the reliability of surface-water deliveries. Groundwater levels have fallen over 40 feet in the last 10 years in the southern portion of the DMS in Stanislaus County. Groundwater levels near the Site have been relatively stable, but up to about 10 feet of groundwater level decline has occurred in an area southwest



**Legend**

-  Site Location
  -  Surface Water
  -  Major Highways
  -  Corcoran Clay Extent
- DWR Groundwater Subbasin**
-  Delta-Mendota
  -  Eastern San Joaquin
  -  Modesto
  -  Tracy
  -  Turlock



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Pescadero Ranch Supplemental Wells**

**Figure 5. Hydrogeologic Setting**

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of the Site (Section 3.6.3). Active subsidence of 1 to 2.5 inches was reported by DWR from 2005 to 2017 at continuous survey station P259, located near Patterson at the intersection of Marshall Road and State Highway 33, about 16 miles southeast of the Site (DWR 2016). DWR has designated the DMS as having a high potential for future subsidence.

The total groundwater storage capacity of the DMS is an estimated 30,400,000 acre feet to a depth of 300 feet, and 81,800,000 acre feet to the base of fresh groundwater (DWR 2006). Groundwater production wells are completed in both the unconfined and confined aquifer systems; however, most high-capacity wells extend into the confined aquifer system, beneath the Corcoran Clay.

### **3.6.1 WELL INVENTORY**

Our review of Well Completion Reports (WCRs) for wells located in the general area of the Site indicates that irrigation and domestic wells are completed both above and below the Corcoran Clay to depths ranging from approximately 100 to 800 feet (State Water Resources Control Board [SWRCB] 2019a). These supply wells have reported estimated yields up to approximately 2,000 gpm. WCRs downloaded from the SWRCB Geotracker GAMA site (SWRCB 2019a) indicate that most of the domestic wells in the area are completed in the shallow, unconfined aquifer above the Corcoran Clay. Some wells were completed as composite wells with screen intervals both above and below the Corcoran Clay. This was common practice in past years but is widely discouraged today and prohibited in some jurisdictions because it can result in the cross-connection of aquifers with varying water quality. Typically, composite wells in this area produce most their extracted water from the confined aquifer.

The well inventory identified nearby well locations (and probable locations) from the California Statewide Groundwater Elevation Monitoring Program (CASGEM) and GeoTracker Groundwater Ambient Monitoring and Assessment Program (GAMA) interactive mapping applications, U.S. Geological Survey (USGS) topographic maps, and from aerial imagery (rural residences and irrigation well enclosures) (refer to Figures 8 and 9 for well locations). It is typically expected that many of these wells are not being used; however, their presence confirms that surface water use for irrigation in the vicinity of the Site is supplemented by groundwater pumping and rural residences are typically supplied by groundwater wells. The wells located near the Site also represent potential receptors of drawdown from pumping the proposed supplemental wells at Pescadero Ranch.

### **3.6.2 AQUIFER PROPERTIES**

The following aquifer properties are estimated for the upper aquifer underlying the Site.

#### Hydraulic Conductivity:

- Evaluation of specific capacity test data for two composite wells (well with completion intervals above and below the Corcoran Clay) within approximately 1 mile of the Site yielded hydraulic conductivities of 6 and 24 feet/day, with a geometric mean of 11 feet/day (SWRCB 2019a).
- Evaluation of specific capacity test data for four composite wells (well with completion intervals above and below the Corcoran Clay) approximately 6.5 miles northwest of the Site yielded an average hydraulic conductivity of 11 feet/day (confidential report).

- A pumping test conducted for a site near Ingram Creek, approximately 7 miles southwest of the Site, yielded hydraulic conductivity estimates for the unconfined to semi-confined aquifer system of 7.4 to 12.4 feet/day, with an average of 10.4 feet/day (JJ&A 2016). This pumping test was conducted close to the Diablo Range outside of the Corcoran Clay subcrop area.
- Analysis of 10 specific capacity tests for composite wells in Patterson and Newman yielded geometric mean hydraulic conductivity of 42 feet/day and a 10<sup>th</sup> percentile hydraulic conductivity of 20 feet/day (JJ&A 2017).
- The calibrated hydraulic conductivity of the shallow aquifer in the initial version of the Central Valley Hydrologic Model (CVHM) in the Delta-Mendota Subbasin reported by USGS was 9.1 feet/day (USGS 1989).
- A more sophisticated textural model developed for the USGS MERSTAN model was used to develop the Stanislaus County Hydrologic Model (SCHM) and indicates that a zone of higher hydraulic conductivity sediments exists in the shallow aquifer near the San Joaquin River. The hydraulic conductivity in this zone ranges from approximately 50 to 150 feet/day (JJ&A 2017).
- The vertical hydraulic conductivity of the Corcoran Clay near the Site is not known, but a reasonable range based on the literature is approximately 6.2 E-04 to 3.0 E-06 feet/day (USGS 2009; USGS 2004).

Specific Yield:

- DWR has estimated the average specific yield of the water-bearing sediments in the DMS as 11.8 percent (DWR 2006).

Storativity:

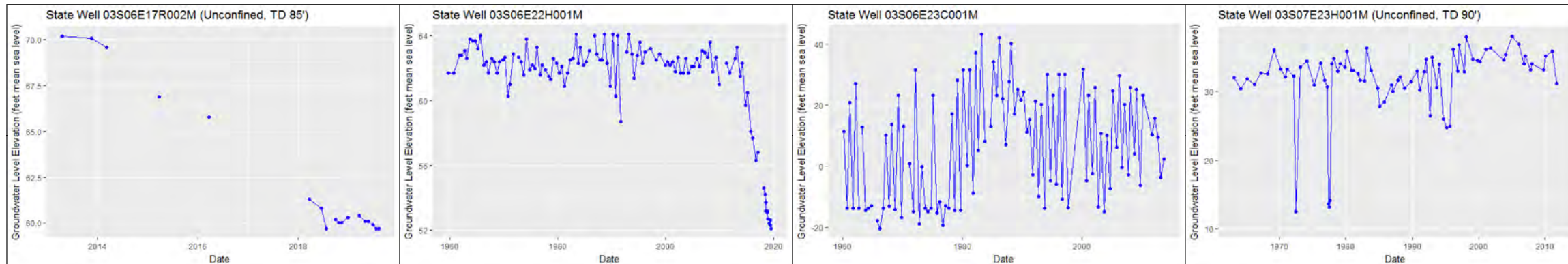
- The storativity of the confined aquifer from the Patterson City Well No. 7 pumping test was 0.0003 (KDSA 2013). This is similar to the results of a pumping test conducted by Kleinfelder (2016) near Ingram Creek, which was 0.0003 for the semi-confined forebay aquifer in the area near Ingram Creek (JJ&A 2016). Based on our experience, this value would be typical for semi-confined portions and depths of the upper aquifer. For the unconfined portions, a lower value such as 0.04 may be reasonable.

### **3.6.3 GROUNDWATER LEVELS AND FLOW**

Groundwater hydrographs for several wells near the Site that are screened in both the confined and unconfined aquifers, and for which long term hydrographs are available, were retrieved from the DWR's CASGEM and SGMA Data Viewer websites and are shown on Figure 6 (DWR 2019b). Potentiometric surface maps generated using data from this website are included in Appendix D.

The groundwater elevation contour maps included in Appendix D were derived from wells completed at various stratigraphic depths and should therefore be used with great caution when interpreting conditions in the unconfined aquifer. Nevertheless, the following observations may be made. Groundwater levels show approximately 20 to 30 feet of variation between spring and fall measurements at many locations. This is typical of the confined aquifer. Groundwater flow directions were variable near the site over the last eight years and appear to be influenced by local groundwater pumping and possibly recharge.



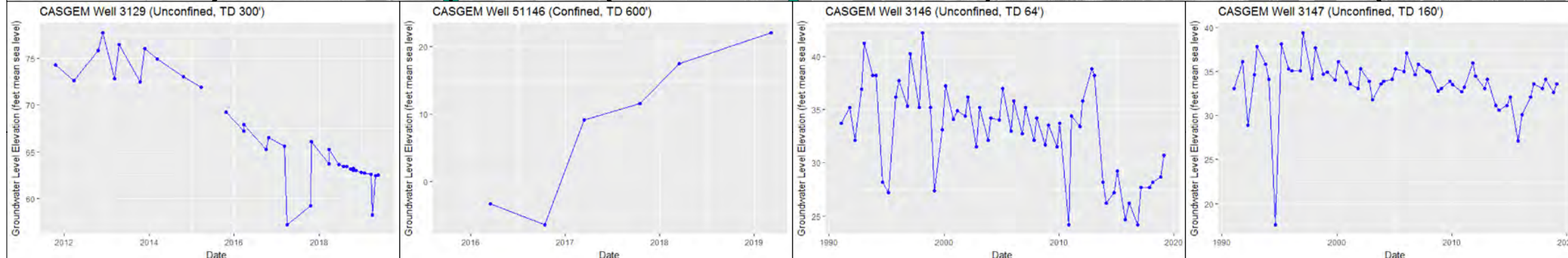


### Legend

- Project Location
- CASGEM WELL
- Voluntary Well



Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells



**Figure 6. Hydrographs for Selected Wells Located Near the Site**

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Between 2008 and 2018, groundwater levels in an area approximately 3 to 6 miles west to southwest of the Site declined by approximately 10 feet. This observation applies to both spring and fall measurements. Analysis of long-term hydrographs in the region, including hydrographs shown on Figure 6, indicate water levels in the general vicinity of the Site have been relatively stable since the 1960s, with periodic declines and subsequent recovery, with the exception of several hydrographs for wells west of the Site over the last 10 years. The stability of hydrographs near and east of the Site can likely be attributed to the long-term availability of surface water from the San Joaquin River in this area. Stable groundwater levels indicate discharge (including pumping) and recharge are approximately in balance over the long term.

Several hydrographs (CASGEM Well 3129, CASGEM Well 3146, State Well 03S06E17R002M, State Well 03S06E22H001M) located west and southwest of the Site and screened in the unconfined aquifer system show a drop in groundwater levels starting approximately in 2014. Groundwater levels in CASGEM Wells 3129 and 3146 fell approximately 13 feet, while State Wells 03S06E17R002M and 03S06E22H001M fell by approximately 10 feet since 2014. These declines may be related to reduced recharge and/or increased pumping during the recent drought, and are typical of groundwater level trends in the region during this time period. All wells except for State Well 03S06E22H001M have stabilized or started to recover in the one to four years following the initial decline. Completion information for this well was not available.

Studies performed for the City of Tracy indicate that the potentiometric surface of the confined aquifer is approximately 60 to 100 feet lower than the water table of the unconfined aquifer in that area (EKI 2016). Based on the available information, the depth to groundwater is anticipated to be approximately 20 feet at the Site.

### **3.6.4 GROUNDWATER BUDGET AND EXISTING GROUNDWATER DEMAND**

Groundwater budget information for the DMS derived from the SCHM are summarized below from 2000 to 2015 (JJ&A 2017). These groundwater budgets indicate that groundwater storage in the DMS within Stanislaus County has increased or decreased historically depending on the water year type and availability of surface water to meet irrigation demand. Not unexpectedly, 2015 represented the year with the greatest storage depletions and the highest volumes of agricultural groundwater pumping. During other years that represent normal or wet conditions, groundwater storage either increased or remained relatively unchanged.



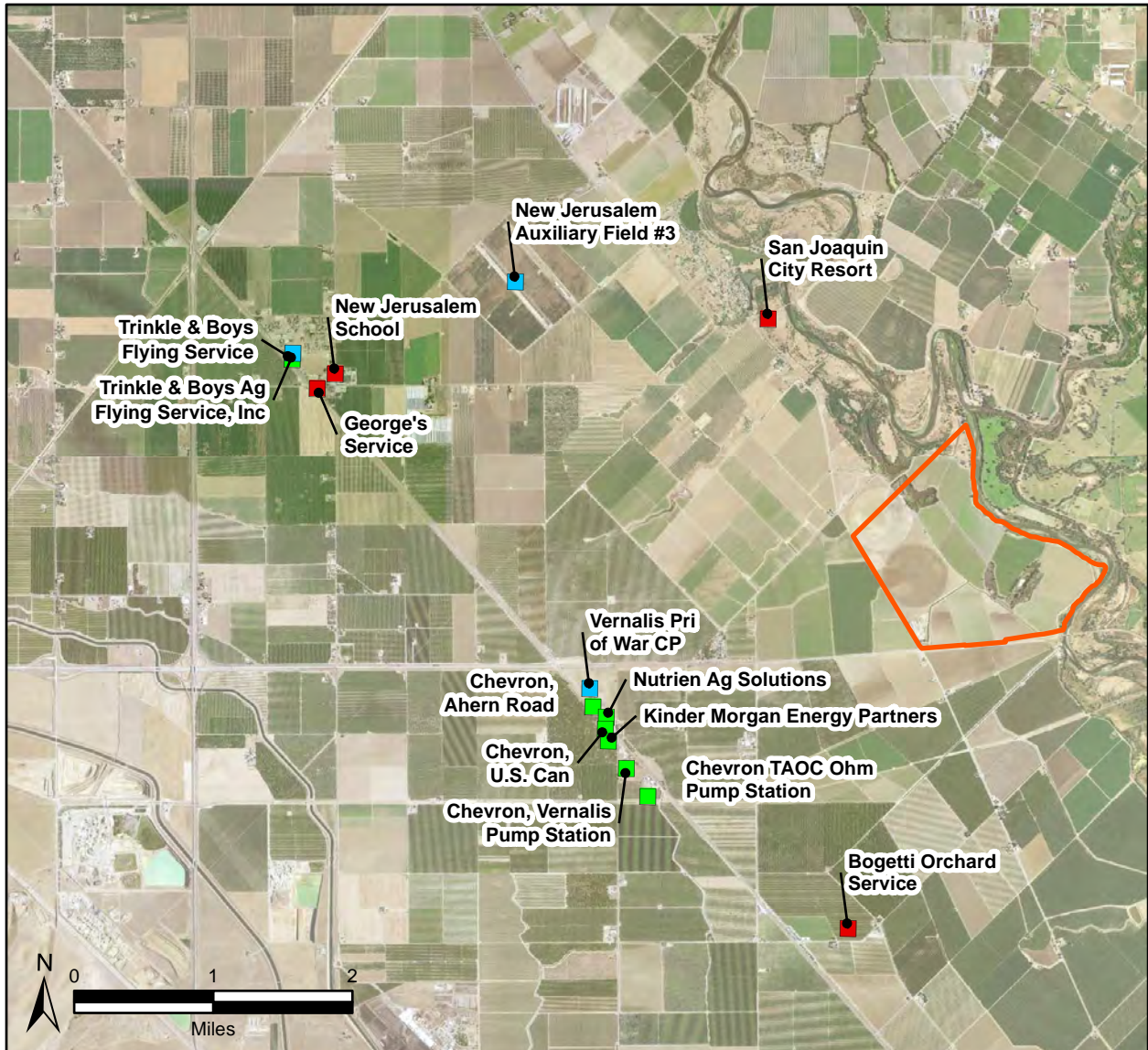
**TABLE 1. ESTIMATED HISTORICAL SITE GROUNDWATER BUDGET FOR THE DELTA-MENDOTA SUBBASIN**

Groundwater Budget Component	Water Budget (acre-feet)			
	WY 2000	WY 2005	WY 2010	WY 2015
Recharge from Surface Water Diversion/Delivery Losses	10,547	9,488	11,147	6,444
Net Inflow from (+) or Discharge to (-) Streams	(29,475)	4,376	(3,864)	(22,346)
Deep Percolation of Precipitation and Irrigation to Groundwater	67,311	61,418	50,278	36,694
Net Underflow In (+)/Out (-) from Adjacent Subbasins	81,771	87,392	77,470	115,884
Agricultural Groundwater Pumping	(127,880)	(116,935)	(85,345)	(233,864)
Municipal Groundwater Pumping	(4,788)	(6,038)	(6,394)	(5,644)
Rural Domestic Groundwater Pumping	(1,371)	(1,394)	(1,416)	(1,467)
Change in Storage	(3,885)	38,276	41,826	(103,399)

### 3.6.5 GROUNDWATER QUALITY

Groundwater quality varies spatially and with depth in the DMS. Groundwater quality information from GeoTracker GAMA was reviewed for the 10 nearest wells to the Site, which are located at distances ranging from approximately 500 feet to just under 2 miles (SWRCB 2019a). Detected concentrations of total dissolved solids (TDS), which are a general indicator of natural water quality, ranged from 224 to 2,412 milligrams per liter (mg/L), with a recent average of 1,085 mg/L. Interpretation of geophysical logs from four test wells drilled at the Site in June 2019 indicates that water quality is generally better (i.e., TDS content is lower) near the river in the upper, unconfined aquifer (Appendix C). The driller that implemented the test well program indicated that in their experience water quality generally improves west of Kasson and Old River Roads to the west of the Site (R. Canepa 2019, personal communication). Data from GeoTracker GAMA also indicates that nitrate concentrations detected in wells in the vicinity of the Site are generally below the Maximum Contaminant Level (MCL) for drinking water. Review of other water quality data for wells located near the Site did not identify any other water quality issues.

The SWRCB GeoTracker database was reviewed to assess whether there are any reported contaminant release cases located near the Site that could potentially affect the quality of water extracted from the water supply wells proposed for the Project (SWRCB 2019a). The results of our review are shown on Figure 7. No contamination cases were reported within 1 mile of the Site. A total of 14 cases were reported between approximately 1.5 and 4 miles from the Site; however, all but four are reported as Closed or No Further Action. All four of the open cases are located in Vernalis, approximately 2.25 miles southwest of the Site.



Site Name	Contaminant	Program	Media of Concern	Status
Chevron TAOC Ohm Pump Station	Crude oil	Cleanup Program Site	Under investigation	Open: 2008
Chevron, Ahern Road- Vernalis	Crude oil	Cleanup Program Site	Groundwater (non-drinking), soil, under investigation	Open: 2011
Chevron, U.S. Can, Vernalis	Gasoline, Trichloroethylene (TCE)	Cleanup Program Site	Groundwater (non-drinking), soil	Closed: 2014
Chevron, Vernalis Pump Station (Former Roberts)	Petroleum	Cleanup Program Site	Groundwater (non-drinking), soil	Closed: 2012
George's Service	Gasoline	Lust Cleanup Site	Aquifer used for drinking water	Closed: 2018
Bogetti Orchard Service	Gasoline	Lust Cleanup Site	Aquifer used for drinking water	Closed: 2004
Kinder Morgan Energy Partners- Vernalis Site	Petroleum, fuels, oils	Cleanup Program Site	Under investigation	Open, inactive: 1996
New Jerusalem Auxiliary Field #3	No contaminants found	DTSC Cleanup Site	No media affected	No further action: 2008
New Jerusalem School	Gasoline	Lust Cleanup Site	Soil	Closed: 1999
Nutrien Ag Solutions	1,2,3-Trichloropropane (TCP), Nitrate, other Chlorinated Hydrocarbons, insecticides, pesticide, fumigants, herbicides	Cleanup Program Site	Groundwater (non-drinking)	Open: 2014
San Joaquin City Resort	Gasoline	Lust Cleanup Site	Soil	Closed: 1997
Trinkle & Boys Flying Service	Insecticides, pesticide, fumigants, herbicides	Cleanup Program Site	Soil	Closed: 2012
Trinkle & Boys Ag Flying Service, Inc	Soil, pesticide containers, hydrocarbon solvents, pesticide rinse waters, pesticide	DTSC Cleanup Site	None specified	Referred to the RWQCB: 1993
Vernalis Pri of War CP	None specified	DTSC Cleanup Site	None specified	No further action: 2014

**Figure 7**

**Reported Nearby Contamination Sites**

**Groundwater Resources Impact Assessment, Pescadero Ranch Supplemental Wells**

**Legend**

- Cleanup Program Sites
- DTSC Cleanup Sites
- LUST Cleanup Sites
- Site Boundary



Date: 11/7/2019

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### 3.7 GROUNDWATER DEPENDENT ECOSYSTEMS

Potential groundwater-dependent ecosystems were identified by accessing the database of Natural Communities Commonly Associated with Groundwater (NCCAG) developed by The Nature Conservancy and available on DWR's NC Viewer website (DWR 2019). Potential wetland and vegetation groundwater dependent ecosystems (GDEs) are shown on Figure 4, and include the following:

- Two ponds located in the south-central portion of the Site and one additional pond straddles the northern Site boundary. These ponds were developed as part of the ranch operations and are used to collect irrigation tailwater from the Site and surrounding parcels for reuse. The vegetation and wetland communities associated with these ponds are expected to receive their water supply primarily or exclusively with their use as tailwater collection ponds, and not with the underlying groundwater.
- Potential GDE areas are located near the San Joaquin River and its tributaries. These are part of the San Joaquin River National Wildlife Refuge and include wetland areas that are connected to the river, as well as floodplain areas that are subject to periodic inundation. The floodplain areas are occupied by phreatophyte woodlands including Goodding's Willow (*Salix gooddingii*), Narrow Leaf Willow (*Salix exigua*), Fremont Cottonwood (*Populus fremontii*), Valley Oak (*Quercus lobata*), Box Elder (*Acer negundo*) and Douglas' Wormwood (*Artemisia douglasiana* - provisional). The predominant vegetation in the wetland areas is Hardstem Bullrush (*Schoenoplectus acutus*, and *S. californicus*). Based on their proximity to the river and location on the river floodplain, the phreatophyte woodlands appear to receive their water supply from a combination of surface water and shallow groundwater associated with the river. Based on their connection with the river, the wetlands appear to rely on surface water as their primary supply.

### 3.8 SUBSIDENCE

DWR has included the DMS on the list of critically overdrafted basins, largely due to subsidence reported outside Stanislaus County to the south (DWR 2016). Subsidence within the County has been much more limited, and has not resulted in reported infrastructure damage. Nevertheless, DWR has designated the entire DMS as having a high potential for future subsidence.

Land subsidence can occur when compressible clays are depressurized from groundwater extraction, triggering water to flow from the clays into the surrounding aquifer, and ultimately consolidation of the clay under pressure from the overlying sediments. Aquifers with strongly confined conditions, such as those below the Corcoran Clay, experience greater head loss from groundwater extraction than unconfined aquifers, and are more susceptible to subsidence. In general, most subsidence occurs when an aquifer is initially depressurized, but can continue for months, or even years, as clays slowly dewater and adjust to the new pressure regime. If groundwater levels subsequently recover, subsidence generally does not resume (or does not progress as rapidly), until groundwater levels fall below historical low levels. Most of the subsidence in the county is believed to have occurred as a result of groundwater extraction from confined aquifers underlying the Corcoran Clay (JJ&A 2018). Subsidence could also occur when groundwater is withdrawn from unconfined or semi-confined aquifers overlying the Corcoran Clay, or outside the Corcoran Clay subcrop area, but it is far less likely.

Groundwater levels fell over 40 feet in the last 10 years in the southern portion of the DMS in Stanislaus County. In some locations, these groundwater levels represent historical lows based on available records. Active subsidence of 1 to 2.5 inches was reported by DWR from 2005 to 2017 at continuous survey station P259, located near Patterson at the intersection of Marshall Road and State Highway 33, about 16 miles southeast of the Site (DWR 2016). DWR and Bureau of Reclamation have undertaken a joint subsidence monitoring program in support of the San Joaquin River Restoration Program that includes a geodetic control network of monitoring stations; however, the northern extent of the area of focus and concern for this program is located well south of the Site near Patterson (USBOR 2014). Groundwater levels near the Site have been relatively stable, but up to about 10 feet of groundwater level decline has occurred in an area west and southwest of the Site (Section 3.6.3).

## 4 EVALUATION OF HYDROLOGIC EFFECTS

### 4.1 CONCEPTUAL UNDERSTANDING

The proposed supplemental wells for Pescadero Ranch will extract groundwater from the upper aquifer above the Corcoran Clay near the San Joaquin River. The modeling study is based on the following working conceptual understanding of groundwater occurrence and flow in the vicinity of the Site:

- Bedrock of the Diablo Range, located approximately 7 to 8 miles southwest of the Site, forms a no-flow boundary for the alluvial aquifers underlying the DMS; however, mountain front recharge occurs near the edge of the subbasin, where streams draining the Diablo Range emerge onto small alluvial fans at the edge of the valley, and maintains groundwater levels at relatively constant elevations.
- In the Site area, groundwater occurs in a two-aquifer system, including an upper unconfined aquifer and a lower confined aquifer. These two aquifers are separated by the Corcoran Clay, a regionally extensive aquitard that occurs at a depth of approximately 250 to 300 feet bgs. The Corcoran Clay, impedes groundwater exchange between the upper and lower aquifer.
- The upper aquifer is unconfined to semi-confined, is interpreted to include a zone of sediments with higher hydraulic conductivity extending along the San Joaquin River, and is understood to be hydraulically connected to the river.
- Regional groundwater flow is toward the northeast, away from the Diablo Range and toward the San Joaquin River. This flow pattern is locally disrupted by cones of depression from groundwater pumping. Groundwater levels are relatively stable in most of the wells evaluated near the Site, but have fallen by about 10 feet over the last 10 years in an area about 3 to 4 miles west and southwest of the Site.
- The upper aquifer is recharged by leakance from the San Joaquin River, infiltration of surface discharge from the Diablo Range to the west, deep percolation of irrigation water, areal recharge of precipitation and subsurface inflow from adjacent basins. Discharge from the upper aquifer includes groundwater outflow to the river, subsurface outflow to adjacent basins and vertically downwards through the Corcoran Clay, and groundwater pumping, primarily for irrigation and domestic supply.
- GDEs associated with the San Joaquin River and local tributaries are located along the river. Near the river, they are supplied primarily by surface water.

## 4.2 ANALYTICAL DRAWDOWN MODEL

### 4.2.1 APPROACH AND ASSUMPTIONS

To evaluate the potential effects of groundwater extraction from the proposed supplemental wells, groundwater drawdown and river flow depletion were simulated using the analytical element modeling code AnAqSim (Fitts Geosolutions 2019). AnAqSim is a three-dimensional (multi-layer) analytical element modeling code capable of simulating groundwater flow to wells under confined, unconfined, or semi-confined aquifer conditions. AnAqSim is able to simulate a variety of boundary conditions (e.g., no-flow, constant flux, variable flux, general head, and constant head), line or area sources and sinks (e.g., rivers and recharge), and flow barriers. AnAqSim can be used to simulate transient conditions as a result of pumping from single or multiple wells at constant or varying rates, and calculates the head and discharge as functions of location and time across a designated model grid or at designated points.

The following assumptions and simplifications were used to construct the model:

- The model was constructed using a single layer to simulate the upper aquifer. This is a commonly adopted simplification for simple drawdown models when a shallow aquifer system is being simulated.
- The model domain was established approximately 7.5 (northwest to southeast) by 10 miles (southwest to northeast) orthogonal to the regional flow field. It was centered approximately on the Site and extending to the foot of the Diablo Range.
- Lateral model boundaries were established as constant head boundaries. This is a commonly used simplification when portions of an aquifer system are simulated. Constant heads were assigned based on steady state modeling conducted by USGS to approximately mimic the regional flow field. Constant head boundaries are a commonly used assumption in superposition modeling when recharge or lateral inflow occurs at the boundaries, and the boundaries are located at a remote distance from the area of interest to reduce boundary effects.
- The San Joaquin River was simulated as a gaining river reach with a constant river stage and streambed conductance. The river stage was approximated from USGS topographic maps. Streambed conductance was derived from modeling conducted by the USGS.
- Surface recharge from precipitation, runoff, and irrigation was neglected. This is a conservative assumption that will tend to overpredict drawdown and river flow depletion.
- Vertical inflow or outflow through the Corcoran Clay was neglected. Near the well, some upflow through the Corcoran Clay would likely be induced; whereas, in the remaining area, there is likely downward outflow through the Corcoran Clay. Combined with the neglecting recharge, this is a commonly implemented simplification with an overall conservative effect.

## 4.2.2 MODEL INPUTS

The following aquifer properties were utilized to construct the model.

**TABLE 2. ANALYTICAL MODEL INPUT PARAMETERS**

Model Input Parameter	Shallow Aquifer Input Value	Explanation	Source
Aquifer Thickness (feet)	265 feet	Saturated thickness of the aquifer near the Site varies from 250 to 300 feet based on test wells	USGS 2009, Appendix C
Storativity	0.04	Estimated storativity for a typical unconfined to semi-confined aquifer in San Joaquin Valley	Section 3.6.2
Specific Yield	11.8	Reported average value for the unconfined aquifer in the DMS	DWR 2006
Hydraulic Conductivity (horizontal)	10 feet/day	Hydraulic conductivity at the lower end of the range of reported values	Section 3.6.2
Hydraulic Conductivity (vertical)	0.2 feet/day	A vertical anisotropy ratio of 1:50 was assumed	Professional judgment
Streambed Conductance	32 feet/day	Calculated using stream width multiplied by vertical hydraulic conductivity divided by resisting layer (bed) thickness	Streambed vertical hydraulic conductivity from USGS 1989; width from USGS topographic map; bed thickness assumed to be 3 feet

## 4.2.3 MODEL SCENARIOS

Two scenarios were developed to assess potential effects from operating the supplemental wells. The scenarios were simulated using a superposition approach to assess drawdown under a range of groundwater demand conditions and conservative end point assumptions about aquifer properties. Specifically, each of the scenarios is based on the conservative estimate of well transmissivity discussed above, and neither scenario considers recharge. Maximum short-and long-term pumping rates were simulated. As such, these scenarios comprise a conservative estimate of anticipated drawdown and river flow depletion effects.

Superposition or impact modeling is a robust modeling approach which focuses on evaluation of drawdown as opposed to actual hydraulic head, and allows the modeler to focus more on the evaluation of the changes introduced by a project, rather than the simulation of past or future groundwater levels (Reilly, Franke and Bennett 1987). The use of superposition modeling in hydrogeologic literature is well established and this



approach has been widely used to evaluate the impacts of water supply pumping. For each of the modeling scenarios, a baseline model was constructed without pumping. The model was then run in transient mode with simulated pumping from the proposed wells, and resulting water level surface was subtracted from the baseline to evaluate the drawdown induced by the wells.

- **Scenario 1:** This scenario simulates the short term effects associated with the maximum reasonably anticipated pumping scenario for the wells. It is based on the assumption that surface water deliveries would be fully curtailed at the peak of the irrigation season during June and July, and that groundwater would be used to irrigate the almond orchard developed on the property during that time. Under this scenario, 1,300 acre-feet of groundwater would be withdrawn over a period of two months (61 days). Pumping is assumed to be equally distributed among the three wells at a rate of approximately 1,600 gpm per well.
- **Scenario 2:** This scenario simulates the long-term effects of the maximum anticipated average groundwater extraction rate. Under this scenario, groundwater would be extracted at an annualized average rate of 1,000 AFY for a period of 20 years. The specific duration and rate of pumping during any given year is assumed to be variable, and is simulated in the model as an annualized constant rate of approximately 210 gpm per well.

#### 4.2.4 LIMITATIONS

This section presents hydrogeologic assumptions that are incorporated in the analytical element model.

- The aquifer layers have uniform lateral and vertical hydraulic conductivities, and uniform specific yield and storativity. This is a typical simplifying assumption inherent in many models, and is appropriate as long as the objective is to model the general distribution of impacts under average conditions.
- The potentiometric surface is approximated through the use of boundary conditions and is not calibrated. This is a common simplifying assumption used in models designed to evaluate drawdown relative to a baseline condition using a superposition approach. The inherent limitation in this approach is that the model cannot be used to predict actual groundwater level elevations. In addition, the modeled drawdown may be considered an approximation. The impact of these limitations is addressed through the use of aquifer properties that are conservative and will tend to overpredict, rather than underpredict, drawdown impacts.
- Water is released from storage in the aquifers instantaneously, the pumping wells are screened in, and receive water from, the full thickness of the aquifer, and the wells are 100 percent efficient.
- Areal recharge and pumping discharge (with the exception of the Project) are assumed to be balanced and are therefore neglected in the simulation. This assumption is supported by the generally stable groundwater levels in the Site vicinity.

## 4.3 RESULTS

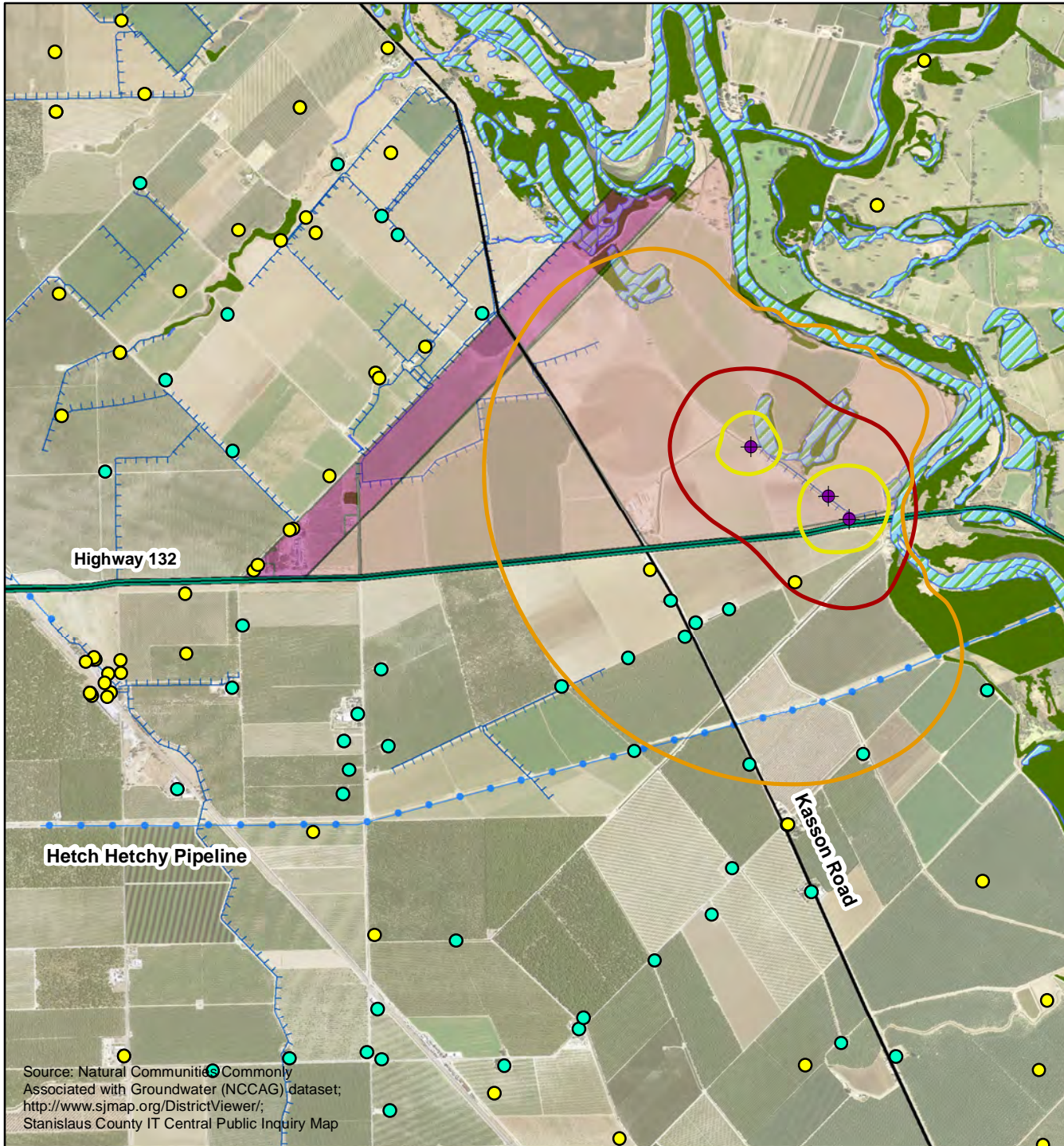
### 4.3.1 DRAWDOWN

Drawdown relative to the locations of nearby receptors (existing wells, GDEs and surface water) is shown on Figures 8 and 9 for Scenarios 1 and 2, respectively. The distribution of drawdown predicted for Scenario 1 may be summarized as follows:

- The distance to the 5-foot and 20-foot drawdown contours reaches its maximum extent at the end of 61 days of pumping, but the 0.5-foot contour continues to migrate outward after pumping stops and groundwater from the surrounding area flows into the cone of depression. The maximum extent to 0.5 feet of drawdown is predicted to occur approximately 200 days after pumping stops.
- The cone of depression formed by the short, intense pumping period simulated in Scenario 1 is most pronounced near the proposed wells and attenuates rapidly with distance. It is somewhat asymmetrical at the outer fringes, extending for about a mile to the north, south and west, but only to the San Joaquin River to the east.
- The predicted distance to the 0.5-foot drawdown contour ranges from approximately 5,000 to 6,500 feet to the northwest, southwest and southeast of the western two wells, and approximately to the San Joaquin River to the east.
- The predicted distance to the 5 foot drawdown contour ranges from approximately 1,000 to 1,900 feet from the wells.
- The predicted distance to the 20-foot drawdown contour ranges from approximately 600 to 1,000 feet from the wells.
- As shown in Figure 8, recovery of drawdown near the wells begins immediately after the cessation of pumping and is largely complete at the end of one year; however, the shallow fringes of the cone of depression continue to spread during much of this period.

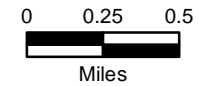
The distribution of drawdown predicted for Scenario 2 may be summarized as follows:

- The cone of depression reaches its maximum extent at the end of 20 years of pumping. Because it develops more slowly as a result of sustained, lower intensity pumping, it is more expansive laterally to the north, south and west than the cone of depression formed under Scenario 1, but it is not as deep or steep. Similar to Scenario 1, the cone of depression is asymmetric and is bounded to the east by the San Joaquin River.
- The predicted distance to the 0.5-foot drawdown contour ranges from approximately 2 miles to the northwest and southeast, up to 3.5 miles to the southwest, and approximately to the San Joaquin River to the east.
- The 5-foot drawdown contour is elliptical and centered approximately on the wells, from which it extends for a distance of approximately 1,100 to 1,800 feet.
- The maximum predicted drawdown is less than 20 feet for Scenario 2.
- As shown in Figure 9, drawdown continues throughout the 20-year pumping period, especially in the area to the west of the Site.



**Legend**

- Existing Well Locations (from Geotracker GAMA)
- Possible Additional Existing Well Locations (from Topographic Maps and Aerial Imagery)
- ◆ Proposed Well Locations
- 0.5 Foot Drawdown after 276 Days
- 5 Foot after 61 Days
- 20 Foot Drawdown after 61 Days
- Stanislaus County Parcel Boundaries
- San Joaquin County Parcel Boundaries
- Potential GDE's- Wetlands
- Potential GDE's- Vegetation
- Highway 132
- Kason Road
- Hetch Hetchy Pipeline
- - - Canals / Ditches



**Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells**

**Figure 8. Predicted Drawdown-  
Scenario 1, with Nearsite Wells  
and GDE's**

Source: Natural Communities Commonly Associated with Groundwater (NCCAG) dataset; <http://www.sjmap.org/DistrictViewer/>; Stanislaus County IT Central Public Inquiry Map

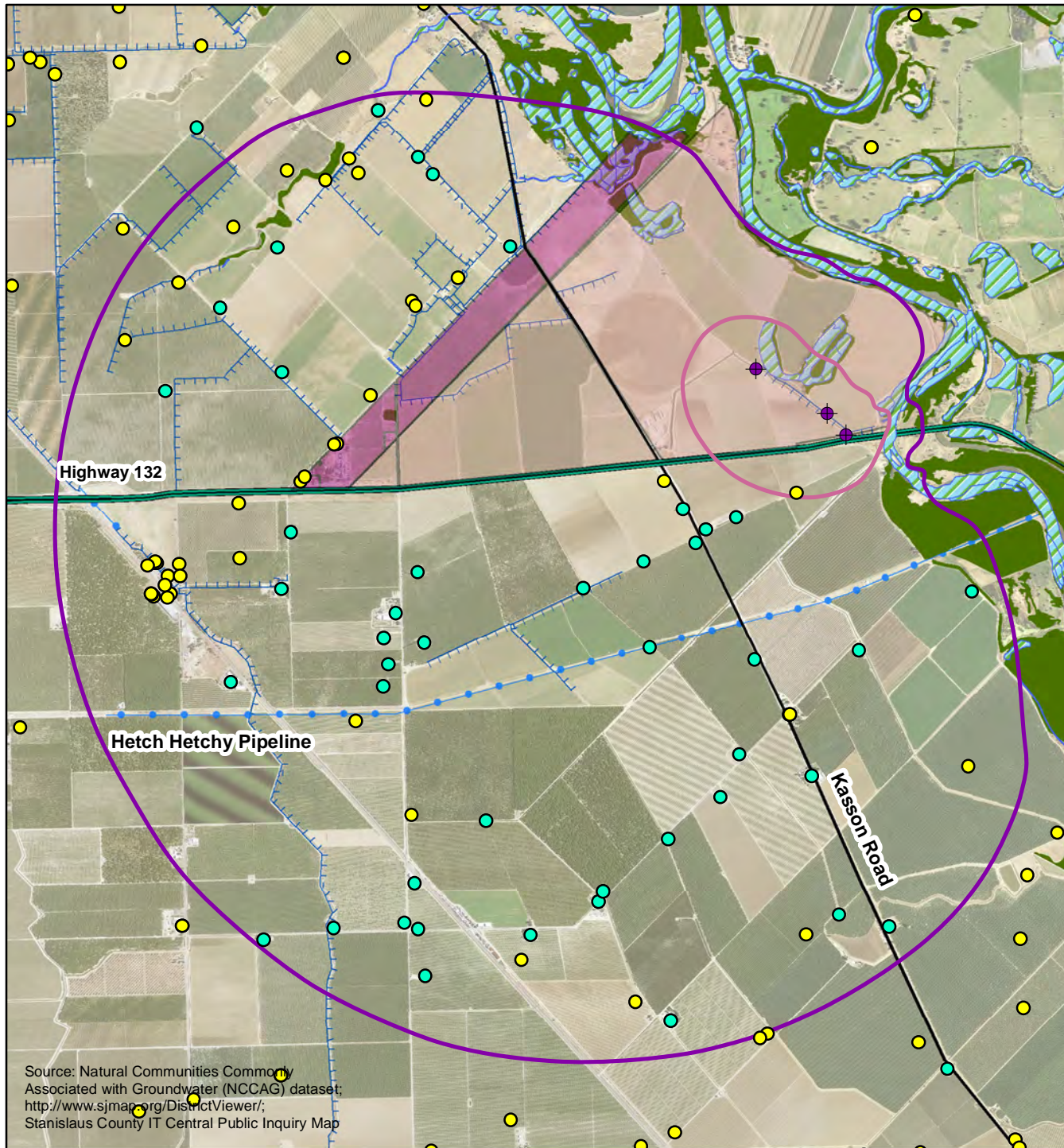
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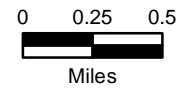
**FORMATION**  
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**Legend**

- Existing Well Locations (from Geotracker GAMA)
- Possible Additional Existing Well Locations (from Topographic Maps and Aerial Imagery)
- Proposed Well Locations
- 0.5 Foot Drawdown after 20 Years
- 5 Foot Drawdown after 20 Years
- Stanislaus County Parcel Boundaries
- San Joaquin County Parcel Boundaries
- Potential GDE's- Wetlands
- Potential GDE's- Vegetation
- Highway 132
- Kason Road
- Hetch Hetchy Pipeline
- | | | Canals / Ditches



**Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells**

**Figure 9. Predicted Drawdown-  
Scenario 2, with Nearsite Wells  
and GDE's**

Source: Natural Communities Community  
Associated with Groundwater (NCCAG) dataset;  
<http://www.sjmap.org/DistrictViewer/>;  
Stanislaus County IT Central Public Inquiry Map

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### 4.3.2 RIVER FLOW DEPLETION

Streamflow depletion under Scenario 1 is summarized in Table 3. Under this scenario, the majority of groundwater produced by the wells is predicted to still be removed from storage at the end of the pumping period. The maximum streamflow depletion is approximately 30 percent of the pumping rate at the end of the pumping period. Recovery is immediate and rapid. One year after pumping ceases, streamflow depletion has almost completely recovered.

**TABLE 3. PREDICTED RIVER FLOW DEPLETION, SCENARIO 1**

Time Since Start of Pumping (days)	Pumping Rate (ft <sup>3</sup> /day)	River Flow Depletion (ft <sup>3</sup> /day)	River Flow Depletion (ft <sup>3</sup> /sec)	Pumping Expressed as River Flow Depletion (percent)
0	0	0	0.00	0%
17	928,329	101,946	1.18	11%
37	928,329	197,762	2.29	21%
62	928,329	279,884	3.24	30%
75	0	232,852	2.70	25%
92	0	183,961	2.13	20%
113	0	145,675	1.69	16%
140	0	115,816	1.34	12%
173	0	90,854	1.05	10%
214	0	69,674	0.81	8%
265	0	52,216	0.60	6%
329	0	38,394	0.44	4%
409	0	27,834	0.32	3%
510	0	19,982	0.23	2%
635	0	14,245	0.16	2%
792	0	10,103	0.12	1%

Notes: ft<sup>3</sup>/day - cubic feet per day  
 ft<sup>3</sup>/sec- cubic feet per second

Streamflow depletion under Scenario 2 is summarized in Table 4. Under this scenario, streamflow depletion increases throughout the pumping period. The maximum streamflow depletion, equal to 90 percent of the pumping rate, occurs at the end of the pumping period. Recovery is similar to depletion, progressing rapidly at first and almost complete by the end of a period equal to the pumping period.

**TABLE 4. PREDICTED RIVER FLOW DEPLETION, SCENARIO 2**

<b>Time Since Start of Pumping (days)</b>	<b>Pumping Rate (ft<sup>3</sup>/day)</b>	<b>River Flow Depletion (ft<sup>3</sup>/day)</b>	<b>River Flow Depletion (ft<sup>3</sup>/sec)</b>	<b>Pumping Expressed as River Flow Depletion (percent)</b>
0	0	0	0	0%
65	119,391	33,557	0.39	28%
162	119,391	56,407	0.65	47%
307	119,391	72,356	0.84	61%
525	119,391	83,583	0.97	70%
851	119,391	91,546	1.06	77%
1,341	119,391	97,285	1.13	81%
2,075	119,391	101,417	1.17	85%
3,176	119,391	104,387	1.21	87%
4,828	119,391	106,429	1.23	89%
7,306	119,391	107,733	1.25	90%
7,370	0	74,410	0.86	62%
7,467	0	51,567	0.6	43%
7,612	0	35,610	0.41	30%
7,830	0	24,418	0.28	20%
8,156	0	16,547	0.19	14%
8,646	0	10,944	0.13	9%
9,380	0	6,974	0.08	6%
10,481	0	4,178	0.05	3%
12,133	0	2,301	0.03	2%
14,611	0	1,133	0.01	1%

Notes: ft<sup>3</sup>/day - cubic feet per day  
 ft<sup>3</sup>/sec - cubic feet per second



## 5 IMPACT EVALUATION

This section presents an evaluation of the potential environmental impacts of the proposed wells associated with groundwater resources. The impact evaluation is provided in the form of reasoned evaluations in answer to each of the applicable significance questions contained in Appendix G of the CEQA Guidelines, listed below. The questions are grouped by topic based on the “undesirable results” defined in the County Groundwater Ordinance and the California Water Code. As such, this section provides both an impact evaluation under CEQA and addresses the requirement of the County Groundwater Ordinance for “substantial evidence” whether or not the proposed wells comply with the prohibition against unsustainable extraction. An additional section is added to discuss water supplies and entitlements, which are a topic under CEQA that is not included in the Groundwater Ordinance.

### 5.1 DEPLETION OF INTERCONNECTED SURFACE WATER; GROUNDWATER DEPENDENT ECOSYSTEMS

***Question IV(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 (CDFG) or U.S. Fish and Wildlife Service (USFWS)?***

***Question IV(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 CDFG or USFWS?***

***Question IV(c): Would the project have a substantial adverse effect on state or federally protected wetlands (including marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?***

***Question IV(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?***

The streamflow depletion analysis presented in Section 4.3.2 indicates that pumping of the proposed wells will result in a substantial fraction of the produced water being expressed as streamflow depletion in the San Joaquin River. This is because the proposed wells are located near the river in the unconfined aquifer, and will intercept groundwater that would otherwise discharge to the river. The amount of streamflow depletion would be dependent on, and increase proportionally with, the amount and duration of pumping. Under the scenarios evaluated, the maximum amount of depletion is predicted to occur under the maximum reasonably anticipated pumping scenario, which consists of extraction of 1,300 acre feet of groundwater over a two-month period during the height of the irrigation season. As summarized in Table 3, the maximum predicted flow depletion under this scenario would be just over 3 cubic feet per second (cfs) around the end of the pumping period. For perspective, the median discharge at the Vernalis gaging station during late summer low flow conditions is approximately 1,000 cfs; however, during the recent drought, measured discharge decreased to near or below 200 cfs on several occasions during the summer

months in 2014, 2015 and 2016, during the recent drought (USGS 2019). A flow reduction of 3 cfs during a part of this period would not result in a measurable reduction in streamflow, and would have a less than significant impact to aquatic habitat, migratory fish species, or downstream water right holders. However, consideration should be given to scheduling irrigation not to occur, or to be more limited, during periods of extremely low river flow less than 100 cfs.

Groundwater beneath the Site is relatively shallow and may be connected to potential GDEs identified in the Site vicinity. An analysis of potential impacts to GDEs is presented below:

- The ponds located on the Site and on the parcels to the north are a part of the ranch operations on these parcels and are supplied with irrigation tailwater, tile drainage and runoff from the Site and surrounding parcels. The tile drain systems route groundwater from areas where the water table is very shallow, such as near the river, to the ponds, keeping groundwater levels relatively constant. The proposed wells will serve as a supplemental irrigation water source for the Site, and will not affect the operational practices applied to these ponds. As such, the wells will have no effect on these ponds, and little to no effect on the surrounding groundwater levels.
- As discussed in Section 3.7, several potential GDE areas are located near the San Joaquin River and its tributaries and are part of the San Joaquin River National Wildlife Refuge. These parcels include wetland areas that are connected to the river as well as floodplain areas with riparian woodlands that are subject to periodic inundation.
  - Most of the riparian woodland areas are projected to experience long-term drawdown (Scenario 2) in the range of 0.5 to 1.0 foot. A small area south of Highway 132 may potentially experience up to 2 feet of drawdown. The phreatophyte woodland species reported to be present would be expected to readily adapt to small amounts of drawdown in the range of 0.5 to 2 feet (JJ&A 2018). Greater short-term drawdowns (possibly up to 5 feet) are predicted for the Scenario 1, but are predicted to recover within approximately one month after pumping stops. Note that the predicted drawdowns apply to the pumped aquifer at a depth of 100 feet or more below the ground surface and would attenuate at the water table, especially since the most affected areas are located very close to ditches, swales and oxbow lakes that are connected to the river, limiting the potential for drawdown. In addition, drawdown in the pumped aquifer is likely overestimated due to the conservative assumptions of neglecting recharge and using the lower bound reasonable hydraulic conductivity. For these reasons, impacts to riparian woodlands are anticipated to be less than significant. Monitoring will be conducted as an applicant-provided measure in compliance with the permits issued for the proposed wells. Proposed monitoring provisions are described in Section 5.7, and will serve as an additional safeguard against potential significant and unreasonable impacts to GDEs.
  - The wetlands in the predicted drawdown area associated with the proposed wells are physically connected to the river system by ditches, swales and oxbow lakes, which will maintain water levels. As such, impacts to wetlands from drawdown induced by operating the proposed wells are anticipated to be less than significant.

## 5.2 SUBSIDENCE

***Question VII(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?***

As discussed in Section 3.8, subsidence in the San Joaquin Valley has occurred mainly when compressible clays are dewatered as a result of drawdown in the confined aquifer system beneath the Corcoran Clay to below historical low levels. The risk of subsidence is far lower for pumping from the unconfined aquifer above the Corcoran Clay. The nearest reported subsidence was recorded near Patterson, about 16 miles south of the Site, and was approximately 1.5 to 2 inches. As shown on Figures 8 and 9, pumping of the proposed wells is predicted to induce drawdown in excess of 5 feet and up to approximately 20 feet primarily on the Site, but extending to a limited area south of Highway 132 under a short-term, intense pumping scenario. The only potentially sensitive infrastructure in this area is the main diversion canal operated by the El Solyo Water District. The Hetch Hetchy Pipeline is located farther to the south, outside the predicted 5-foot and 20-foot drawdown area. Based on the fact that the proposed wells will be pumping from the unconfined aquifer, the relatively limited size of the drawdown area, the likely over-prediction of drawdown in the aquifer and the lack of historical subsidence in the area (including around other wells of similar capacity), the risk of subsidence that would significantly impact surface infrastructure is considered small.

## 5.3 WATER QUALITY

***Question IX(a): Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?***

The proposed wells will withdraw groundwater from the unconfined aquifer beneath the Site near the San Joaquin River based on a test well program that indicated water quality is generally better (i.e., TDS content is lower) near the river in the upper, unconfined aquifer. The driller that implemented the test well program indicated that in their experience water quality generally improves west of Kasson and Old River Roads to the west of the Site (R. Canepa 2019, personal communication). Groundwater pumping from the proposed wells will capture groundwater primarily from near the river, and it is unlikely that pumping will mobilize lower quality groundwater from the surrounding area. Data from GeoTracker GAMA did not identify any other water quality issues in the area. There are no reported contamination incidents within 1 mile of the Site, and the only reported incidents that are open cases are located at distances exceeding 2 miles. Based on the distance of these incidents from the Site, no significant impacts are anticipated.

## 5.4 CHRONIC DRAWDOWN AND DIMINUTION OF SUPPLY

***Question IX(b): Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?***

Regional drawdown, if it represents a substantial fraction of the overall available drawdown, or groundwater in storage, in an aquifer system, can result in less water supplies being available for future supply, insufficient availability of groundwater during dry periods, or a general increase in groundwater supply development costs. Interference drawdown is a more localized effect that can decrease well yield and, in extreme cases, cause wells to go dry. The wells potentially most vulnerable to interference drawdown are domestic wells, which are generally shallower than municipal, industrial and irrigation wells that are completed to greater depths and have greater pumping capacities. In the Site vicinity, domestic wells tend to be completed in the shallow unconfined aquifer; whereas, higher capacity production wells may be completed in either the shallow unconfined or the deeper confined aquifer (or both).

Operation of the proposed wells will result in groundwater level drawdown in the upper, unconfined aquifer. Drawdown in excess of 5 feet under the short-duration, high-intensity pumping scenario (Scenario 1) will be generally limited to the Site, except for a relatively small area that extends approximately 1,700 feet south of Highway 132. The maximum drawdown exceeds 20 feet close to the proposed wells, and drawdown exceeding 20 feet extends approximately 500 feet south of Highway 132. Smaller amounts of drawdown are predicted to propagate up to several miles west of the Site and to the east approximately to the San Joaquin River. Thus drawdown exceeding 20 feet is highly localized, represents less than 10 percent of the available drawdown above the top of the confined aquifer, and is unlikely to result in a significant depletion in regional supplies. This is especially true since use of the wells is expected to be infrequent and episodic, allowing groundwater levels and storage to recover. For perspective, total groundwater extraction from the DMS in Stanislaus County was estimated to range from 93,155 AFY to 230,975 AFY over the last 10 years (Section 3.6.4). Thus, the proposed maximum extraction, which would occur infrequently and may never occur, would represent about 0.6 to 1.4 percent of the total extraction from the DMS within Stanislaus County in any given year. Based on this information, the impact of the proposed wells on groundwater storage in the upper aquifer in the DMS is anticipated to be less than significant.

There are no domestic wells located within the maximum extent of the predicted 5-foot drawdown contour. A drawdown of less than 5 feet would not be expected to adversely affect a typical domestic well, as it would typically comprise less than 10 percent of the available drawdown (JJ&A 2018). The only well located within the 5-foot drawdown contour is an irrigation well located near the Site a short distance south of Highway 132, adjacent to the El Solyo Water District main diversion canal (Figure 8). A drawdown of less than 20 feet would not be expected to result in a significant diminution in the yield in an agricultural production well, as it typically represents less than 10 percent of the available drawdown (JJ&A 2018). Based on this information, impacts to existing wells from interference drawdown are anticipated to be less than significant.

## **5.5 WATER SUPPLY AND ENTITLEMENTS**

***Question XIX(b): Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?***

Based on the above analyses, adequate groundwater supplies are available in the shallow aquifer beneath the Site for the proposed operation of the wells without causing or contributing to undesirable results as defined in the County Groundwater Ordinance, SGMA, and the California Water Code. Scenario 1, the

short-duration, high-intensity pumping scenario, addresses the adequacy during dry and multiple dry years. As such, the proposed groundwater extraction would comply with these regulations. In addition, the Site is not located in an adjudicated basin, or in a special act district that regulates the extraction of groundwater. The wells would be able to supply groundwater for beneficial use to irrigate the orchard on the Site and adjacent parcels under an overlying (correlative) groundwater right. No new entitlements would be required.

The Site is located in an agriculturally-zoned area that is irrigated primarily by surface water diverted from the San Joaquin River, and by surface water deliveries from state and federal water projects, supplemented by groundwater. There is an ongoing trend to convert agricultural land in the area from annual to permanent crops. While this typically will not increase water demand, it does “harden” the demand, meaning that fields cannot be fallowed during dry periods when surface water deliveries are curtailed. This can contribute to increased drawdown during dry periods. The GSP proposed for adoption for the northern and central portions of the DMS is intended to address this potential issue through effective conjunctive use, recharge projects, and if necessary, pumping and well spacing restrictions. Depending on future conditions, it is possible that groundwater extraction at the Site could be regulated by the local Groundwater Sustainability Agency.

For these reasons, permitting of the wells is not expected to have a significant impact on water supplies and service systems.

## 5.6 CUMULATIVE IMPACTS

***Question XVIII(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.)***

Predictive modeling indicates that drawdown associated with pumping the proposed wells will contribute incrementally to a cone of depression located west of the Site. The Site-related drawdown at the off-Site cones of depression is predicted to range from approximately 0.5 to 1 foot. This represents only about 5 to 10 percent of drawdown in the off-Site cones of depression. At this time, the cone of depression is approximately 10 feet deep and has not resulted in reports of any of the undesirable results discussed in the previous section. Long-term well hydrographs indicate that water levels in two of three wells in this cone of depression have stabilized or started to increase.

Ongoing trends to convert agricultural land in the area from annual to permanent crops may harden water demand and could contribute to increased regional drawdown during dry periods. However, the seniority of the Pescadero Ranch water right is expected to result in relatively infrequent pumping of the wells. In addition, the proximity of the wells to the river will provide the wells with a local source of induced recharge, resulting in less off-Site drawdown and storage depletion. The GSP proposed for adoption for the northern and central portions of the DMS is intended to address this potential cumulative drawdown

and storage depletion effects through effective conjunctive use, recharge projects, and if necessary, pumping and well spacing restrictions.

Based on these considerations, the groundwater resources impacts associated with the Project will be less than cumulatively considerable.

## **5.7 PERMIT CONDITIONS AND APPLICANT-PROVIDED MEASURES**

It is anticipated that groundwater level monitoring will be required as part of the permit conditions for the proposed wells. The following monitoring program is therefore proposed and will further decrease the potential for unanticipated adverse impacts:

- Each well will be completed with a sounding tube to allow measurement of groundwater levels. The top of the sounding tube will be surveyed to establish a datum from which the groundwater level elevation may be calculated.
- Groundwater level measurements will be taken each year in the spring and fall before and after the irrigation season, even if the wells are not pumping.
- If the wells are pumped, monthly groundwater level measurements will be taken for at least six months after the wells are turned off to assess maximum drawdown and recovery.
- The depth to groundwater will be measured to the nearest 0.1 foot bgs in the wells using an electronic well sounder and recorded in a log book. Groundwater elevations will be calculated relative to mean sea level using the depth below the surveyed datum at the top of the sounding tube.
- Annual monitoring data will be submitted to the County for each year by January 31 of the following year. The report will include a table specifying the well designations, coordinates, elevations of the measurement points, depths to groundwater, calculated groundwater level elevations, and days since the wells were last pumped. In addition, the annual report will include monthly groundwater extraction volumes in acre feet for each well.
- The extent and frequency of the monitoring program will be reevaluated every five years.
- The applicant may coordinate with the local GSA or the County to assume responsibility for monitoring the wells, if acceptable to them.

## **5.8 MITIGATION MEASURES**

Impacts related to groundwater extraction are anticipated to be less than significant; therefore, no mitigation measures are proposed.



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# APPENDIX A – WELL CONSTRUCTION PERMIT APPLICATION

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APN 016-001-003  
WELL SITE # 1

Permit No. 20 \_\_\_\_\_

**APPLICATION FOR WELL CONSTRUCTION OR DESTRUCTION**  
THIS PERMIT EXPIRES 1 YEAR FROM DATE ISSUED

Application is hereby made to the Stanislaus County Department of Environmental Resources (D.E.R.) for a permit to construct and/or destroy the work herein described. PLEASE NOTIFY THIS DEPARTMENT (USING PERMIT # AND D.W.R. WELL DRILLERS REPORT) WHEN WELL WORK IS COMPLETED.

Job Address/Location: 136 KASSON RD. City: PATTERSON, CA. 95363

Distance & Direction from the Nearest Cross Streets: KASSON RD. & STATE HWY 132

Property Owner's Name: NBINV APS LLC Phone: (209) 613-6053

Mailing Address: 3075 SANDERS RD. City/State: NORTHBROOK, ILL 60062

Water Agency:  Yes  No Water Agency Name: \_\_\_\_\_

Contractor's Name: Canepa and Sons, Inc. License #: 425749 Phone: (209) 532-1136

Type of Work:  New Well  Destruction  Other \_\_\_\_\_

If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use:  Agricultural  Irrigation  Industrial  Domestic/Private  Domestic/Public  
 Cathodic Protection  Geothermal  Dewatering  Other \_\_\_\_\_

Conveyance: Will water from this well be relocated from parcel of origin?  Yes  No  
Will water from this well be relocated to out-of-county?  Yes\*  No  
\*Provide water agency authorization

Existing Well Present:  Yes  No Status:  Active  To be destroyed  Inactive  
*domestic*

Community Service District:  N/A  Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 4000' Disposal Field 4000' Seepage Pit N/A Dry Well N/A  
Pit Privy N/A Animal Enclosure N/A Other Well 4000'  
Dairy Lagoons N/A Dwellings 4000' Property Lines 75'

Construction Specifications:  Drilled  Cable Tool  Gravel Pack  Rotary  Other \_\_\_\_\_  
Diameter of Excavation 26 Diameter of Well Casing 16 Gauge of Casing .750  
Estimated GPM 1000-2000 Estimated Finished Well Depth 500'  
Sealing Material 6SK P-Mix Grout Manufacturer CEMENT Grout name \_\_\_\_\_  
Proposed Depth of Grout Seal 25' Proposed # of bags \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)

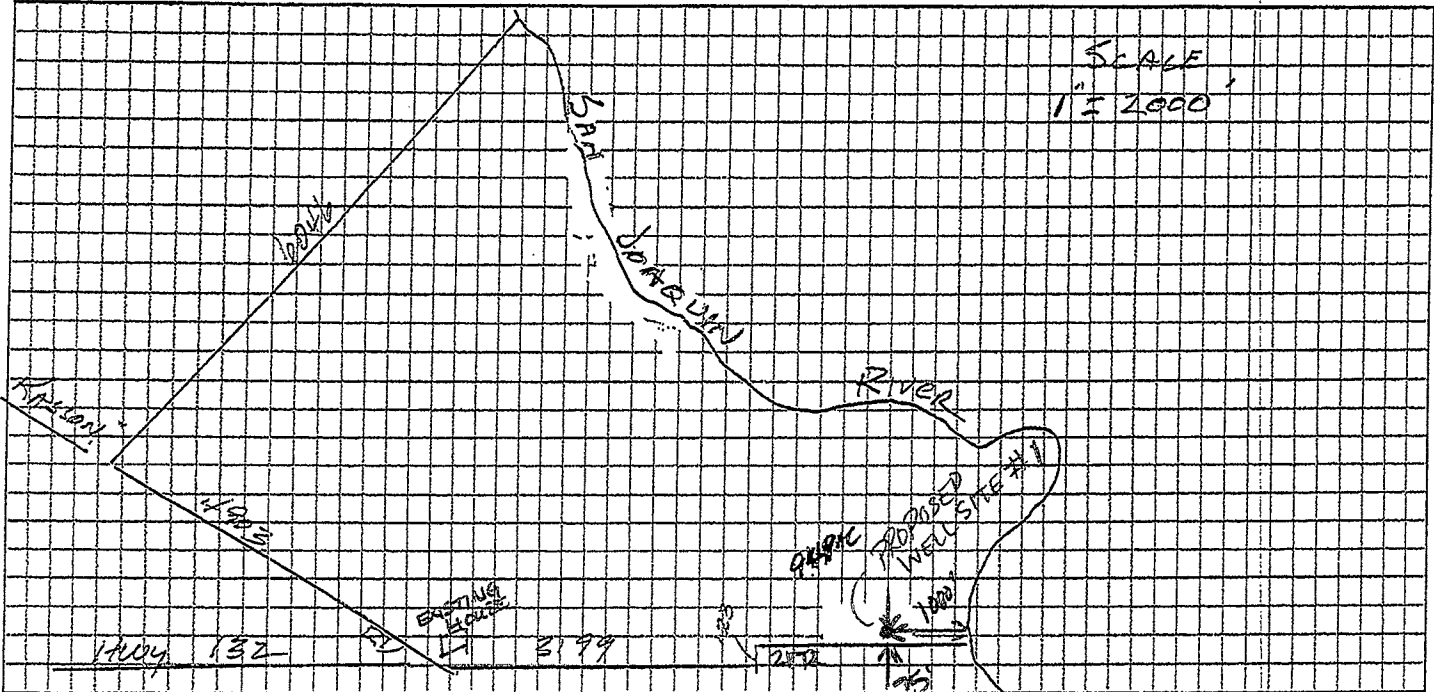
Destruction Specifications: Diameter of Well Casing \_\_\_\_\_ Proposed Depth of Grouting \_\_\_\_\_  
Sealing Material \_\_\_\_\_ Grout Manufacturer \_\_\_\_\_ Grout name \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)  
Describe method if different than minimum state standards: \_\_\_\_\_

# PLOT PLAN

(Indicate Distances in Feet)

1. Name of street and distance from nearest cross roads to well site.
2. Outline of the property, easements.
3. Outlines and locations of all existing and proposed structures, including covered areas such as patios, driveways, and walks.
4. Location of house sewer outlet, public sewer, sewage disposal system, or proposed sewage disposal system, proposed expansion of sewage disposal system, industrial waste pond, or any other possible source of contamination.
5. Location of other wells within radius of 300 feet on the property or adjoining property.
6. Location of sewage disposal system on adjoining property or within a radius of 100 ft. (private well) 150 ft. (public well).

NORTH ↑



Written description of well location (if not visible from road): \_\_\_\_\_

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LAWS OF THE STATE OF CALIFORNIA, THE ORDINANCES OF THE COUNTY OF STANISLAUS AND THE RULES AND REGULATIONS OF THE STANISLAUS COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES (DER). DER WILL BE CONTACTED FOR INSPECTION OF ANNULAR SEAL INSTALLATION, AND AFTER WELL WORK HAS BEEN COMPLETED.

1. All existing wells within a 300 foot radius of the proposed new well(s) on the property or adjoining property have been located and so indicated.
2. Proposed well(s) will be located at least 50-150 feet from any sewage disposal system on property or adjoining property.
3. Submit well completion report on all wells drilled, as notice of well work completion.

SIGNED: *Richy Amp* DATE: 5/2/19  
 (C57 CONTRACTOR AS AUTHORIZED REPRESENTATIVE)

### D.E.R. USE ONLY

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ T. \_\_\_\_\_ R. \_\_\_\_\_ Sec. \_\_\_\_\_ A.P.N.: \_\_\_\_\_  
 Plot Card Available:  Yes  No G.I.S. Information Available:  Yes  No  
 Actual Grout Seal Depth: \_\_\_\_\_ Actual Sealing Material Used: \_\_\_\_\_  
 Claimed Clay Layer Depth at: \_\_\_\_\_ Conditions of Approval:  None  Description: \_\_\_\_\_

HAZMAT Mitigation Review: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resource Management Review: \_\_\_\_\_ Date: \_\_\_\_\_  
 Permit Approval by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Grout Seal inspected by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Final Inspection by: \_\_\_\_\_ Date: \_\_\_\_\_



APN 016-001-003  
 WELL SITE #2

Permit No. 20 \_\_\_\_\_

**APPLICATION FOR WELL CONSTRUCTION OR DESTRUCTION**  
THIS PERMIT EXPIRES 1 YEAR FROM DATE ISSUED

Application is hereby made to the Stanislaus County Department of Environmental Resources (D.E.R.) for a permit to construct and/or destroy the work herein described. PLEASE NOTIFY THIS DEPARTMENT (USING PERMIT # AND D.W.R. WELL DRILLERS REPORT) WHEN WELL WORK IS COMPLETED.

Job Address/Location: 136 KASSON RD. City: PATTERSON, CA. 95363  
 Distance & Direction from the Nearest Cross Streets: KASSON Rd : STATE Hwy 132  
 Property Owner's Name: NBINV APS LLC Phone: (209) 613-6053  
 Mailing Address: 3075 SANDERS RD. City/State: NORTH BROOK, ILL 60062  
 Water Agency:  Yes  No Water Agency Name: \_\_\_\_\_  
 Contractor's Name: Canepa and Sons, Inc. License #: 425749 Phone: (209) 532-1136

Type of Work:  New Well  Destruction  Other \_\_\_\_\_  
 If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use:  Agricultural  Irrigation  Industrial  Domestic/Private  Domestic/Public  
 Cathodic Protection  Geothermal  Dewatering  Other \_\_\_\_\_

Conveyance: Will water from this well be relocated from parcel of origin?  Yes  No  
 Will water from this well be relocated to out-of-county?  Yes\*  No  
 \*Provide water agency authorization

Existing Well Present:  Yes  No Status:  Active  To be destroyed  Inactive  
*domestic*

Community Service District:  N/A  Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 3400' Disposal Field 3400' Seepage Pit N/A Dry Well N/A  
 Pit Privy N/A Animal Enclosure N/A Other Well 3400'  
 Dairy Lagoons N/A Dwellings 3400' Property Lines 1100'

Construction Specifications:  Drilled  Cable Tool  Gravel Pack  Rotary  Other \_\_\_\_\_  
 Diameter of Excavation 26 Diameter of Well Casing 16 Gauge of Casing .250  
 Estimated GPM 1000-2000 Estimated Finished Well Depth 500'  
 Sealing Material 6SK P-Mix Grout Manufacturer CEMENT Grout name \_\_\_\_\_  
 Proposed Depth of Grout Seal 25' Proposed # of bags \_\_\_\_\_  
 Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)

Destruction Specifications: Diameter of Well Casing \_\_\_\_\_ Proposed Depth of Grouting \_\_\_\_\_  
 Sealing Material \_\_\_\_\_ Grout Manufacturer \_\_\_\_\_ Grout name \_\_\_\_\_  
 Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)  
 Describe method if different than minimum state standards: \_\_\_\_\_

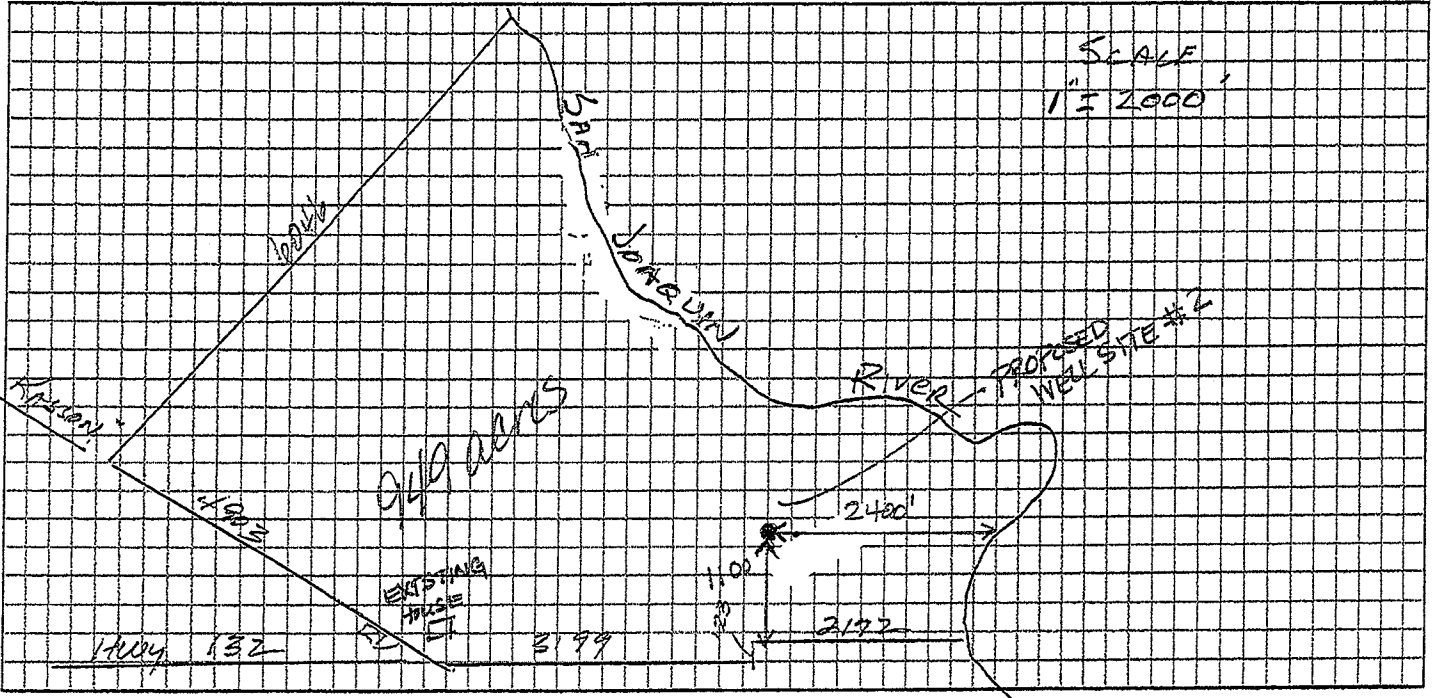


# PLOT PLAN

(Indicate Distances in Feet)

1. Name of street and distance from nearest cross roads to well site.
2. Outline of the property, easements.
3. Outlines and locations of all existing and proposed structures, including covered areas such as patios, driveways, and walks.
4. Location of house sewer outlet, public sewer, sewage disposal system, or proposed sewage disposal system, proposed expansion of sewage disposal system, industrial waste pond, or any other possible source of contamination.
5. Location of other wells within radius of 300 feet on the property or adjoining property.
6. Location of sewage disposal system on adjoining property or within a radius of 100 ft. (private well) 150 ft. (public well).

NORTH ↑



Written description of well location (if not visible from road): \_\_\_\_\_

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LAWS OF THE STATE OF CALIFORNIA, THE ORDINANCES OF THE COUNTY OF STANISLAUS AND THE RULES AND REGULATIONS OF THE STANISLAUS COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES (DER). DER WILL BE CONTACTED FOR INSPECTION OF ANNULAR SEAL INSTALLATION, AND AFTER WELL WORK HAS BEEN COMPLETED.

1. All existing wells within a 300 foot radius of the proposed new well(s) on the property or adjoining property have been located and so indicated.
2. Proposed well(s) will be located at least 50-150 feet from any sewage disposal system on property or adjoining property.
3. Submit well completion report on all wells drilled, as notice of well work completion.

SIGNED: Ricky Camp DATE: 5/2/19  
 (C57 CONTRACTOR AS AUTHORIZED REPRESENTATIVE)

### D.E.R. USE ONLY

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ T. \_\_\_\_\_ R. \_\_\_\_\_ Sec. \_\_\_\_\_ A.P.N.: \_\_\_\_\_  
 Plot Card Available:  Yes  No G.I.S. Information Available:  Yes  No  
 Actual Grout Seal Depth: \_\_\_\_\_ Actual Sealing Material Used: \_\_\_\_\_  
 Claimed Clay Layer Depth at: \_\_\_\_\_ Conditions of Approval:  None  Description: \_\_\_\_\_

HAZMAT Mitigation Review: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resource Management Review: \_\_\_\_\_ Date: \_\_\_\_\_  
 Permit Approval by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Grout Seal inspected by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Final Inspection by: \_\_\_\_\_ Date: \_\_\_\_\_



APN 016-001-003

WELL SITE #3

Permit No. 20 \_\_\_\_\_

APPLICATION FOR WELL CONSTRUCTION OR DESTRUCTION

THIS PERMIT EXPIRES 1 YEAR FROM DATE ISSUED

Application is hereby made to the Stanislaus County Department of Environmental Resources (D.E.R.) for a permit to construct and/or destroy the work herein described. PLEASE NOTIFY THIS DEPARTMENT (USING PERMIT # AND D.W.R. WELL DRILLERS REPORT) WHEN WELL WORK IS COMPLETED.

Job Address/Location: 136 KASSON RD. City: PATTERSON, CA. 95363

Distance & Direction from the Nearest Cross Streets: KASSON Rd & STATE Hwy 132

Property Owner's Name: NBINV APS LLC Phone: (209) 613-6053

Mailing Address: 3075 SANDERS AD. City/State: NORTH BROOK, ILL 60062

Water Agency:  Yes  No Water Agency Name: \_\_\_\_\_

Contractor's Name: Canepa and Sons, Inc. License #: 425749 Phone: (209) 532-1136

Type of Work:  New Well  Destruction  Other \_\_\_\_\_

If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use:  Agricultural  Irrigation  Industrial  Domestic/Private  Domestic/Public  
 Cathodic Protection  Geothermal  Dewatering  Other \_\_\_\_\_

Conveyance: Will water from this well be relocated from parcel of origin?  Yes  No  
Will water from this well be relocated to out-of-county?  Yes\*  No  
\*Provide water agency authorization

Existing Well Present:  Yes  No Status:  Active  To be destroyed  Inactive  
*domestic*

Community Service District:  N/A  Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 2700' Disposal Field 2700'+ Seepage Pit N/A Dry Well N/A  
Pit Privy N/A Animal Enclosure N/A Other Well 2700'+  
Dairy Lagoons N/A Dwellings 2700'+ Property Lines 1900'+

Construction Specifications:  Drilled  Cable Tool  Gravel Pack  Rotary  Other \_\_\_\_\_  
Diameter of Excavation 26 Diameter of Well Casing 16 Gauge of Casing .250  
Estimated GPM 1000-2000 Estimated Finished Well Depth 500'  
Sealing Material 6Sk P-Mix Grout Manufacturer CEMENT Grout name \_\_\_\_\_  
Proposed Depth of Grout Seal 25' Proposed # of bags \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)

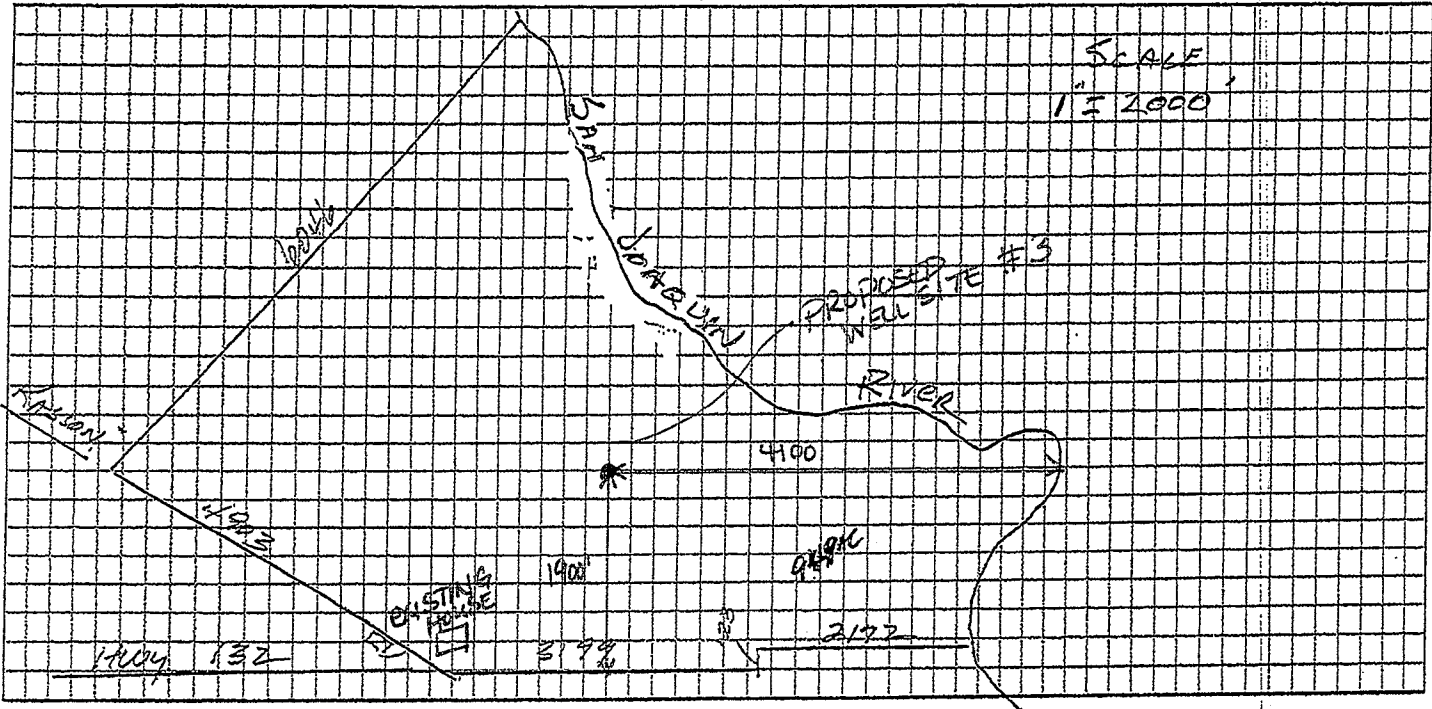
Destruction Specifications: Diameter of Well Casing \_\_\_\_\_ Proposed Depth of Grouting \_\_\_\_\_  
Sealing Material \_\_\_\_\_ Grout Manufacturer \_\_\_\_\_ Grout name \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)  
Describe method if different than minimum state standards: \_\_\_\_\_

# PLOT PLAN

(Indicate Distances in Feet)

1. Name of street and distance from nearest cross roads to well site.
2. Outline of the property, easements.
3. Outlines and locations of all existing and proposed structures, including covered areas such as patios, driveways, and walks.
4. Location of house sewer outlet, public sewer, sewage disposal system, or proposed sewage disposal system, proposed expansion of sewage disposal system, industrial waste pond, or any other possible source of contamination.
5. Location of other wells within radius of 300 feet on the property or adjoining property.
6. Location of sewage disposal system on adjoining property or within a radius of 100 ft. (private well) 150 ft. (public well).

NORTH ↑



Written description of well location (if not visible from road): \_\_\_\_\_

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LAWS OF THE STATE OF CALIFORNIA, THE ORDINANCES OF THE COUNTY OF STANISLAUS AND THE RULES AND REGULATIONS OF THE STANISLAUS COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES (DER). DER WILL BE CONTACTED FOR INSPECTION OF ANNULAR SEAL INSTALLATION, AND AFTER WELL WORK HAS BEEN COMPLETED.

1. All existing wells within a 300 foot radius of the proposed new well(s) on the property or adjoining property have been located and so indicated.
2. Proposed well(s) will be located at least 50-150 feet from any sewage disposal system on property or adjoining property.
3. Submit well completion report on all wells drilled, as notice of well work completion.

SIGNED: Ricky Carney DATE: 5/2/19  
 (C57 CONTRACTOR AS AUTHORIZED REPRESENTATIVE)

### D.E.R. USE ONLY

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ T. \_\_\_\_\_ R. \_\_\_\_\_ Sec. \_\_\_\_\_ A.P.N.: \_\_\_\_\_

Plot Card Available:  Yes  No G.I.S. Information Available:  Yes  No

Actual Grout Seal Depth: \_\_\_\_\_ Actual Sealing Material Used: \_\_\_\_\_

Claimed Clay Layer Depth at: \_\_\_\_\_ Conditions of Approval:  None  Description: \_\_\_\_\_

HAZMAT Mitigation Review: \_\_\_\_\_ Date: \_\_\_\_\_

Resource Management Review: \_\_\_\_\_ Date: \_\_\_\_\_

Permit Approval by: \_\_\_\_\_ Date: \_\_\_\_\_

Grout Seal Inspected by: \_\_\_\_\_ Date: \_\_\_\_\_

Final Inspection by: \_\_\_\_\_ Date: \_\_\_\_\_



DEPARTMENT OF ENVIRONMENTAL RESOURCES

3800 Cornucopia Way, Suite C, Modesto, CA 95358-9492

Phone: 209.525.6700 • Fax: 209.525.6774

www.stancounty.com

APN 016-001-003

WELL SITE #4

Permit No. 20 \_\_\_\_\_ - \_\_\_\_\_

APPLICATION FOR WELL CONSTRUCTION OR DESTRUCTION

THIS PERMIT EXPIRES 1 YEAR FROM DATE ISSUED

Application is hereby made to the Stanislaus County Department of Environmental Resources (D.E.R.) for a permit to construct and/or destroy the work herein described. PLEASE NOTIFY THIS DEPARTMENT (USING PERMIT # AND D.W.R. WELL DRILLERS REPORT) WHEN WELL WORK IS COMPLETED.

Job Address/Location: 136 KASSON RD. City: PATTERSON, CA 95363

Distance & Direction from the Nearest Cross Streets: KASSON Rd : STATE Hwy 132

Property Owner's Name: NB INV APS LLC Phone: (209) 613-6053

Mailing Address: 3075 SANDERS Rd. City/State: NORTHBROOK, ILL 60062

Water Agency: [ ] Yes [X] No Water Agency Name: \_\_\_\_\_

Contractor's Name: Canepa and Sons, Inc. License #: 425749 Phone: (209) 532-1136

Type of Work: [X] New Well [ ] Destruction [ ] Other \_\_\_\_\_

If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use: [X] Agricultural [X] Irrigation [ ] Industrial [ ] Domestic/Private [ ] Domestic/Public [ ] Cathodic Protection [ ] Geothermal [ ] Dewatering [ ] Other \_\_\_\_\_

Conveyance: Will water from this well be relocated from parcel of origin? [ ] Yes [X] No Will water from this well be relocated to out-of-county? [ ] Yes\* [X] No \*Provide water agency authorization

Existing Well Present: [X] Yes [ ] No Status: [X] Active [ ] To be destroyed [ ] Inactive domestic

Community Service District: [X] N/A [ ] Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 5000'+ Disposal Field 5000'+ Seepage Pit N/A Dry Well N/A Pit Privy N/A Animal Enclosure N/A Other Well 5000'+ Dairy Lagoons N/A Dwellings 5000'+ Property Lines 50'

Construction Specifications: [ ] Drilled [ ] Cable Tool [ ] Gravel Pack [X] Rotary [ ] Other Diameter of Excavation 26 Diameter of Well Casing 16 Gauge of Casing .250 Estimated GPM 1000-2000 Estimated Finished Well Depth 500' Sealing Material 6SK P-Mix Grout Manufacturer CEMENT Grout name \_\_\_\_\_ Proposed Depth of Grout Seal 25' Proposed # of bags \_\_\_\_\_ Seal Method: [X] Free Fall [ ] Tremie Hose (Force) [ ] Tremie Hose (Gravity)

Destruction Specifications: Diameter of Well Casing \_\_\_\_\_ Proposed Depth of Grouting \_\_\_\_\_ Sealing Material \_\_\_\_\_ Grout Manufacturer \_\_\_\_\_ Grout name \_\_\_\_\_ Seal Method: [ ] Free Fall [ ] Tremie Hose (Force) [ ] Tremie Hose (Gravity) Describe method if different than minimum state standards: \_\_\_\_\_

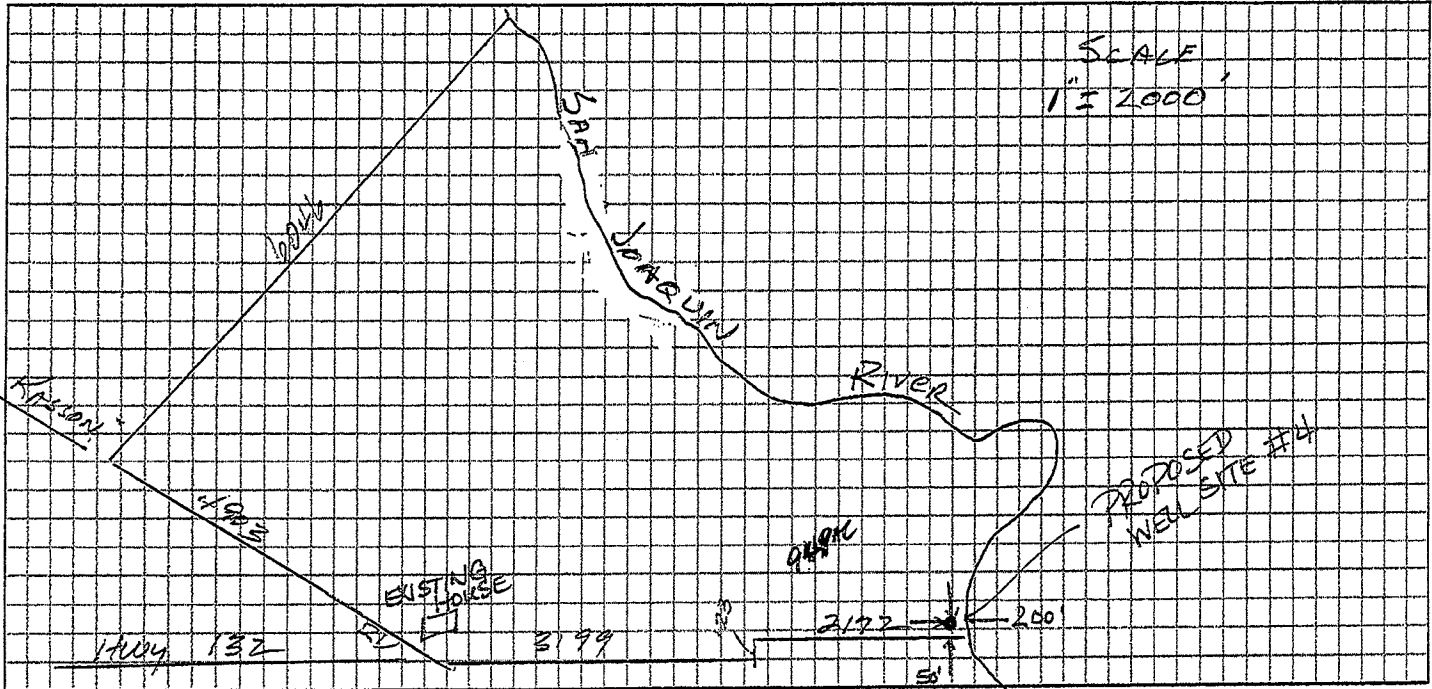
dropped off 5/2/19

# PLOT PLAN

(Indicate Distances in Feet)

1. Name of street and distance from nearest cross roads to well site.
2. Outline of the property, easements.
3. Outlines and locations of all existing and proposed structures, including covered areas such as patios, driveways, and walks.
4. Location of house sewer outlet, public sewer, sewage disposal system, or proposed sewage disposal system, proposed expansion of sewage disposal system, industrial waste pond, or any other possible source of contamination.
5. Location of other wells within radius of 300 feet on the property or adjoining property.
6. Location of sewage disposal system on adjoining property or within a radius of 100 ft. (private well) 150 ft. (public well).

NORTH ↑



Written description of well location (if not visible from road): \_\_\_\_\_

I HEREBY CERTIFY THAT I HAVE PREPARED THIS APPLICATION AND THAT THE WORK WILL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LAWS OF THE STATE OF CALIFORNIA, THE ORDINANCES OF THE COUNTY OF STANISLAUS AND THE RULES AND REGULATIONS OF THE STANISLAUS COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES (DER). DER WILL BE CONTACTED FOR INSPECTION OF ANNULAR SEAL INSTALLATION, AND AFTER WELL WORK HAS BEEN COMPLETED.

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2. Proposed well(s) will be located at least 50-150 feet from any sewage disposal system on property or adjoining property.
3. Submit well completion report on all wells drilled, as notice of well work completion.

SIGNED: *Robby Carr* DATE: 5/2/19  
 (C57 CONTRACTOR AS AUTHORIZED REPRESENTATIVE)

### D.E.R. USE ONLY

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ T. \_\_\_\_\_ R. \_\_\_\_\_ Sec. \_\_\_\_\_ A.P.N.: \_\_\_\_\_  
 Plot Card Available:  Yes  No G.I.S. Information Available:  Yes  No  
 Actual Grout Seal Depth: \_\_\_\_\_ Actual Sealing Material Used: \_\_\_\_\_  
 Claimed Clay Layer Depth at: \_\_\_\_\_ Conditions of Approval:  None  Description: \_\_\_\_\_

HAZMAT Mitigation Review: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resource Management Review: \_\_\_\_\_ Date: \_\_\_\_\_  
 Permit Approval by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Grout Seal inspected by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Final Inspection by: \_\_\_\_\_ Date: \_\_\_\_\_

[SUMMARY OF FINAL SUBMITTED VERSION]

REPORT OF LICENSEE FOR 2018

Primary Owner: NBINV AP6 LLC  
 Primary Contact: LAUREN D LAYNE

Date Submitted: 03/31/2019

Application Number: A001195  
 License Number: 004934

Source(s) of Water	POD Parcel Number	County
SAN JOAQUIN RIVER		Stanislaus
SAN JOAQUIN RIVER		Stanislaus

MAX Direct Diversion Rate: 35 CFS  
 MAX Collection to Storage: 0 AC-FT  
 Face Value: 15897.8 AC-FT

Permitted Use(s)	Acres	Direct Diversion Season	Storage Season
Irrigation	2359	03/01 to 10/15	

1. Project Abandoned	
The project has been abandoned and I request revocation of my water right license	No

2. Compliance with License Terms and Conditions	
I have currently reviewed my water right license and I am complying with all terms and conditions	Yes
Description of noncompliance with terms and conditions	

3. Changes to the Project	
Intake location has been changed	
Description of intake location changes	
Type of use has changed	
Description of type of use changes	
Place of use has changed	
Description of place of use changes	
Other changes	
Description of other changes	

4. Purpose of Use	
Irrigation	

Irrigated Crops			
	Multiple Crops	Area Irrigated (Acres)	Primary Irrigation Method
Alfalfa	No	345.40	Surface (example: flood)
Almonds and Other Nuts	No	14	Low-volume (example: micro-sprinkler, drip)
Corn	Yes	531.30	Surface (example: flood)
Fruit	Yes	264.20	Surface (example: flood)
Tomatoes	Yes	278.40	Surface (example: flood)

Special Use Categories	
C1. Are you using any water diverted under this right for the cultivation of cannabis?	No



5. Maximum Rate of Diversion	
Month	Rate of Diversion
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

6. Amount of Water Diverted and Used			
Month	Amount directly diverted (Acre-Feet)	Amount diverted or collected to storage (Acre-Feet)	Amount used (Acre-Feet)
January	0	0	0
February	0	0	0
March	573.65	0	573.65
April	1419	0	1419
May	1632	0	1632
June	1633	0	1633
July	1858.65	0	1858.65
August	1841.45	0	1841.45
September	755.35	0	755.35
October	0	0	0
November	0	0	0
December	0	0	0
Total	9713.1	0	9713.1
Type of Diversion	Direct Diversion Only		
Comments			

Water Transfers	
6d. Water transfered	No
6e. Quantity transfered (Acre-Feet)	
6f. Dates which transfer occurred	/ to /
6g. Transfer approved by	

Water Supply Contracts	
6h. Water supply contract	No
6i. Contract with	
6j. Other provider	
6k. Contract number	
6l. Source from which contract water was diverted	
6m. Point of diversion same as identified water right	
6n. Amount (Acre-Feet) authorized to divert under this contract	

6o. Amount (Acre-Feet) authorized to be diverted in 2018	
6p. Amount (Acre-Feet) projected for 2019	
6q. Exchange or settlement of prior rights	
6r. All monthly reported diversion claimed under the prior rights	
6s. Amount (Acre-Feet) of reported diversion solely under contract	

### 7. Water Diversion Measurement

a. Required to measure as of the date this report is submitted	Yes
b. Is diversion measured?	Yes
c. An alternative compliance plan was submitted to the division of water rights on	
d. A request for additional time was submitted to the division of water rights on	

Measurement ID number	M000007
This Device/Method was used to measure water during the current reporting period	Yes
M1. Briefly describe the measurement device or method	Water flow meters
M2. Nickname	JV Frost and JV Drip
M3. Type of device / method	Flow meter (electromagnetic)
M4. Device make	McCrometer
M5. Serial number	A616-0465 & A616-0464
M6. Model number	McMag 3000
M7. Approximate date of installation	03/10/2016
M8. Additional info	
M9. Approximate date the measuring device was last calibrated or the measurement method was updated	03/10/2016
M10. Estimated accuracy of measurement	+/- 2%
M11. Description of calibration method	Factory calibrated
M12. Describe the maintenance schedule for the device/method	Pulled, cleaned and put away yearly.
Information for the person who last calibrated the device or designed the measurement method	
M13. Name	Jim Nelson
M14. Phone number	707 489-5945
M15. Email	james_nelson@earthlink.net
M16. Qualifications of the individual	A person trained and experienced in water measurement and reporting (this may include the diverter or the diverter's agent)
M17. License number and type for the qualified individual above and/or any other relevant explanation	
M18. Type of data recorder device / method	Digital register (flow meter)
M19. Data recorder device make	McCrometer
M20. Data recorder serial number	A616-0465 & A616-0464
M21. Data recorder model number	McMag 3000
M22. Data recorder units of measurement	Gallons
M23. Frequency of data recording	Weekly
M24. Additional data recorder info	
M25. I am required to report my diversion or storage data by telemetry as of the date this report is submitted	No
M26. I report my diversion or storage data by	

telemetry to the following website	
------------------------------------	--

Measurement Attachments			
Measurement ID Number	File Name	Description	Size
No attachments			

Measurement Data Files			
Measurement ID Number	File Name	Description	Size
M000007	<u>Pescadero Water Use 2018 Meter Readings.xlsx</u>	2018 Meter Readings	12 KB

8. Storage					
Reservoir name	Spilled this year	Feet below spillway at maximum storage	Completely emptied	Feet below spillway at minimum storage	Method used to measure water level

Conservation of Water	
9. Are you now employing water conservation efforts?	Yes
Description of water conservation efforts	New pipe lines, new pump bowls and lined v ditches. All meters are being replaced with remote telemetry in 2019 as well.
10. Amount of water conserved	
11. I have data to support use reductions under this water right due to conservation efforts	No

Water Quality and Wastewater Reclamation	
12. During the period covered by this Report, did you use reclaimed water from a wastewater treatment facility, water from a desalination facility, or water polluted by waste to a degree which unreasonably affects the water for other beneficial uses?	No
13. Amount of reclaimed, desalinated, or polluted water used	

Conjunctive Use of Groundwater and Surface Water	
14. During the period covered by this Report, were you using groundwater in lieu of available surface water authorized under your license?	No
15. Amounts of groundwater used	

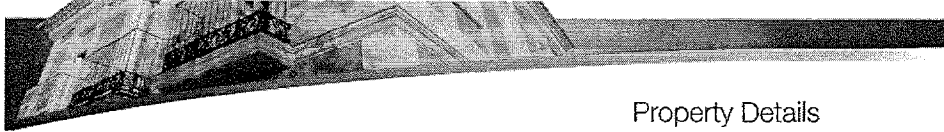
Additional Remarks
Please note that the attached meter readings include meters that reached their maximum reading and rolled over to zero sometime in mid-2018. All meters are being replaced with remote telemetry in 2019.

Attachments		
File Name	Description	Size
No Attachments		

Contact Information of the Person Submitting the Form	
First Name	Lauren
Last Name	Layne
Relation to Water Right	Other: Agent

Information on Certification and Signatory	
Name of Person Signing and Certifying the Report	Lauren D. Layne
Date of Signature	03/31/2019





## Property Details

Nbinv Ap6 Llc,  
136 Kasson Rd, Patterson, CA 95363

APN: 016-001-003  
Stanislaus County

### Owner Information

Primary Owner: NBINV AP6 LLC,	Secondary Owner:
Mail Address: 3075 SANDERS RD NORTHBROOK IL 60062	Site Address: 136 KASSON RD PATTERSON CA 95363
Assessor Parcel Number: 016-001-003	Phone:
Census Tract:	Housing Tract Number:
Lot Number:	Page Grid:
Legal description:	

### Property Characteristics

Bedrooms:	Year Built: 1918
Bathrooms:	Garage:
Partial Baths:	Fire Place:
Total Rooms:	Lot Size: 949.83 AC
Square Feet: 1,660 SF	Property Type: Single Family Residential Properties
Owner Exclusions:	Use Code: Rural/Agricultural Residence
Number of Units: 0	Latitude: 37.648891
No of Stories:	Longitude: -121.241573
Building Style:	Zoning: A240
Pool:	

### Sale & Loan Information

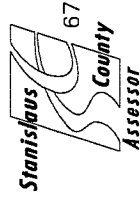
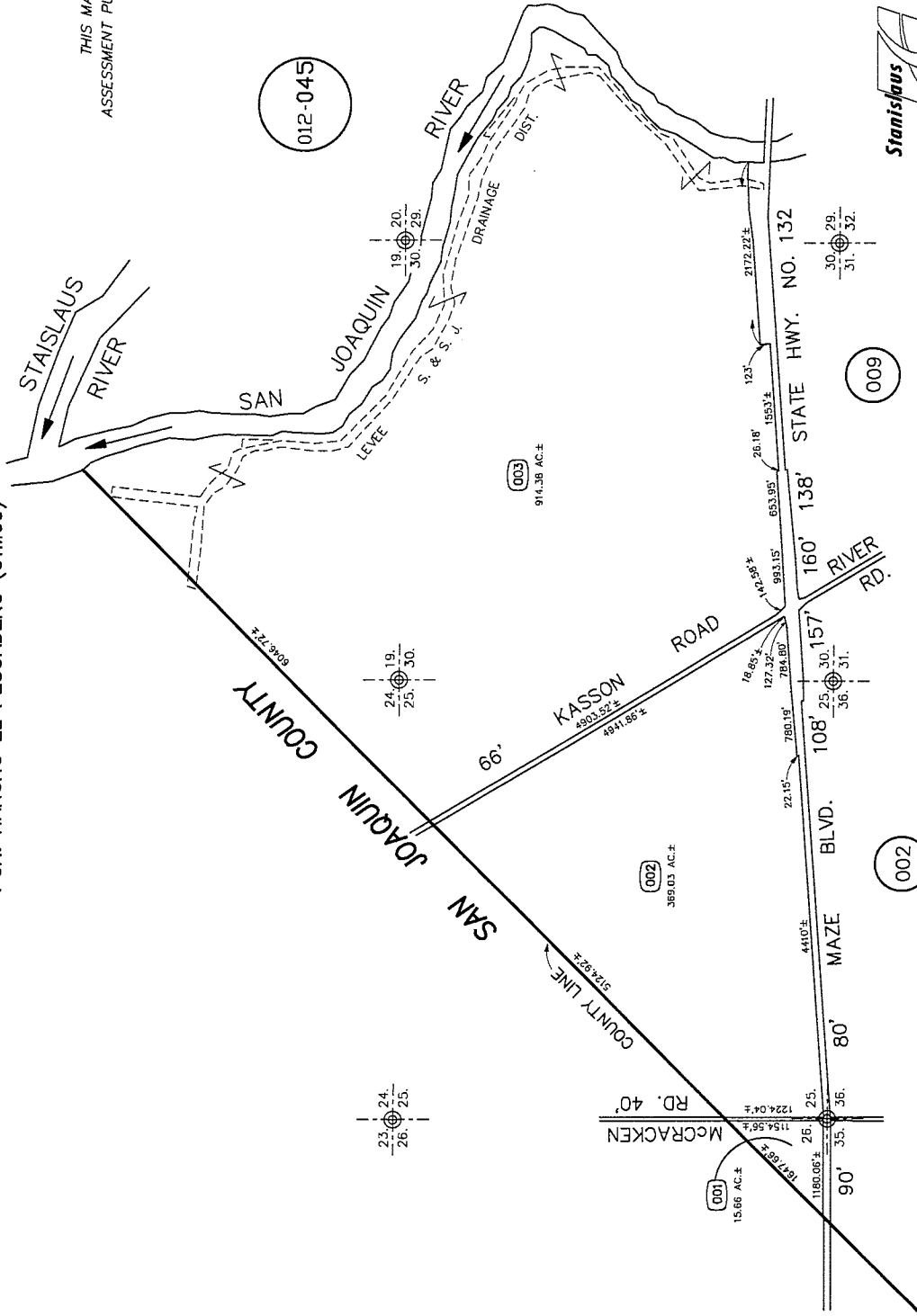
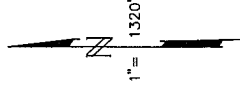
Transfer Date: 10/09/2018	Seller: PKG VERNALIS PARTNERS LP; CODDQUEST LLC
Transfer Value: \$24,414,000	Document #: 2018-0070340
Cost/SF: \$14,707	First Loan Amount: N/A
Sale Type:	Title Company: OLD REPUBLIC TITLE CO
Lender:	

POR. SEC. 24,25,26 T.3S. R.6E. & POR. SEC. 19,29,30 T.3S. R.7E. M.D.B.& M.  
 POR. RANCHO EL PESCADERO (OTM69)

086 007  
 086 020

016 - 001

THIS MAP FOR  
 ASSESSMENT PURPOSES ONLY



FROM: 012-001 & 006  
 DRAWN: 9-28-66  
 REVISED: 3-1-82, 9-29-16 (V)MB, 6-29-18 MF

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016 - 001



**APPENDIX B – SUPPLEMENTAL APPLICATION PACKAGE**

---



DEPARTMENT OF ENVIRONMENTAL RESOURCES

3800 Cornucopia Way, Suite C, Modesto, CA 95358-9592  
 Phone: 209.525.6770 Fax: 209.525.6773

**SUPPLEMENTAL APPLICATION FOR NON-EXEMPT WELLS**

The following supplemental information is required for all wells that are determined not to be exempt from the prohibitions and requirements of the County Groundwater Ordinance effective November 25, 2014.

<b>Applicant Information</b>			
Name of Applicant:		Firm (if applicable):	
Address:	City:	State:	Zip Code:
Daytime Phone Number:	Fax Number	Email:	
Name of Owner (if different from Applicant):		Firm (if applicable):	
Address:	City:	State:	Zip Code:
Daytime Phone Number:	Fax Number	Email:	
<b>Licensed Professional Information (Professional Engineer or Geologist)</b>			
Name of Licensed Professional:		Firm:	
Address:	City:	State:	Zip Code:
Daytime Phone Number:	Fax Number	Email:	
License Type and Number:	Sections of Application Completed:		
Name of Licensed Professional:		Firm:	
Address:	City:	State:	Zip Code:
Daytime Phone Number:	Fax Number	Email:	
License Type and Number:	Sections of Application Completed:		
<b>For County Use Only</b>			

**I. Location Map**

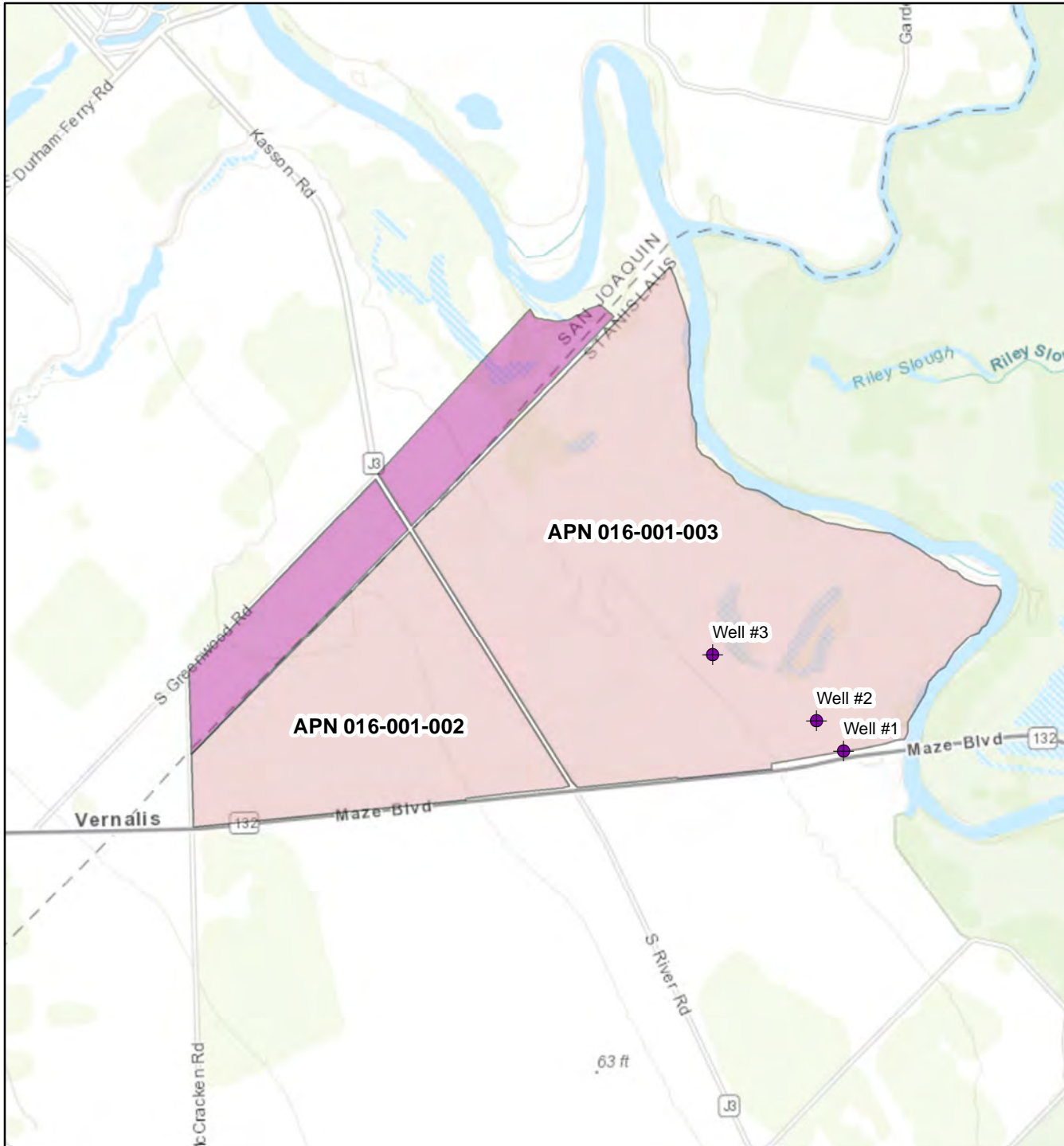
Provide a map or maps showing the following:

- A. Well location
- B. Outline of property to be served by the well, and APN number(s)
- C. Outline of contiguous owned property surrounding the well location, and APN number(s)
- D. Streams and lakes within 2 miles
- E. Springs, seeps, wetlands and other Groundwater-Dependent Ecosystems (GDEs) within 3 miles or within the predicted area of 0.5 feet of drawdown on the date that a Groundwater Sustainability Plan will be adopted. (Use the drawdown analysis in Section IV, USGS topographic maps, aerial photo imagery available from the internet or other sources, state and federal wetland and hydrology databases, studies, County resources, or knowledge of the area to identify any areas where groundwater may be discharging to surface water or groundwater-dependent vegetation may exist.)
- F. Existing sewer lines, cisterns, septic disposal systems and animal confinements within 250 feet **NONE**
- G. Concentrated Animal Feeding Operations (CAFOs) within 1 mile **NONE**
- H. Reported hazardous materials and hazardous waste sites or release incidents within 1 mile (from Section VI.A.)
- I. Existing wells on the property, keyed to a table that provides well use, depth, diameter, screen interval, and pumping rate. If available, attach information regarding any specific capacity or other pumping tests completed. **NONE**
- J. Predicted area of drawdown exceeding 0.5 and 5 feet (from Section IV, below).
- K. For proposed wells within 2 miles of areas underlain by the Corcoran Clay and completed below the depth of the Corcoran Clay, the location of any infrastructure within 2 miles that is potentially sensitive to subsidence. This includes, but is not necessarily limited to, canals, ditches, pipelines, utility corridors, and roads.




**For County Use Only**

Data Adequate?  Yes  No

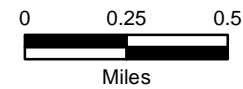
Comments:



**Legend**

-  Proposed Well Location
-  Stanislaus County Parcel Boundaries
-  San Joaquin County Parcel Boundaries

Source: <http://www.sjmap.org/DistrictViewer/>;  
Stanislaus County IT Central Public Inquiry Map



**Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells**

**Figure 3. Parcels to be Served  
by Proposed Wells**

DATE: FEB 19, 2020

BY: SGS

FOR: MT

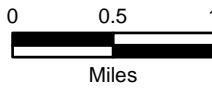
**FORMATION**  
ENVIRONMENTAL





**Legend**

- Site Boundary
- Lakes and Ponds
- Reservoir
- Rivers
- Streams
- Pipeline
- Canals / Ditches
- GDE Wetlands
- GDE Vegetation
- Kason Road
- Major Highways



**Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells**

**Figure 4. Hydrologic Features**

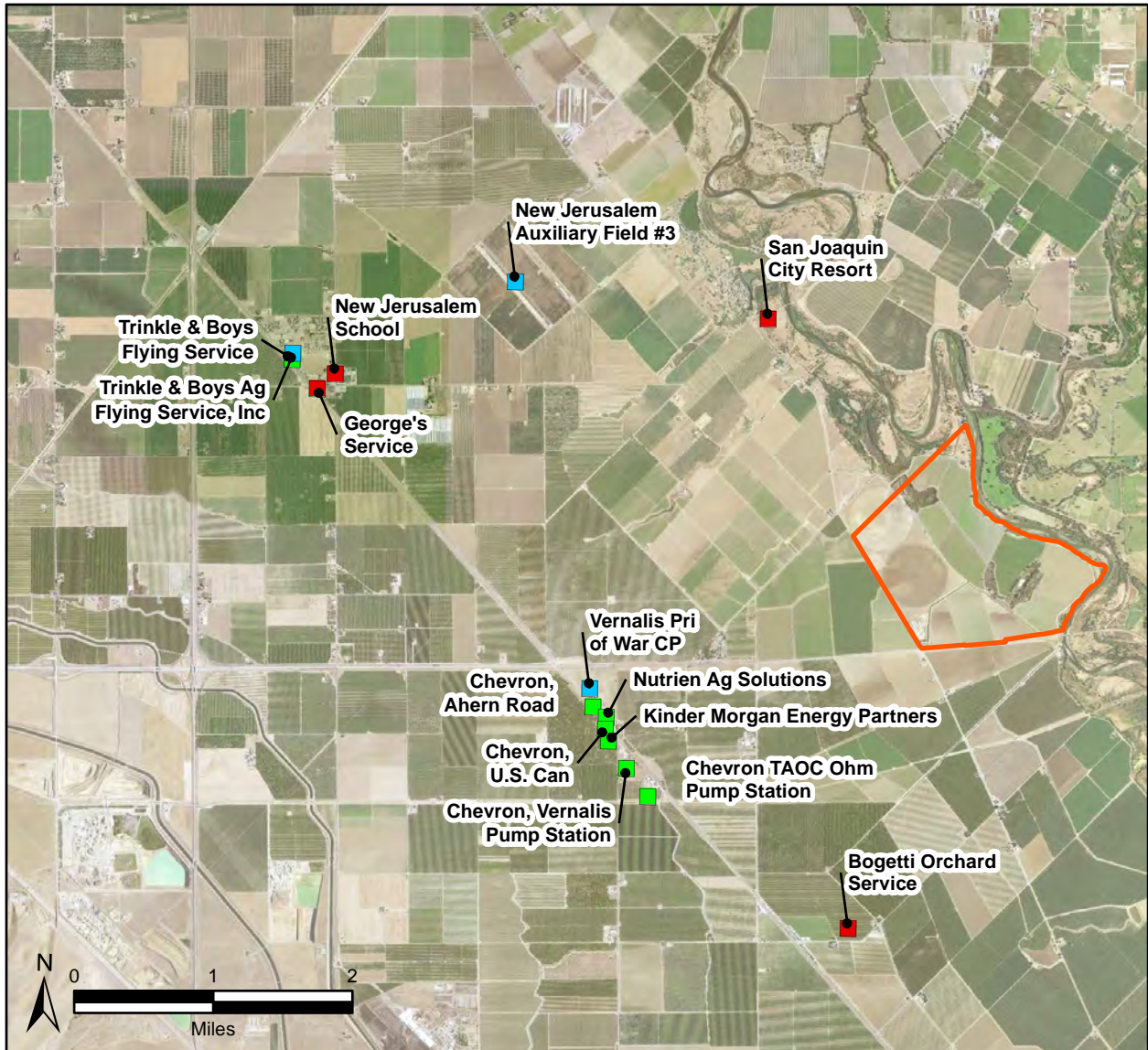
DATE: NOV 08, 2019

BY: SGS

FOR: MT

**FORMATION**  
ENVIRONMENTAL





Site Name	Contaminant	Program	Media of Concern	Status
Chevron TAOC Ohm Pump Station	Crude oil	Cleanup Program Site	Under investigation	Open: 2008
Chevron, Ahern Road- Vernalis	Crude oil	Cleanup Program Site	Groundwater (non-drinking), soil, under investigation	Open: 2011
Chevron, U.S. Can, Vernalis	Gasoline, Trichloroethylene (TCE)	Cleanup Program Site	Groundwater (non-drinking), soil	Closed: 2014
Chevron, Vernalis Pump Station (Former Roberts)	Petroleum	Cleanup Program Site	Groundwater (non-drinking), soil	Closed: 2012
George's Service	Gasoline	Lust Cleanup Site	Aquifer used for drinking water	Closed: 2018
Bogetti Orchard Service	Gasoline	Lust Cleanup Site	Aquifer used for drinking water	Closed: 2004
Kinder Morgan Energy Partners- Vernalis Site	Petroleum, fuels, oils	Cleanup Program Site	Under investigation	Open, inactive: 1996
New Jerusalem Auxiliary Field #3	No contaminants found	DTSC Cleanup Site	No media affected	No further action: 2008
New Jerusalem School	Gasoline	Lust Cleanup Site	Soil	Closed: 1999
Nutrien Ag Solutions	1,2,3-Trichloropropane (TCP), Nitrate, other Chlorinated Hydrocarbons, insecticides, pesticide, fumigants, herbicides	Cleanup Program Site	Groundwater (non-drinking)	Open: 2014
San Joaquin City Resort	Gasoline	Lust Cleanup Site	Soil	Closed: 1997
Trinkle & Boys Flying Service	Insecticides, pesticide, fumigants, herbicides	Cleanup Program Site	Soil	Closed: 2012
Trinkle & Boys Ag Flying Service, Inc	Soil, pesticide containers, hydrocarbon solvents, pesticide rinse waters, pesticide	DTSC Cleanup Site	None specified	Referred to the RWQCB: 1993
Vernalis Pri of War CP	None specified	DTSC Cleanup Site	None specified	No further action: 2014

**Figure 7**

**Reported Nearby Contamination Sites**

**Groundwater Resources Impact Assessment, Pescadero Ranch Supplemental Wells**

**Legend**

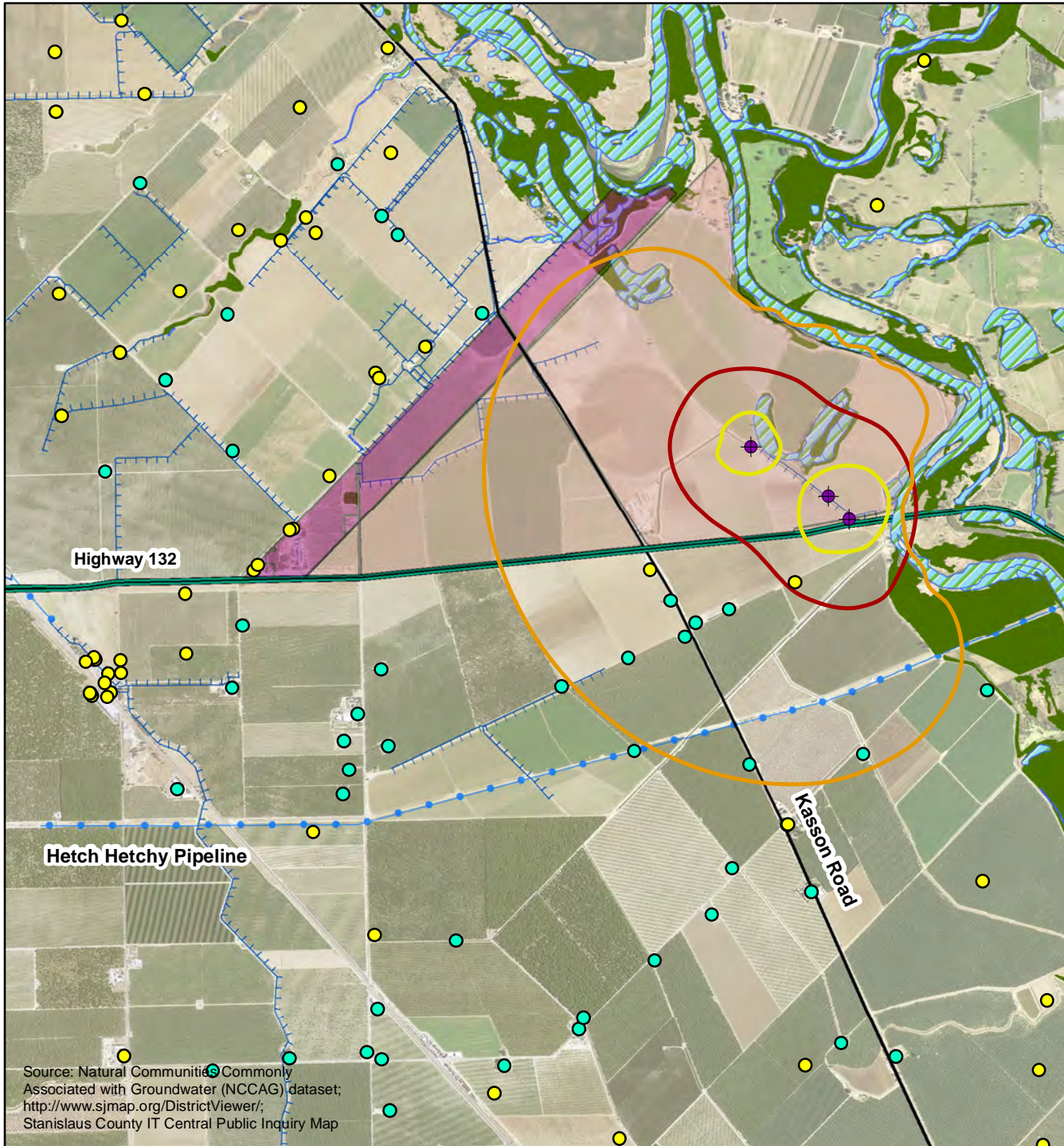
- Cleanup Program Sites
- DTSC Cleanup Sites
- LUST Cleanup Sites
- Site Boundary



Date: 11/7/2019

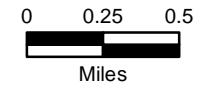
M:\Agriglobe\NBin\A\_P6\_Kasson\_Rd\_Site\GIS\Fig07\_NearbyContamination.mxd





**Legend**

- Existing Well Locations (from Geotracker GAMA)
- Possible Additional Existing Well Locations (from Topographic Maps and Aerial Imagery)
- ◆ Proposed Well Locations
- 0.5 Foot Drawdown after 276 Days
- 5 Foot after 61 Days
- 20 Foot Drawdown after 61 Days
- Stanislaus County Parcel Boundaries
- San Joaquin County Parcel Boundaries
- Potential GDE's- Wetlands
- Potential GDE's- Vegetation
- Highway 132
- Kason Road
- Hetch Hetchy Pipeline
- |—|—|— Canals / Ditches



**Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells**

**Figure 8. Predicted Drawdown-  
Scenario 1, with Nearsite Wells  
and GDE's**

Source: Natural Communities Commonly Associated with Groundwater (NCCAG) dataset; <http://www.sjmap.org/DistrictViewer/>; Stanislaus County IT Central Public Inquiry Map

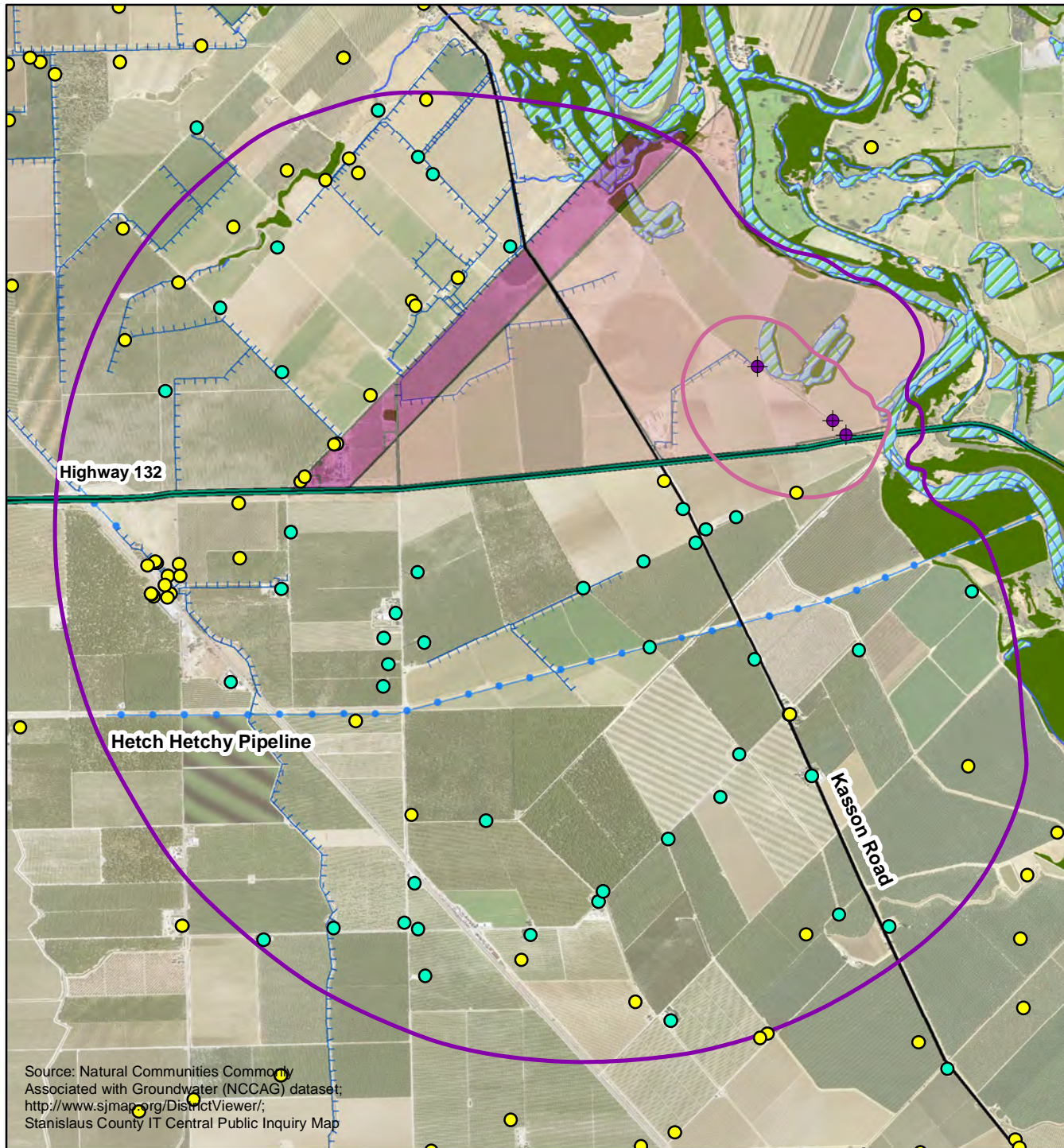
DATE: FEB 19, 2020

BY: SGS

FOR: MT

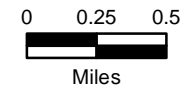
**FORMATION**  
ENVIRONMENTAL





**Legend**

- Existing Well Locations (from Geotracker GAMA)
- Possible Additional Existing Well Locations (from Topographic Maps and Aerial Imagery)
- Proposed Well Locations
- 0.5 Foot Drawdown after 20 Years
- 5 Foot Drawdown after 20 Years
- Stanislaus County Parcel Boundaries
- San Joaquin County Parcel Boundaries
- Potential GDE's- Wetlands
- Potential GDE's- Vegetation
- Highway 132
- Kason Road
- Hetch Hetchy Pipeline
- Canals / Ditches



**Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells**

**Figure 9. Predicted Drawdown-  
Scenario 2, with Nearsite Wells  
and GDE's**

Source: Natural Communities Community  
Associated with Groundwater (NCCAG) dataset;  
<http://www.sjmap.org/DistrictViewer/>;  
Stanislaus County IT Central Public Inquiry Map

DATE: FEB 19, 2020

BY: SGS

FOR: MT

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NON-EXEMPT WELL CONSTRUCTION PERMIT SUPPLEMENTAL APPLICATION

**II. Pumping and Water Use Data**

Provide the following information regarding groundwater extraction from the proposed well.

A. For irrigation wells, use the following table to calculate the water demand to be served by the proposed well.

Crop Type	Irrigated Acres	Irrigation System Type	Irrigation Season Length (days)	Average Annual Demand (AFY)	Maximum Monthly Demand (MGM)	Peak Daily Demand (GPM)

B. Estimated pumping rate of proposed well: \_\_\_\_\_ gpm (for each of three)

C. Anticipated pumping schedule for proposed well (hours per day, days per week, approximate annual start date and stop date for seasonal pumping):

\* As described in the enclosed report, the application is for three wells that will be used occasionally to supplement surface water supplies. The maximum average annual demand during the March 1 to October 15 irrigation season is 1,000 AFY. The peak demand is 1,300 AF over a two month period. Hourly operation will be variable as needed.

D. Estimated annual extraction volume: \_\_\_\_\_ gal (total for three wells)

E. Estimated cumulative extraction volume prior to January 1, 2022: \_\_\_\_\_ gal

F. Estimated cumulative extraction volume in 20 years: \_\_\_\_\_ gal

G. Planned water use:  Irrigation  Stock  Domestic  Municipal  
 Industrial  Other (describe): \_\_\_\_\_

H. Size of area to be served by the well: \_\_\_\_\_ acres

I. Size of contiguous owned property on which the well is located: \_\_\_\_\_ acres

**For County Use Only**

Data Adequate?  Yes  No

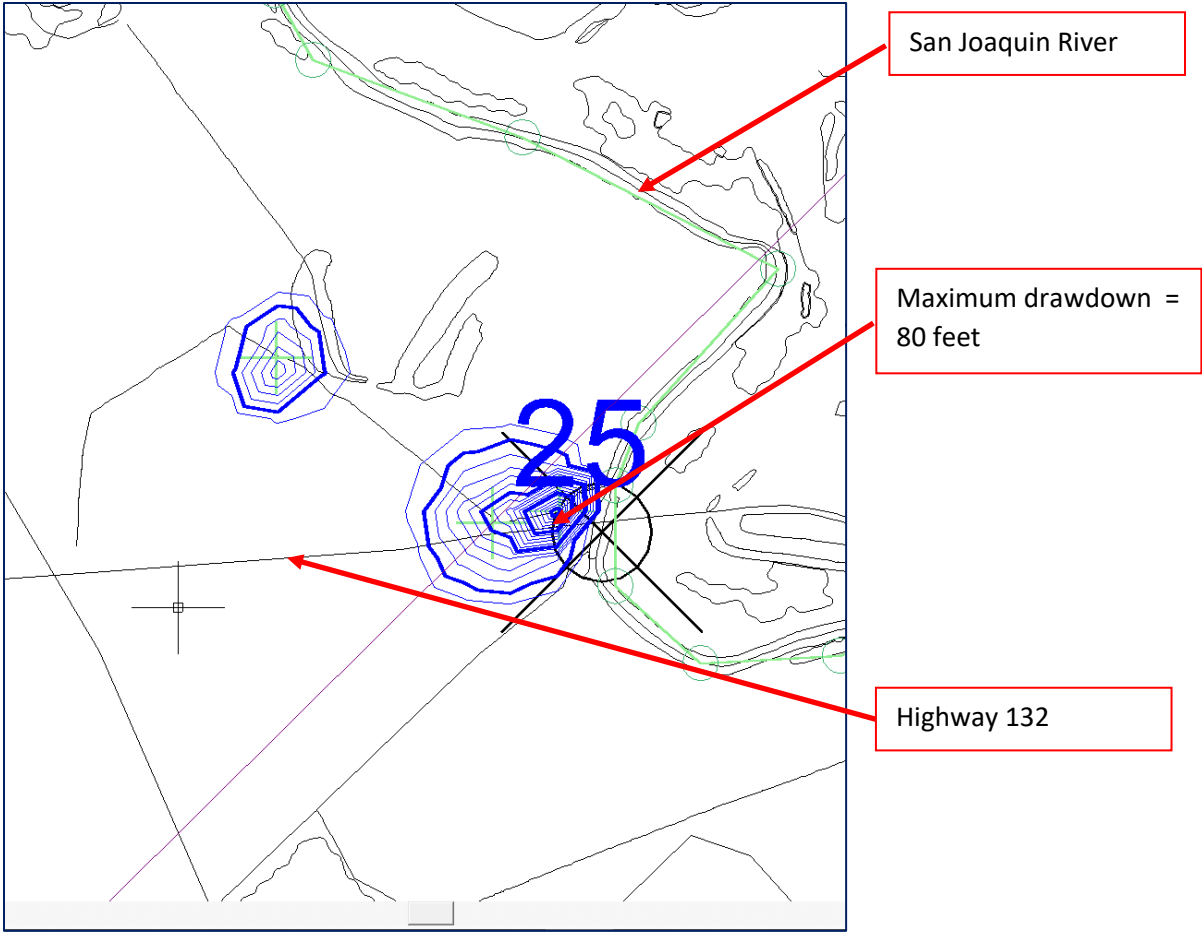
Comments:

<b>III. Water Export</b>	<b>NOT APPLICABLE</b>
<p>A. Will groundwater extracted from the well be exported from the County, or substituted for surface water that will be exported from the County,</p> <p>B. If the attach a Groundwater Export Proposal that includes, at a minimum, the following:</p> <ol style="list-style-type: none"><li>1. List the exemptions from Section 9.37.050 of the Groundwater Ordinance that apply and provide any substantiating evidence.</li><li>2. Provide specific timeframes and conveyance mechanisms by which the groundwater will be conveyed out of the County.</li><li>3. Indicate the purpose and use of such water at the terminal point of delivery.</li><li>4. Indicate the methods used to monitor and report the volume of water to be exported.</li><li>5. Explain whether the project involves exporting water during periods of emergency. (An emergency includes (1) states of emergency as described in the California Government Code, section 8558; (2) states of water shortage emergency as determined by the California Department of Water Resources; or (3) determination by the Stanislaus County Board of Supervisors that groundwater within the County can assist areas outside the County.)</li><li>6. Groundwater extraction for the purpose of emergency relief shall be monitored so that the volume of water exported can be determined.</li><li>7. The duration of groundwater extraction for the purpose of emergency relief shall not exceed the time frame of the emergency.</li><li>8. Groundwater extraction for the purpose of emergency relief does not set precedents or entitles the exporter to future exports.</li></ol>	
<b><u>For County Use Only</u></b>	
Data Adequate? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Comments:	



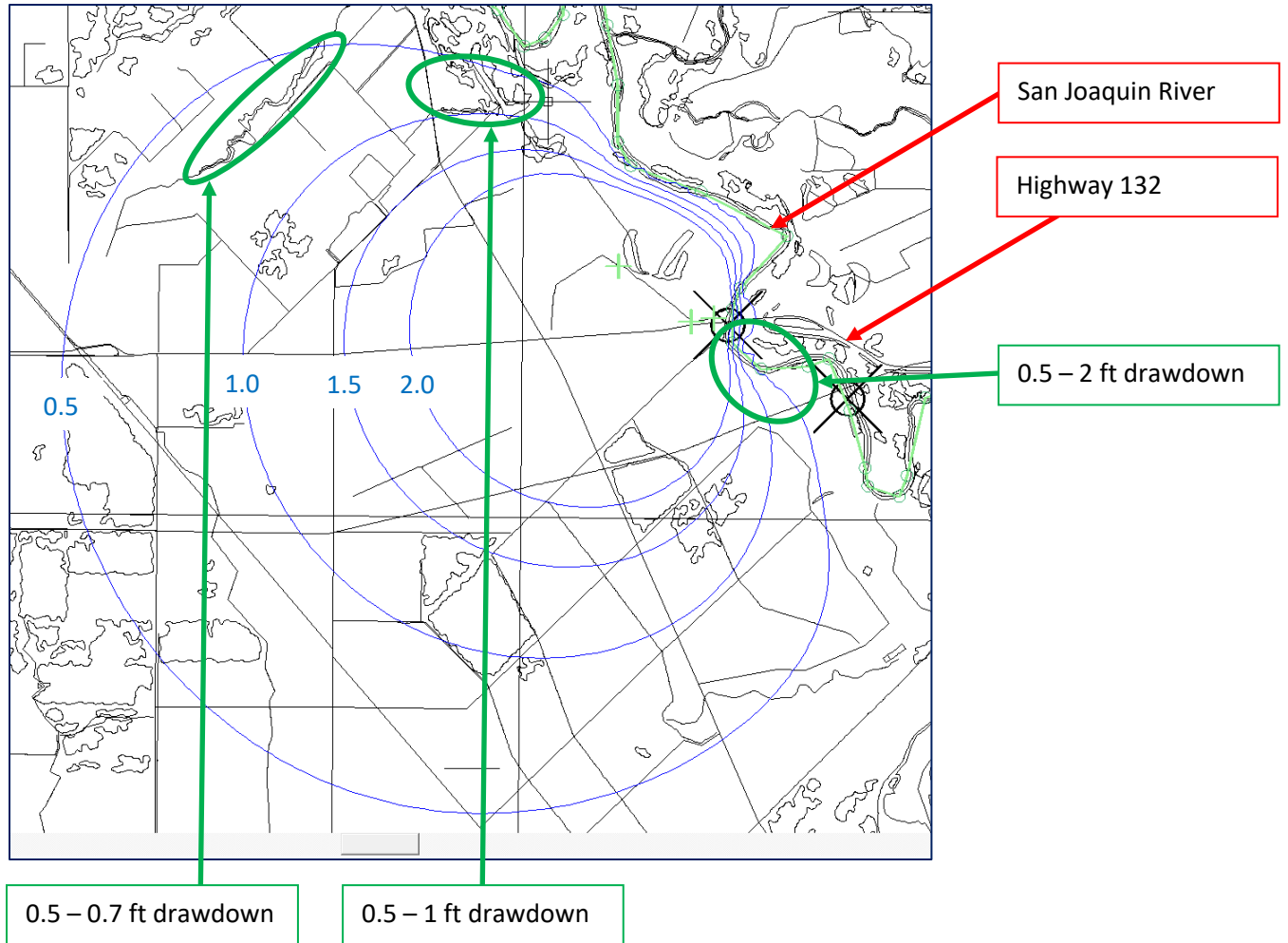
<b>IV. Local Groundwater Level Decline</b>
<p>Provide distance-drawdown calculations for groundwater extraction from the proposed well. The approach taken may include calculations, spreadsheets, analytical computer models or numerical computer models, at the discretion of the Applicant. The DER can provide additional guidance if needed. Evaluation may consist of a simple one dimensional distance-drawdown calculation using the Theiss Equation, or more complex two and three dimensional approaches may be taken when the applicant feels that doing so is warranted and presents a more realistic assessment of potential impacts. Input parameters for aquifer properties (Transmissivity and Storativity) may be derived from local pump and aquifer tests, other site investigation data, the County's well database, literature, or professional judgment based on the materials in which the well is completed. A description of the conceptual approach taken to the analysis must be provided, and justification must be provided for all inputs and assumptions to assure that impacts are not underestimated.</p> <p>A. Method used:    <input type="checkbox"/> Calculations    <input type="checkbox"/> Spreadsheet    <input type="checkbox"/> Computer Model</p> <p>B. Describe Approach (attach additional sheets, calculations and results):</p> <p style="color: blue;">See enclosed GRIA report. Potential drawdown was evaluated using an analytical element model for the a maximum peak demand of 1,300 AFY over a two month period (Scenario 1), and an average annual maximum demand of 1,000 AFY for 20 years (Scenario 2).</p> <p>C. Provide drawdown estimates for January 1, 2020 or 2022 (depending on subbasin as determined by DER) and after 20 years of pumping:</p> <ol style="list-style-type: none"> <li>1. Distance to 0.5 feet drawdown: _____ feet (2020 or 2022 only)</li> <li>2. Distance to 5 feet drawdown: _____ feet</li> <li>3. Distance to 20 feet drawdown: _____ feet</li> <li>4. Drawdown at the nearest property line: _____ feet</li> <li>5. If the well is in a Subsidence Study Zone (within 2 miles of an area underlain by the Corcoran Clay) and completed in a confined aquifer system, maximum drawdown at the nearest ditch, canal, utility easement or other sensitive infrastructure: _____ (feature); _____ feet <span style="color: blue;">N/A</span></li> <li>6. Maximum drawdown at each GDE within 3 miles or less of the proposed well: _____ feet</li> </ol>
<p><b><u>For County Use Only</u></b></p> <p>Data Adequate?    <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p>Comments:</p>

# Maximum Drawdown at Site Property Line, Scenario 1





# Maximum Long-Term Drawdown at GDEs, Scenario 2



**V. Wells in a Groundwater Level Management Zone** NOT APPLICABLE

If the proposed well is in a County-designated Groundwater Level Management Zone, the Applicant shall provide the following:

A. A Groundwater Extraction Offset Plan that demonstrates that the proposed groundwater extraction will be 100% offset. The scope of the Groundwater Extraction Offset Plan must be discussed with the DER and agreed to prior to implementation. The Plan shall include, at a minimum, the following:

- 1. The proposed method and location of offset;
- 2. The proposed timing and duration of offset;
- 3. Supporting calculations to demonstrate offset volume; and
- 4. Any assurances and/or agreements with other parties that verify their agreement to support the proposed offset.

OR B. A Groundwater Resources Investigation that demonstrates the proposed groundwater extraction will not cause or contribute to Undesirable Results in the Groundwater Level Management Zone. The scope of the Groundwater Resources investigation must be discussed with the DER and agreed to prior to implementation and, at a minimum, shall include the following:

- 1. A summary of previous studies and reports;
- 2. A summary of available information regarding undesirable results in the area;
- 3. Analysis of local and regional groundwater level trends based on available well hydrographs within no less than 5 miles of the proposed well;
- 4. Methods and data from any additional site specific hydrogeologic investigation;
- 5. An analysis of the local groundwater balance;
- 6. A prediction of future groundwater level drawdown and trends in the area with and without the proposed well;
- 7. Evaluation whether the proposed well will cause or contribute to undesirable results, and recommendations prevent them as needed; and;
- 8. Signature by a Registered Professional Geologist or Registered Professional Engineer in California.

AND C. A Groundwater Level Monitoring Plan that includes, at a minimum, the following:

- 1. A description of the aquifers to be monitored;
- 2. A description of any existing or new wells to be used, their locations, construction specifications and completion depths; and
- 3. Water level measurement methods and frequency (minimum spring and fall).

**For County Use Only**

Data Adequate?  Yes  No

Comments:

**VI. Regional Groundwater Level Decline and Storage Reduction**

For all proposed well not located within a County-designated Groundwater Level Management Zone, the Applicant shall provide the following:

- A. Calculate available aquifer storage beneath the contiguous property owned by the Applicant on which the proposed well is located: \_\_\_\_\_ acre-feet

<u>Parameter</u>	<u>Value</u>	<u>Source/Justification (attach additional information as needed)</u>
Size of Property (acres)	1,300	Enclosed GRIA Report
Aquifer Thickness (feet)	300	Enclosed GRIA Report
Specific Yield (assume 0.25 or provide justification for alternate value)	0.25	

- B. Divide the cumulative groundwater extraction volume prior to January 1, 2020 or 2022 by the available aquifer storage calculated above: \_\_\_\_\_ %
- C. Divide the cumulative groundwater extraction volume for the first 20 years of well operation by the available aquifer storage calculated above: \_\_\_\_\_ %
- D. If the cumulative extraction volume after 20 years exceeds 10% of available aquifer storage, submit a Groundwater Level Monitoring Plan that includes, at a minimum, the following:
  - a. A description of the aquifers to be monitored;
  - b. A description of any existing or new wells to be used, their locations, construction specifications and completion depths; and
  - c. Water level measurement methods and frequency (minimum spring and fall).

**For County Use Only**

Data Adequate?  Yes  No

Comments:

<b>VII. Water Quality Degradation</b> <a href="#">See enclosed GRIA report</a>
<p>A. Provide a database search for reported hazardous materials and waste sites and release incidents near the proposed well with search radii that comply with ASTM Standard 1527. (Commercial database search services provide this service.)</p> <p>B. Provide water quality data available within 1 mile of the proposed well for small water supply systems regulated by the County or the State, and from the State Geotracker website (<a href="http://geotracker.waterboards.ca.gov/">http://geotracker.waterboards.ca.gov/</a>) and from the USGS NWIS Database (<a href="http://maps.waterdata.usgs.gov/mapper/index.html">http://maps.waterdata.usgs.gov/mapper/index.html</a>).</p> <p>C. If the well is located in a County-designated Groundwater Quality Protection Zone (in an area underlain by the Corcoran Clay), the Applicant shall provide data regarding the well seals and construction methods used to prevent communication between the unconfined aquifer system overlying the Corcoran Clay with the confined aquifer system underlying the Corcoran Clay.</p> <p>D. If the well is located in a County-defined Groundwater Quality Study Zone (within 1 mile of a well that produces water with solute concentrations that exceed primary or secondary MCLs or other applicable Water Quality Objectives), or within 1 mile of a reported contamination incident identified by the database search, the Applicant shall submit a Groundwater Quality Investigation. The scope of the Groundwater Quality investigation must be discussed with the DER and agreed to prior to implementation. At a minimum, the Groundwater Quality Investigation shall include the following:</p> <ol style="list-style-type: none"> <li>1. A summary of relevant data, studies and/or reports regarding the local aquifer system, groundwater quality and contaminant transport;</li> <li>2. Analysis of local and regional groundwater quality trends based on available data in the area;</li> <li>3. The methods and results of any additional site-specific hydrogeologic and groundwater quality investigation;</li> <li>4. Evaluation of the potential effect of the proposed well on future groundwater quality trends and contaminant migration;</li> <li>5. Evaluation whether the proposed groundwater extraction will cause or contribute to groundwater quality degradation in excess of applicable standards for beneficial uses, or will interfere with groundwater quality management or remediation efforts overseen by State or Federal agencies; and</li> <li>6. Signature by a Registered Professional Geologist or Registered Professional Engineer in California.</li> </ol>
<p><b><u>For County Use Only</u></b></p> <p>Data Adequate?    <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p>Comments:</p>

NON-EXEMPT WELL CONSTRUCTION PERMIT SUPPLEMENTAL APPLICATION



**VIII. Land Subsidence**      [See enclosed GRIA report](#)

- A. If the well is in a Subsidence Study Zone (i.e., it is within 2 miles of an area underlain by the Corcoran Clay), the Applicant shall provide the following:
1. The estimated maximum drawdown on January 1, 2020 and 2022 and after 20 years of pumping at the nearest property line, ditch, canal, utility easement other sensitive infrastructure: \_\_\_\_\_ ft on January 1, 2022 and \_\_\_\_\_ feet after 20 years. [\\*Predicted max at El Solyo WD main canal 20 ft after 60 days short term.](#)
  2. Attach hydrographs for nearby wells showing lowest historical groundwater levels. (Hydrographs are available from <https://www.casgem.water.ca.gov> and <http://maps.waterdata.usgs.gov/mapper/index.html>.)

Well ID	Distance and Direction from Proposed Well	Date Range of Data	Lowest Groundwater Level and Date

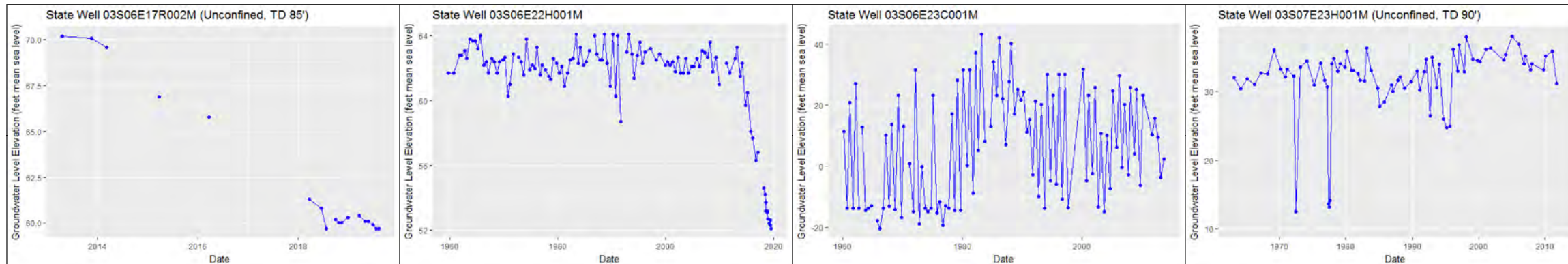
3. Attach data relevant to subsidence from the Groundwater Information Center Interactive Map Application (<https://gis.water.ca.gov/app/gicima/>) [See attached report](#)
4. If the above information indicates the predicted drawdown will lower groundwater levels below historical lows and the well will be completed in the confined aquifer system, or inelastic subsidence has been measured near the proposed well, the Applicant shall submit a Geotechnical Subsidence Investigation. The scope of the Geotechnical Subsidence Investigation must be discussed with the DER and agreed to prior to implementation. At a minimum, the Geotechnical Subsidence Investigation shall include the following: **NOT APPLICABLE**
  - a. A description of the local geology and hydrogeology, especially as it relates to potential compression of fine grained strata;
  - b. A summary of data, studies and/or reports regarding subsidence in the area;
  - c. Analysis of historical and current local and regional groundwater level trends based on available well hydrographs;
  - d. Prediction of future groundwater level drawdown and level trends;
  - e. Any additional site specific investigation performed by the Applicant of conditions related to subsidence;
  - f. Evaluation of whether, and to what extent, the proposed groundwater extraction will cause, or contribute to, subsidence, with recommendations as appropriate to assure that such subsidence will not be significant; and
  - g. Signature by a Registered Professional Civil or Geotechnical Engineer.

**For County Use Only**

Data Adequate?    Yes    No

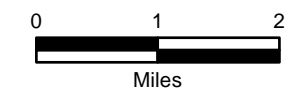
Comments:



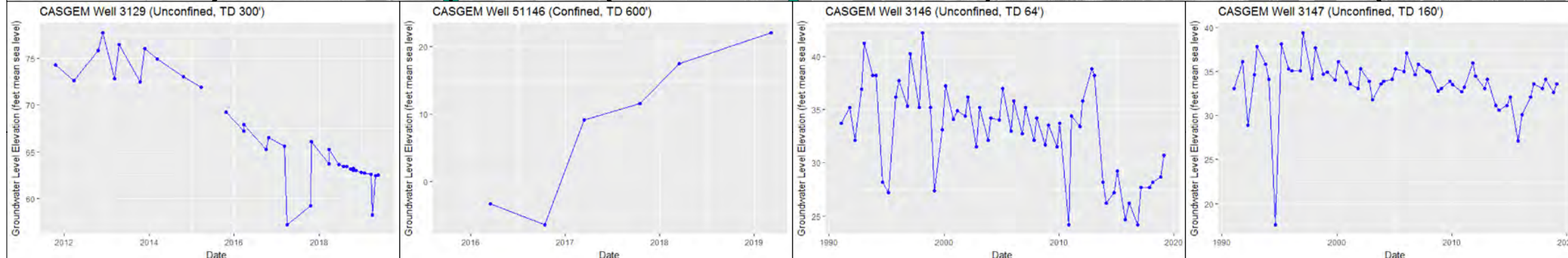


### Legend

- Project Location
- CASGEM WELL
- Voluntary Well



Groundwater Resources Impact Assessment,  
Pescadero Ranch Supplemental Wells



**Figure 6. Hydrographs for Selected Wells Located Near the Site**

DATE: NOV 08, 2019

BY: SGS

FOR: MT

**FORMATION**  
ENVIRONMENTAL



**IX. Surface Water Depletion**

[See attached report](#)

If the well is in a Surface Water Protection Zone (within 1 mile of groundwater-connected streams, tributaries or reservoirs associated with the Calaveras, Stanislaus or Tuolumne Rivers if the well screen and gravel pack are completed within 200 feet of the streambed elevation, and within 2,500 feet if the well screen and gravel pack are completed at least 200 feet below the streambed elevation) the Applicant shall submit a Surface-Groundwater Interaction Study. The scope of the Surface-Groundwater Interaction Study must be discussed with the DER and agreed to prior to implementation. At a minimum, the Surface-Groundwater Interaction Study shall include the following:

- A. A summary of previous data, reports and/or studies relevant to hydrostratigraphy and surface-groundwater interaction;
- B. Additional site-specific investigation of conditions related to surface-groundwater interaction as may be required by the County, including but not necessarily limited to well-log interpretation or pumping tests;
- C. Evaluation of the predicted surface water depletion by the proposed groundwater extraction using on-line analytical models available from the USGS (<http://mi.water.usgs.gov/software/groundwater/strmdopl08/>) or other methods approved by the County; and
- D. Signature by a Registered Professional Geologist or Engineer in California.

**For County Use Only**

Data Adequate?  Yes  No

Comments:

**X. Impacts to Groundwater Dependent Ecosystems (GDEs) [See enclosed report](#)**

If drawdown at any GDE is projected to exceed 0.5 foot beneath a GDE based on the drawdown analysis in Section IV, the Applicant shall submit a GDE Impact Study. The scope of the GDE Impact Study must be discussed with the DER and agreed to prior to implementation. At a minimum, the GDE Impact Study shall include the following:

- A. A summary of applicable previous groundwater resources and GDE studies;
- B. A description of the groundwater flow regime and aquifer system, and the nature of the hydraulic connection between the pumped aquifer and the GDE;
- C. A description of the GDE based on literature review and site investigation, including species present, presence and condition of habitat, and potential presence of any sensitive, threatened, or endangered species or rare plants;
- D. Analysis of local and regional groundwater level trends based on available well hydrographs within no less than 5 miles of the proposed well;
- E. Any additional site specific hydrogeologic or biologic investigation performed;
- F. An analysis of the local groundwater balance and the impact of the proposed groundwater extraction on surface water discharge, including evapo-transpiration, if applicable;
- G. A prediction of future groundwater level drawdown and trends in the area with and without the proposed well;
- H. Evaluation and conclusions regarding the impact of the proposed groundwater extraction on the GDE, and recommendations to decrease impacts to a less than significant level; and
- I. Signatures by a Registered Professional Geologist or Engineer in California, and a qualified biologist.

**For County Use Only**

Data Adequate?  Yes  No

Comments:

## INDEMNIFICATION

In consideration of the County's processing and consideration of this application for approval of the groundwater project being applied for (the "Project"), and the related CEQA consideration by the County, the Owner and Applicant, jointly and severally, agree to indemnify the County of Stanislaus ("County") from liability or loss connected with the Project approvals as follows:

1. The Owner and Applicant shall defend, indemnify and hold harmless the County and its agents, officers and employees from any claim, action, or proceeding against the County or its agents, officers or employees to attack, set aside, void, or annul the Project or any prior or subsequent development approvals regarding the Project or Project condition imposed by the County or any of its agencies, departments, commissions, agents, officers or employees concerning the said Project, or to impose personal liability against such agents, officers or employees resulting from their involvement in the Project, including any claim for private attorney general fees claimed by or awarded to any party from County. The obligations of the Owner and Applicant under this Indemnification shall apply regardless of whether any permits or entitlements are issued.
2. The County will promptly notify Owner and Applicant of any such claim, action, or proceeding, that is or may be subject to this Indemnification and, will cooperate fully in the defense.
3. The County may, within its unlimited discretion, participate in the defense of any such claim, action, or proceeding if the County defends the claim, actions, or proceeding in good faith. To the extent that County uses any of its resources responding to such claim, action, or proceeding, Owner and Applicant will reimburse County upon demand. Such resources include, but are not limited to, staff time, court costs, County Counsel's time at their regular rate for external or non-County agencies, and any other direct or indirect cost associated with responding to the claim, action, or proceedings.
4. The Owner and Applicant shall not be required to pay or perform any settlement by the County of such claim, action or proceeding unless the settlement is approved in writing by Owner and Applicant, which approval shall not be unreasonably withheld.
5. The Owner and Applicant shall pay all court ordered costs and attorney fees.
6. This Indemnification represents the complete understanding between the Owner and Applicant and the County with respect to matters set forth herein.


The Stanislaus County Department of Environmental Resources (DER) will notify the applicant of the date in which the completed information has been received. This date will trigger the 30-day review period to determine whether the application is complete. If

*NON-EXEMPT WELL CONSTRUCTION PERMIT SUPPLEMENTAL APPLICATION*

additional information is needed or requested, this will trigger another 30-day review period.

IN WITNESS WHEREOF, by their signature below, the Owner and Applicant hereby acknowledge that they have read, understand and agree to perform their obligations under this Indemnification.

 2-20-20  
\_\_\_\_\_  
Signature of Applicant/Date

  
\_\_\_\_\_  
Signature of Owner(s)/Power of Attorney/Legal Representative/Date •

Note: Applications are not valid without the property owner's signature.

**NOTICE TO ALL APPLICANTS**

Pursuant to California Fish and Game Code §711.4, the County of Stanislaus is required to collect filing fees for the California Department of Fish and Wildlife for all projects subject to the California Environmental Quality Act (CEQA) unless a fee exemption is provided in writing from the California Department of Fish and Wildlife. Pursuant to California Fish & Game Code §711.4(d), all applicable fees are required to be paid within 5 DAYS of approval of any project subject to CEQA. These fees are subject to change without County approval required and are expected to increase yearly. Please contact the Department of Environmental Resources or refer to the current fee schedule for information on current fee amounts.

If a required filing fee is not paid for a project, the project will not be operative, vested or final and any local permits issued for the project will be invalid. (Section 711.4(c)(3) of the Fish and Game Code.)

Under the revised statute, a lead agency may no longer exempt a project from the filing fee requirement by determining that the project will have a de minimis effect on fish and wildlife. Instead, a filing fee will have to be paid unless the project will have no effect on fish and wildlife. (Section 711.4 (c)(2) of the Fish and Game Code). If the project will have any effect on fish and wildlife resources, even a minimal or de minimis effect, the fee is required.

A project proponent who believes the project will have no effect on fish and wildlife should contact the California Department of Fish and Wildlife. If the California Department of Fish and Wildlife concurs the project will have no such effect, the Department will provide the project proponent with a form that will exempt the project from the filing fee requirement. Project proponents may contact the Department by phone at (916) 651-0603 or through the Department's website at [www.dfg.ca.gov](http://www.dfg.ca.gov).

Pursuant to California Fish and Game Code §711.4(e)(3) , the department (CDFW) shall assess a penalty of 10 percent of the amount of fees due for any failure to remit the amount payable when due. The department may pursue collection of delinquent fees through the Controller's office pursuant to Section 12419.5 of the Government Code.

Additionally California Fish and Game Code §711.4(f) states the following:  
Notwithstanding Section 12000, failure to pay the fee under subdivision (d) is not a misdemeanor. All unpaid fees are a statutory assessment subject to collection under procedures as provided in the Revenue and Taxation Code.

Failure to pay the necessary fee will also extend the statute of limitations for challenging the environmental determination made by the County, thus increasing exposure to legal challenge. The type of environmental determination to be made by the County may be discussed with the project reviewer following the environmental review stage of the project and will be outlined in a Board of Supervisor's staff report.

*NON-EXEMPT WELL CONSTRUCTION PERMIT SUPPLEMENTAL APPLICATION*

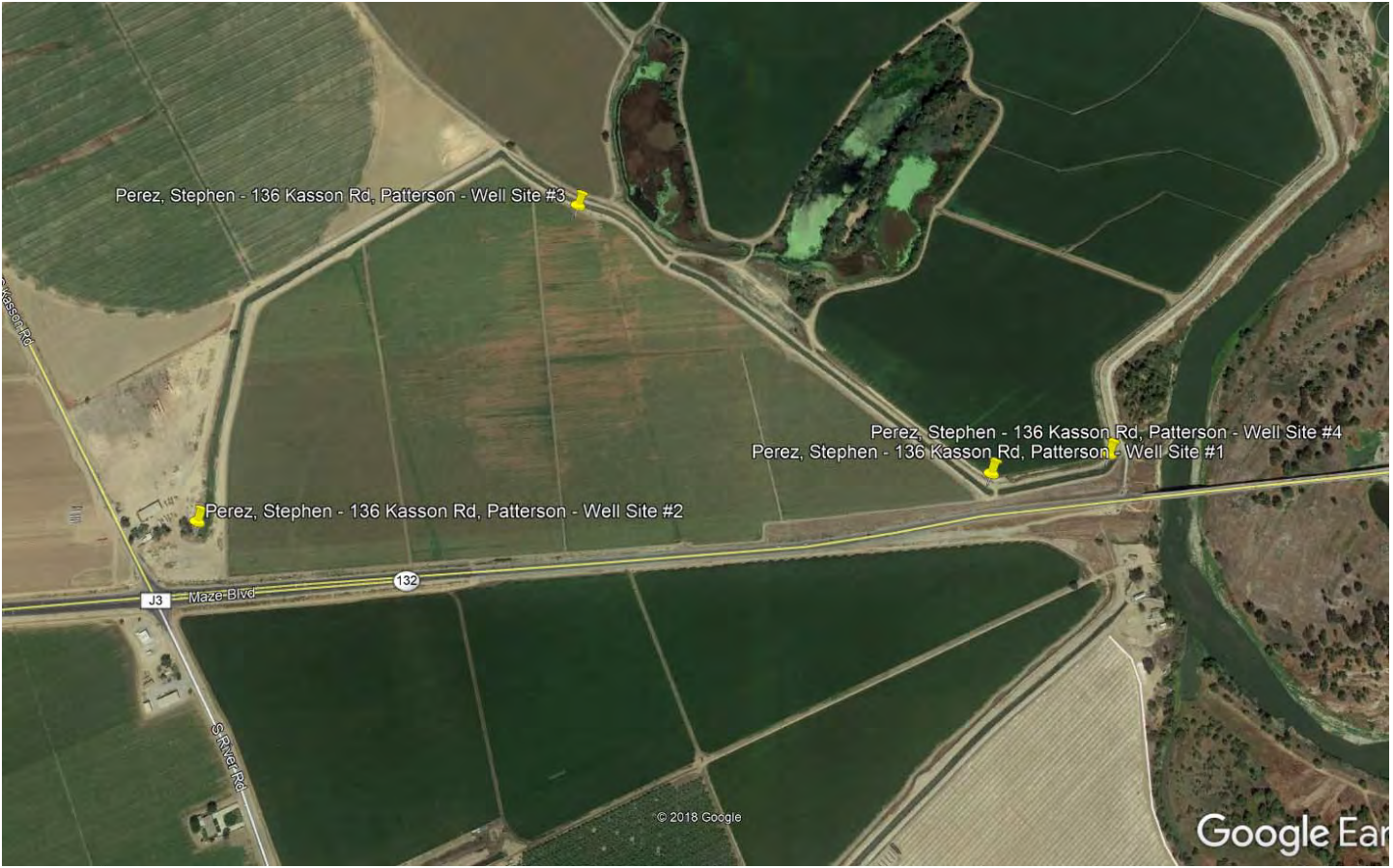
**REQUIRED ADDITIONAL FEE: STANISLAUS COUNTY RECORDER**

Upon approval of the proposed project, Stanislaus County will record either a “Notice of Exemption” or a “Notice of Determination” pursuant to CEQA Guidelines. The Clerk Recorder charges an additional fee of \$57.00 for recording these documents. A separate check made payable to “Stanislaus County” is due and payable within 5 DAYS of approval of the project.



## APPENDIX C – TEST WELLS

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Test Hole #1 (2nd)

ONE YEAR  
FROM DATE

**WELL PERMIT**

Stanislaus County  
Dept. Of Environmental Resources  
3800 Cornucopia Way, Suite C  
Modesto, CA. 95358

Permit No. 19-99

Date Issued 6.18.19

JOB ADDRESS 136 Kasson Rd, Patterson, CA 95363

OWNER NBINV APS LLC CONTRACTOR Canepa and Sons, Inc.

In accordance with the provisions of the Stanislaus County Ordinance Code, permission is granted to install, repair, or destruct a well as set forth in the application on file with the Stanislaus County Department of Environmental Resources. All work done by virtue of this permit must conform to the provisions of the laws of the State of California, the ordinances of the County of Stanislaus, and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

THIS INSTALLATION MUST NOT BE CONCEALED OR USED UNTIL INSPECTED AND APPROVED.

TYPE OF WORK: NEW WELL  DEEPEN  RECONDITION  DESTRUCTION   
PUMP INSTALLATION  PUMP REPAIR  PUMP REPLACEMENT   
OTHER Test Hole (#1 of 4)

**FOR INSPECTION CALL:**

24 hours before completion  
between 7:30 - 8:30 A.M.

Or 4:00 - 5:00 P.M.  
(209) 525-6700

**FINAL INSPECTION AND APPROVAL:**

Date \_\_\_\_\_ By \_\_\_\_\_ R.S.

TO BE POSTED ON JOB

4020-138

Type of Work:  New Well  Destruction  Other \_\_\_\_\_

If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use:  Agricultural  Irrigation  Industrial  Domestic/Private  Domestic/Public  
 Cathodic Protection  Geothermal  Dewatering  Other Test Hole

Conveyance: Will water from this well be relocated from parcel of origin?  Yes  No  
Will water from this well be relocated to out-of-county?  Yes\*  No  
\*Provide water agency authorization

Existing Well Present:  Yes  No Status:  Active  To be destroyed  Inactive  
domestic

Community Service District:  N/A  Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 4000' Disposal Field 4000' Seepage Pit N/A Dry Well N/A  
Pit Privy N/A Animal Enclosure N/A Other Well 4000'  
Dairy Lagoons N/A Dwellings 4000' Property Lines 75'

Construction Specifications:  Drilled  Cable Tool  Gravel Pack  Rotary  Other MUD  
Diameter of Excavation 8' Diameter of Well Casing N/A Gauge of Casing N/A  
Estimated GPM \_\_\_\_\_ Estimated Finished Well Depth 500'  
Sealing Material \_\_\_\_\_ Grout Manufacturer \_\_\_\_\_ Grout name \_\_\_\_\_  
Proposed Depth of Grout Seal \_\_\_\_\_ Proposed # of bags \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)

Destruction Specifications: Diameter of Well Casing N/A Proposed Depth of Grouting 25'  
Sealing Material bsk mix Grout Manufacturer Cement Grout name \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)  
Describe method if different than minimum state standards:  
put gravel up to 25' - destroy with free fall concrete to ground level

#10

ENTERED  
6/18/19

RES ONE YEAR  
FROM DATE

**WELL PERMIT**

Stanislaus County  
Dept. Of Environmental Resources  
3800 Cornucopia Way, Suite C  
Modesto, CA. 95358

test hole #2 (drilled 4th)

Permit No. 19-100

Date Issued 6-18-19

JOB ADDRESS 136 Kasson Rd, Patterson, CA 95363

OWNER NBINV APS LLC

CONTRACTOR Canepa and Sons, Inc.

In accordance with the provisions of the Stanislaus County Ordinance Code, permission is granted to install, repair, or destruct a well as set forth in the application on file with the Stanislaus County Department of Environmental Resources. All work done by virtue of this permit must conform to the provisions of the laws of the State of California, the ordinances of the County of Stanislaus, and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

THIS INSTALLATION MUST NOT BE CONCEALED OR USED UNTIL INSPECTED AND APPROVED.

TYPE OF WORK: NEW WELL (X) DEEPEN ( ) RECONDITION ( ) DESTRUCTION ( )  
PUMP INSTALLATION ( ) PUMP REPAIR ( ) PUMP REPLACEMENT ( )  
OTHER Test Hole (# 2 of 4)

**FOR INSPECTION CALL:**

24 hours before completion  
between 7:30 - 8:30 A.M.  
Or 4:00 - 5:00 P.M.  
(209) 525-6700

**FINAL INSPECTION AND APPROVAL:**

Date \_\_\_\_\_ By \_\_\_\_\_ R.S.

TO BE POSTED ON JOB

4020-138

If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use:  Agricultural  Irrigation  Industrial  Domestic/Private  Domestic/Public  
 Cathodic Protection  Geothermal  Dewatering  Other Test Hole

Conveyance: Will water from this well be relocated from parcel of origin?  Yes  No  
Will water from this well be relocated to out-of-county?  Yes\*  No  
\*Provide water agency authorization

Existing Well Present:  Yes  No Status:  Active  To be destroyed  Inactive  
domestic

Community Service District:  N/A  Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 3400' Disposal Field 3400' Seepage Pit N/A Dry Well N/A  
Pit Privy N/A Animal Enclosure N/A Other Well 3400' +  
Dairy Lagoons N/A Dwellings 3400' + Property Lines 1100'

Construction Specifications:  Drilled  Cable Tool  Gravel Pack  Rotary  Other  
Diameter of Excavation 8 Diameter of Well Casing N/A Gauge of Casing N/A  
Estimated GPM \_\_\_\_\_ Estimated Finished Well Depth \_\_\_\_\_  
Sealing Material \_\_\_\_\_ Grout Manufacturer \_\_\_\_\_ Grout name \_\_\_\_\_  
Proposed Depth of Grout Seal \_\_\_\_\_ Proposed # of bags \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)

Destruction Specifications: Diameter of Well Casing N/A Proposed Depth of Grouting 25'  
Sealing Material 10% mix Grout Manufacturer CEMENT Grout name \_\_\_\_\_  
Seal Method:  Free Fall  Tremie Hose (Force)  Tremie Hose (Gravity)  
Describe method if different than minimum state standards:  
reach up to 25' - destroy with free fall concrete to ground level

ENTERED 6/18/19  
6/16/19 An DO

Test hole # 3 (3rd)

ONE YEAR PERMIT DATE

WELL PERMIT

Stanislaus County Dept. Of Environmental Resources 3800 Cornucopia Way, Suite C Modesto, CA. 95358

Permit No. 19-97

Date Issued 6-18-19

JOB ADDRESS 136 Kisson Rd, Patterson, CA 95363

OWNER NBINV APS LLC CONTRACTOR Canepa and Sons, Inc.

In accordance with the provisions of the Stanislaus County Ordinance Code, permission is granted to install, repair, or destruct a well as set forth in the application on file with the Stanislaus County Department of Environmental Resources. All work done by virtue of this permit must conform to the provisions of the laws of the State of California, the ordinances of the County of Stanislaus, and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

THIS INSTALLATION MUST NOT BE CONCEALED OR USED UNTIL INSPECTED AND APPROVED:

TYPE OF WORK: NEW WELL (X) DEEPEN ( ) RECONDITION ( ) DESTRUCTION ( ) PUMP INSTALLATION ( ) PUMP REPAIR ( ) PUMP REPLACEMENT ( ) OTHER Test Hole (#3 of 4)

FOR INSPECTION CALL:

24 hours before completion between 7:30 - 8:30 A.M. Or 4:00 - 5:00 P.M. (209) 525-6700

FINAL INSPECTION AND APPROVAL:

Date By R.S.

TO BE POSTED ON JOB

4020-138

Type of Work: [X] New Well [ ] Destruction [ ] Other

If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use: [ ] Agricultural [X] Irrigation [ ] Industrial [ ] Domestic/Private [ ] Domestic/Public [ ] Cathodic Protection [ ] Geothermal [ ] Dewatering [X] Other Test Hole

Conveyance: Will water from this well be relocated from parcel of origin? [ ] Yes [X] No Will water from this well be relocated to out-of-county? [ ] Yes\* [X] No \*Provide water agency authorization

Existing Well Present: [X] Yes - No Status: [X] Active [ ] To be destroyed [ ] Inactive domestic

Community Service District: [X] N/A [ ] Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 2700+ Disposal Field 2700+ Seepage Pit N/A Dry Well N/A Pit Privy N/A Animal Enclosure N/A Other Well 2700+ Dairy Lagoons N/A Dwellings 2700+ Property Lines 1900+

Construction Specifications: [ ] Drilled [ ] Cable Tool [ ] Gravel Pack [X] Rotary [ ] Other Diameter of Excavation 8 Diameter of Well Casing N/A Gauge of Casing N/A Estimated GPM Estimated Finished Well Depth Sealing Material Grout Manufacturer Grout name Proposed Depth of Grout Seal Proposed # of bags Seal Method: Free Fall [ ] Tremie Hose (Force) [ ] Tremie Hose (Gravity)

Destruction Specifications: Diameter of Well Casing N/A Proposed Depth of Grouting 25' Sealing Material Wet Mix Grout Manufacturer Cement Grout name Seal Method: [X] Free Fall [ ] Tremie Hose (Force) [ ] Tremie Hose (Gravity) Describe method if different than minimum state standards: Red gravel up to 25 - destroy with free fall concrete to ground level

ENTERED 6/18/19

TEST HOLE #4 (first)

YEAR DATE

WELL PERMIT

Stanislaus County
Dept. Of Environmental Resources
3800 Cornucopia Way, Suite C
Modesto, CA. 95358

Permit No. 19-98

Date Issued 6-18-19

ADDRESS 136 Kasson Rd, Patterson, CA 95363

OWNER NB INV APS LLC

CONTRACTOR Canepa and Sons, Inc.

In accordance with the provisions of the Stanislaus County Ordinance Code, permission is granted to install, repair, or destruct a well as set forth in the application on file with the Stanislaus County Department of Environmental Resources. All work done by virtue of this permit must conform to the provisions of the laws of the State of California, the ordinances of the County of Stanislaus, and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

THIS INSTALLATION MUST NOT BE CONCEALED OR USED UNTIL INSPECTED AND APPROVED.

TYPE OF WORK: NEW WELL (X) DEEPEN ( ) RECONDITION ( ) DESTRUCTION ( )
PUMP INSTALLATION ( ) PUMP REPAIR ( ) PUMP REPLACEMENT ( )
OTHER Test Hole (#4 of 4)

FOR INSPECTION CALL:

24 hours before completion
between 7:30 - 8:30 A.M.
Or 4:00 - 5:00 P.M.
(209) 525-6700

FINAL INSPECTION AND APPROVAL:

Date By R.S.

TO BE POSTED ON JOB

4020-138

Type of work: (X) New Well ( ) Destruction ( ) Other
If a new well, give number of new wells to be installed on property or in close proximity now or within 6 months 1

Intended Use: ( ) Agricultural ( ) Irrigation ( ) Industrial ( ) Domestic/Private ( ) Domestic/Public
( ) Cathodic Protection (X) Geothermal ( ) Dewatering (X) Other Test Note

Conveyance: Will water from this well be relocated from parcel of origin? ( ) Yes (X) No
Will water from this well be relocated to out-of-county? ( ) Yes\* (X) No
\*Provide water agency authorization

Existing Well Present: (X) Yes ( ) No Status: (X) Active ( ) To be destroyed ( ) Inactive
domestic

Community Service District: (X) N/A ( ) Within C.S.D. of San Joaquin River

Distance to Nearest: Septic tank 5000'+ Disposal Field 5000'+ Seepage Pit N/A Dry Well N/A
Pit Privy N/A Animal Enclosure N/A Other Well 5000'+
Dairy Lagoons N/A Dwellings 5000'+ Property Lines 50'

Construction Specifications: ( ) Drilled ( ) Cable Tool ( ) Gravel Pack (X) Rotary ( ) Other
Diameter of Excavation 8 Diameter of Well Casing N/A Gauge of Casing N/A
Estimated GPM Estimated Finished Well Depth
Sealing Material Grout Manufacturer CEMENT Grout name
Proposed Depth of Grout Seal Proposed # of bags
Seal Method: Free Fall ( ) Tremie hose (Force) ( ) Tremie Hose (Gravity)

Destruction Specifications: Diameter of Well Casing N/A Proposed Depth of Grouting 25
Sealing Material 10SK PMV Grout Manufacturer Cement Grout name
Seal Method: (X) Free Fall ( ) Tremie Hose (Force) ( ) Tremie Hose (Gravity)
Describe method if different than minimum state standards:
Regravel up to 25' - destroy with free fall concrete to ground level

ENTERED 6/26/19 6/18/19



STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
 Refer to Instruction Pamphlet

DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Page 1 of 1  
 Owner's Well No.                       
 Date Work Began Jan 6-10-99 Ended 6-11-19  
 Local Permit Agency 19-98 Permit No.                       
 Permit Date                     

**TH #4**

**GEOLOGIC LOG**

ORIENTATION (✓)		DRILLING METHOD	FLUID
<input checked="" type="checkbox"/> VERTICAL	<input type="checkbox"/> HORIZONTAL	<u>Mud Rotary</u>	<u>Barite</u>
ANGLE (SPECIFY)		DESCRIPTION	
		Describe material, grain size, color, etc.	
0	3	Sandy Clay	
3	18	Sand	
18	32	Clay Light Brn	
32	40	sands	
40	57	Sandy Clay Silty	
57	78	Sand / Coarse	
78	88	Clay Sandy/Silty	
94	120	Sand	
120	128	Clay	
128	210	Sand / Coarse / Small gravel	
210	450	Silty greyish Black Clay	
450	460	Small gravel Salty	
460	500	Clay sticky	

**WELL OWNER**

Name Kasson Rd Drilled First  
 Mailing Address                       
 CITY                      STATE                      ZIP                     

Address                      WELL LOCATION                       
 City                       
 County                       
 APN Book                      Page                      Parcel                       
 Township                      Range                      Section                       
 Latitude                      NORTH                      WEST                       
 DEG. MIN. SEC.      DEG. MIN. SEC.

**LOCATION SKETCH**

NORTH

WEST

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

*Kasson Rd*

*River Rd*

*132*

**ACTIVITY (✓)**

NEW WELL

**MODIFICATION/REPAIR**

Deepen

Other (Specify)                     

**DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")**

DESTROY

**PLANNED USES (✓)**

**WATER SUPPLY**

Domestic  Public

Irrigation  Industrial

**MONITORING**

TEST WELL

**CATHODIC PROTECTION**

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)                     

TOTAL DEPTH OF BORING 500 (Feet)  
 TOTAL DEPTH OF COMPLETED WELL 500 (Feet)

**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)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	DEPTH FROM SURFACE	ANNULAR MATERIAL			
		TYPE (✓)									TYPE			
FL. to FL.		BLANK	SCREEN	CONDUIT	FILL PIPE				FL. to FL.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)	
0	0.00					Steel	10"	250		0	22	X	lump	
0	4		X	X					0	22		X	1/2" gravel	
0	500		X											

**ATTACHMENTS (✓)**

Geologic Log

Well Construction Diagram

Geophysical Log(s)

Soil/Water Chemical Analyses

Other                     

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS

**CERTIFICATION STATEMENT**

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

NAME                      (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS                      CITY                      STATE                      ZIP                     

Signed                      WELL DRILLER/AUTHORIZED REPRESENTATIVE      DATE SIGNED                      C-57 LICENSE NUMBER

ORIGINAL  
File with DWR

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet

Page      of       
Owner's Well No.      No.       
Date Work Began 6-11-19 Ended 6-12-19 **TH # 1**  
Local Permit Agency      Permit No. 19-99 Permit Date     

DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO.     

LATITUDE      LONGITUDE     

APN/TRS/OTHER     

**GEOLOGIC LOG**

ORIENTATION (≠)  VERTICAL  HORIZONTAL ANGLE      (SPECIFY)

DEPTH FROM SURFACE

FL	to	FL	DESCRIPTION
0	3		Sand Clay
3	17		Sand
17	22		Clay
22	85		Coarse sand / sand
85	100		Clay
100	225		Coarse Sand / small gravel
225	245		Clay Light Br
245	255		Sand Gravel
255	360		Light Grey sandy Clay (Sticky)

DRILLING METHOD MWD Rotary FLUID Benlate

Describe material, grain size, color, etc.

**WELL OWNER**

Name Kasson DS Prilled 2nd

Mailing Address     

CITY      STATE      ZIP     

Address      WELL LOCATION

City     

County     

APN Book      Page      Parcel     

Township      Range      Section     

Latitude      DEG. MIN. SEC. NORTH Longitude      DEG. MIN. SEC. WEST

**LOCATION SKETCH**

WEST EAST

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

REMEDIATION

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 360 (Feet)

TOTAL DEPTH OF COMPLETED WELL 360 (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	CON. DUCTOR			FILL PIPE			FL	to	FL
0	5	12	X	X			Steel	10"	.250				Pumped
5	360	6.5										X	Leaguard

**ATTACHMENTS (≠)**

Geologic Log

Well Construction Diagram

Geophysical Log(s)

Soil/Water Chemical Analyses

Other     

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

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

NAME      (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS      CITY      STATE      ZIP     

Signed      WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED      C-57 LICENSE NUMBER



ORIGINAL File with DWR

STATE OF CALIFORNIA  
**WELL COMPLETION REPORT**  
Refer to Instruction Pamphlet

1000  
DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APN/TRAS/OTHER	

Page \_\_\_\_\_ of \_\_\_\_\_  
 Owner's Well No. \_\_\_\_\_  
 Date Work Began 0-13-19 Ended 6-13-19 **TH #3**  
 Local Permit Agency 19-97 Permit No. \_\_\_\_\_  
 Permit Date \_\_\_\_\_

**GEOLOGIC LOG**

ORIENTATION ( )  VERTICAL \_\_\_\_\_ HORIZONTAL \_\_\_\_\_ ANGLE \_\_\_\_\_ (SPECIFY) \_\_\_\_\_  
 DRILLING METHOD Mud Rotary FLUID Benifite

DEPTH FROM SURFACE		DESCRIPTION
Fl.	to Fl.	
0	5	Sandy clay
5	20	sandy
20	25	clay
25	102	Coarse Sand
102	127	Clay
127	175	Sand / coarse
175	190	Clay
190	222	Sand coarse
222	248	Clay light BRN
248	282	Sand
282	300	Gravel small Gravel
300	500	Greyish Black Sandy Silty Clay

Describe material, grain size, color, etc.

**WELL OWNER**  
 Name Kasson Ed Dinkley SRP  
 Mailing Address \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**WELL LOCATION**  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 County \_\_\_\_\_  
 APN Book \_\_\_\_\_ Page \_\_\_\_\_ Parcel \_\_\_\_\_  
 Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_  
 Latitude \_\_\_\_\_ NORTH \_\_\_\_\_ WEST \_\_\_\_\_  
 DEG. MIN. SEC. DEG. MIN. SEC.

**LOCATION SKETCH**

**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) \_\_\_\_\_

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.

**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.

**CASING (S)**

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	TYPE ( )				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
		BLANK	SCREEN	CONDUIT	FILL PIPE				
0 to 4	12	X	X			Steel	10"	.250	
4 to 500	6.5								

**ANNULAR MATERIAL**

DEPTH FROM SURFACE	TYPE			
	CEMENT ( )	BENTONITE ( )	FILL ( )	FILTER PACK (TYPE/SIZE)
0 to 24				
24 to 500			X	Pea gravel

- ATTACHMENTS ( )**
- Geologic Log
  - Well Construction Diagram
  - Geophysical Log(s)
  - Soil/Water Chemical Analyses
  - Other \_\_\_\_\_
- ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

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

NAME \_\_\_\_\_ (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)  
 ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 Signed \_\_\_\_\_ WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED \_\_\_\_\_ 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

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Page      of     

Owner's Well No.     

Date Work Began 6-14-19 , Ended 6-14-19

Local Permit Agency     

Permit No. 19-100 Permit Date     

No. TH # 2

**GEOLOGIC LOG**

ORIENTATION (✓)  VERTICAL  HORIZONTAL  ANGLE  (SPECIFY)

DRILLING METHOD MWD Rotary FLUID Brack H<sub>2</sub>O

DEPTH FROM SURFACE		DESCRIPTION
FL.	to Ft.	
0	8	Clay
9	16	Sand
16	58	Clay
58	138	Sand
138	148	Clay
148	175	Coarse Sand
175	205	Clay
205	230	Sand
230	242	Light PPA Clay
242	255	Sand
255	380	Clay Sticky Grey Clay
380	400	Coarse Sand

Describe material, grain size, color, etc.

**WELL OWNER**

Name Kasson Rd #14 Drilled 4th

Mailing Address     

CITY      STATE      ZIP     

Address     

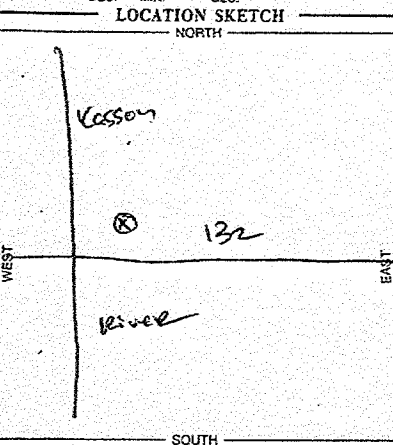
City     

County     

APN Book      Page      Parcel     

Township      Range      Section     

Latitude      NORTH Longitude      WEST



**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      (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)					SLOT SIZE IF ANY (Inches)	DEPTH FROM SURFACE	ANNULAR MATERIAL			
		TYPE (✓)	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	FILL PIPE			FL. to Ft.	CE. MENT (✓)	BEN. TONITE (✓)	FILL (✓)
0 to 4	12	X	Steel	10"	250		0 to 21	X			Jump	
4 to 400	6.5	X					21 to 400			X	Perforated	

**ATTACHMENTS (✓)**

Geologic Log

Well Construction Diagram

Geophysical Log(s)

Soil/Water Chemical Analyses

Other     

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

**CERTIFICATION STATEMENT**

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

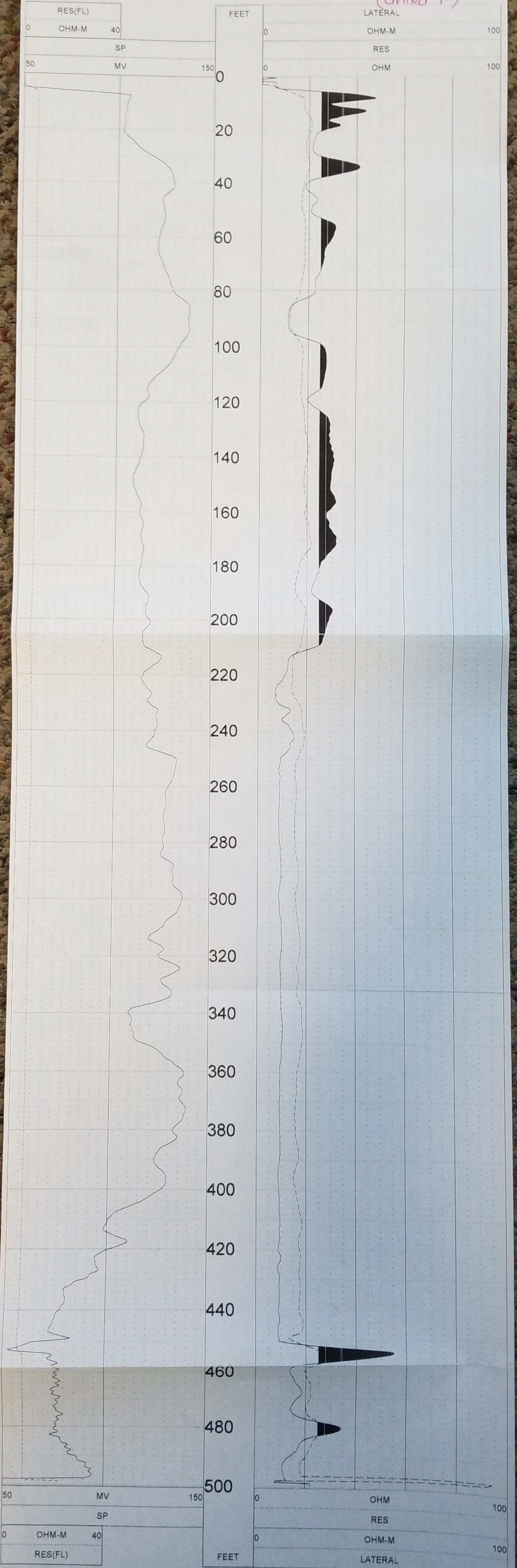
NAME      (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS      CITY      STATE      ZIP     

Signed      WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED      C-57 LICENSE NUMBER



Stephen Jerez  
#4  
(drilled 19)





Stephen Perez  
 #1  
 (drilled 2nd)

RES(FL)	
0 OHM-M 80	
SP	
100 MV 140	
GAMMA	
0 API-GR 175	
API-GR 175	
GAMMA	
100 MV 140	
SP	
0 OHM-M 80	
RES(FL)	

FEET

0

50

100

150

200

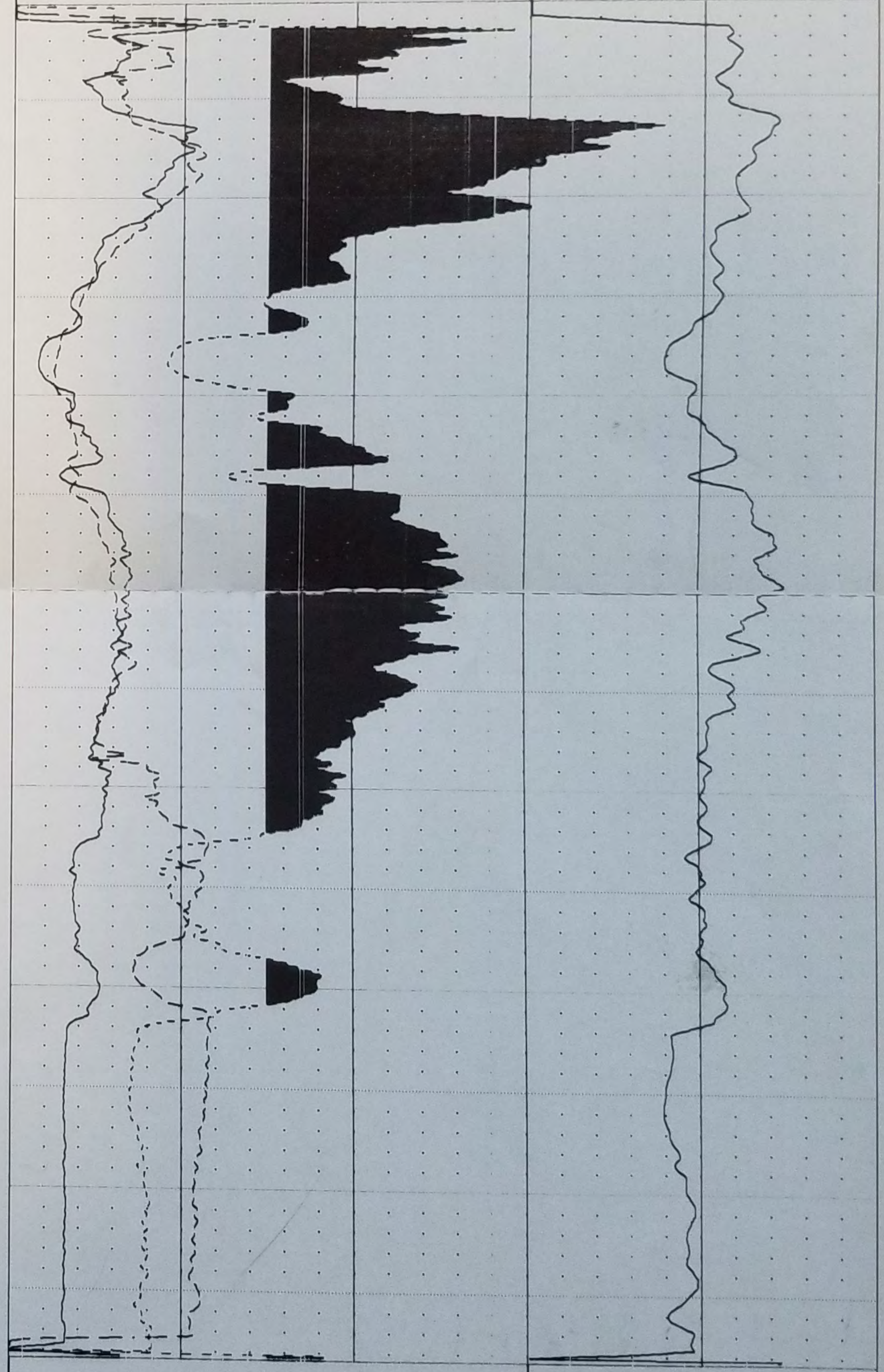
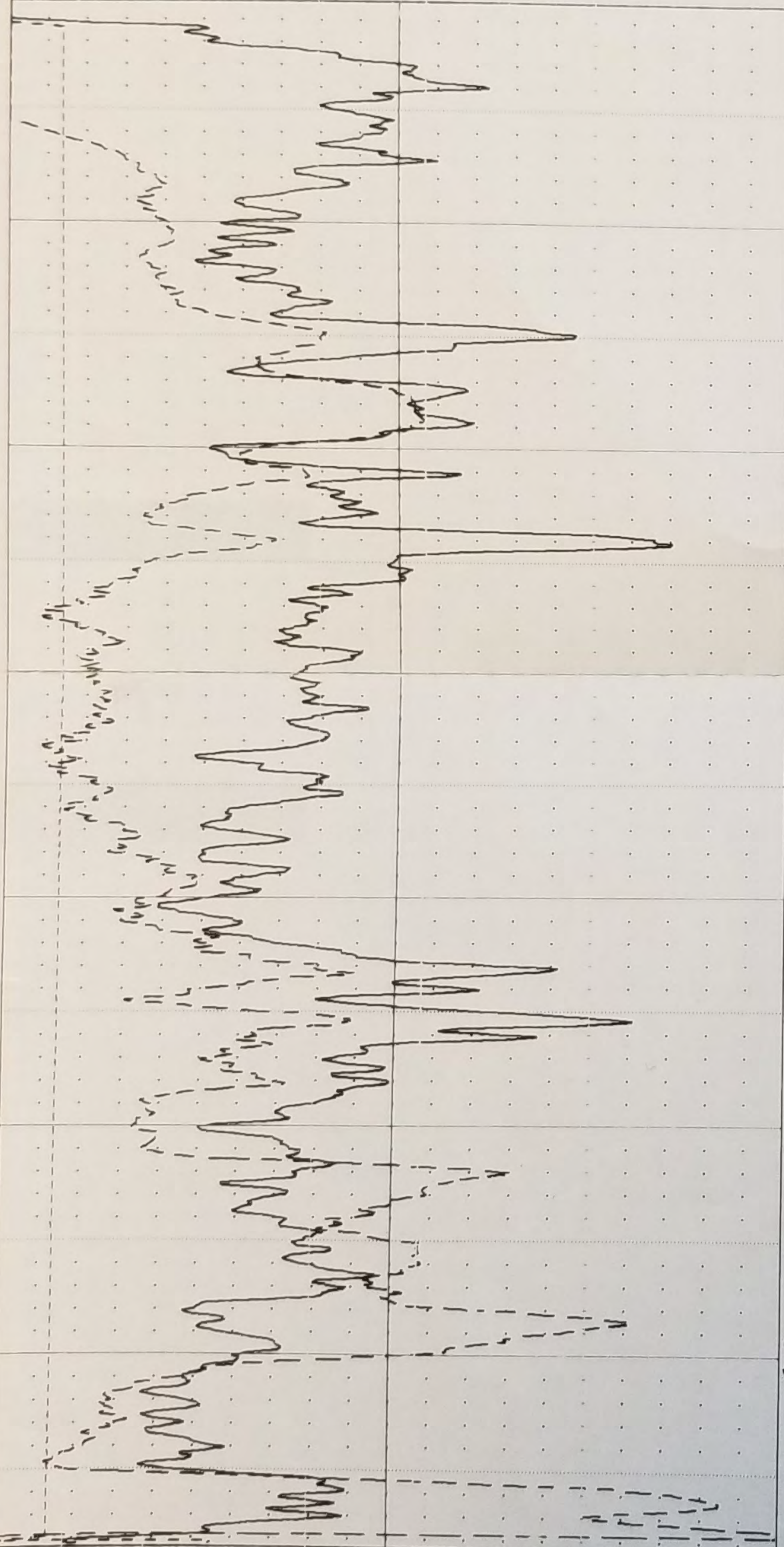
250

300

350

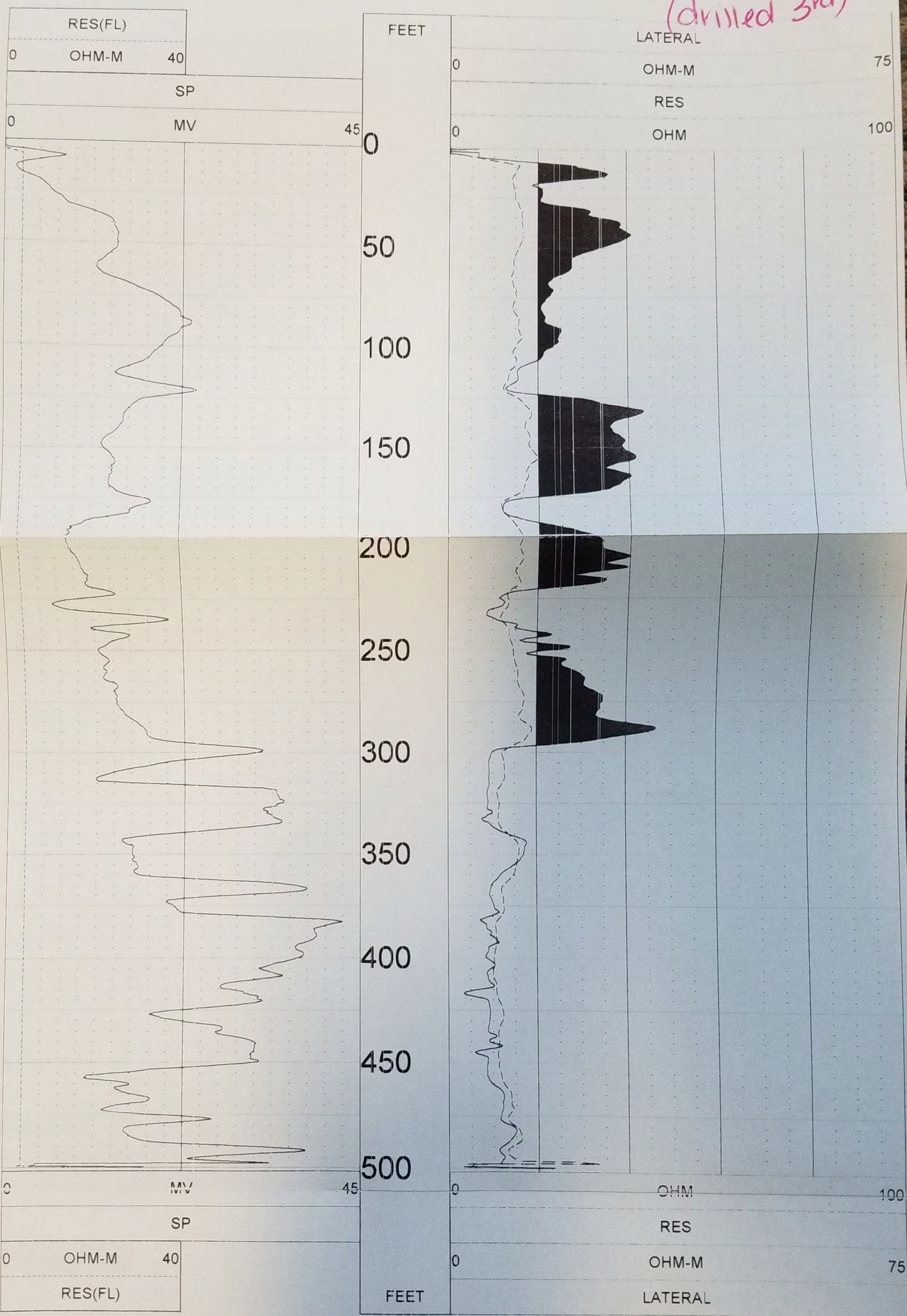
FEET

LATERAL	
0 OHM-M 60	
RES(64N)	
0 OHM-M 100	
RES(16N)	RES
0 OHM-M 1000	OHM 30
OHM-M 1000	OHM 30
RES(16N)	RES
0 OHM-M 100	
RES(64N)	
0 OHM-M 60	
LATERAL	



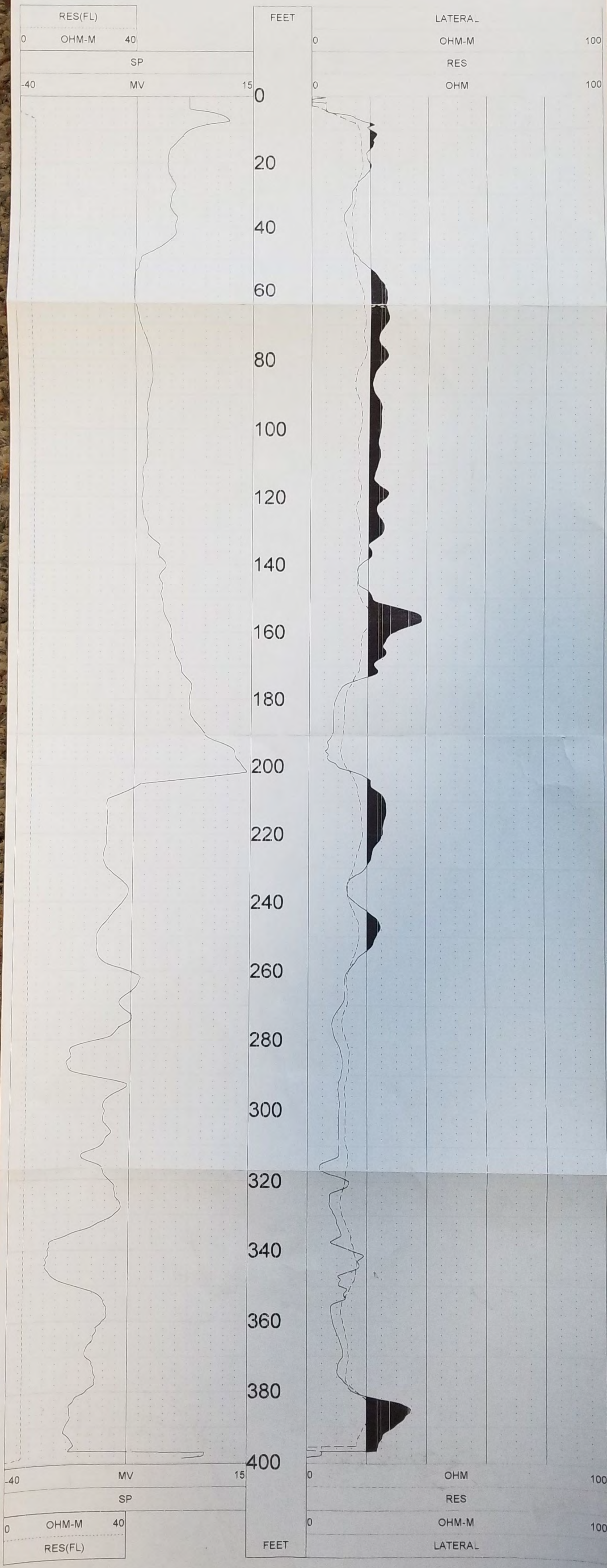


Stephen Perez  
#3  
(drilled 3rd)

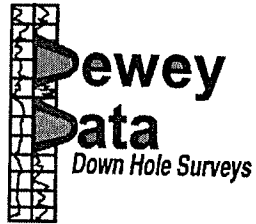




Stephen Perez  
#2  
(drilled 4th)







6-18-19

Pescadero Test Holes Report

E-Logs 1,2,3,4

- no.1 Water Quality- above 210 ft.- 1500 ppm tds, below-2500 ppm tds.  
Water Quantity- above 210 ft.- 1500 gpm, below -500 gpm.
- no.2 Water Quality- above 210 ft. -1500 ppm tds, below-2500 ppm tds.  
Water Quantity- above 210 ft.- 1500 gpm, below- 500 gpm.
- no.3 Water Quality- above 300 ft.- 1400 ppm tds, below-2500 ppm tds.  
Water Quantity- above 300 ft. - 2000 gpm, below- 500 gpm.
- no.4 Water Quality- above 260 ft. -1200 ppm tds, below-2500 ppm tds.  
Water Quantity- above 260 ft.- 2000 gpm, below- 500 gpm.

Conclusion: the further west the holes are, the better quality and quantity trends.

Dewey Shanholtzer

*This is  
the drill  
order  
number*

Cell: (209) 403-5245 1634 West Alpine Avenue  
Stockton, CA 95204-2930



**Dewey**  
**Data Inc.**  
Down Hole Surveys

Dewey Shanholtzer  
President / Geologist

Cell: (209) 747-2281 Fax: (209) 942-0480



# PLAN VIEW COMPU-LOG DEVIATION

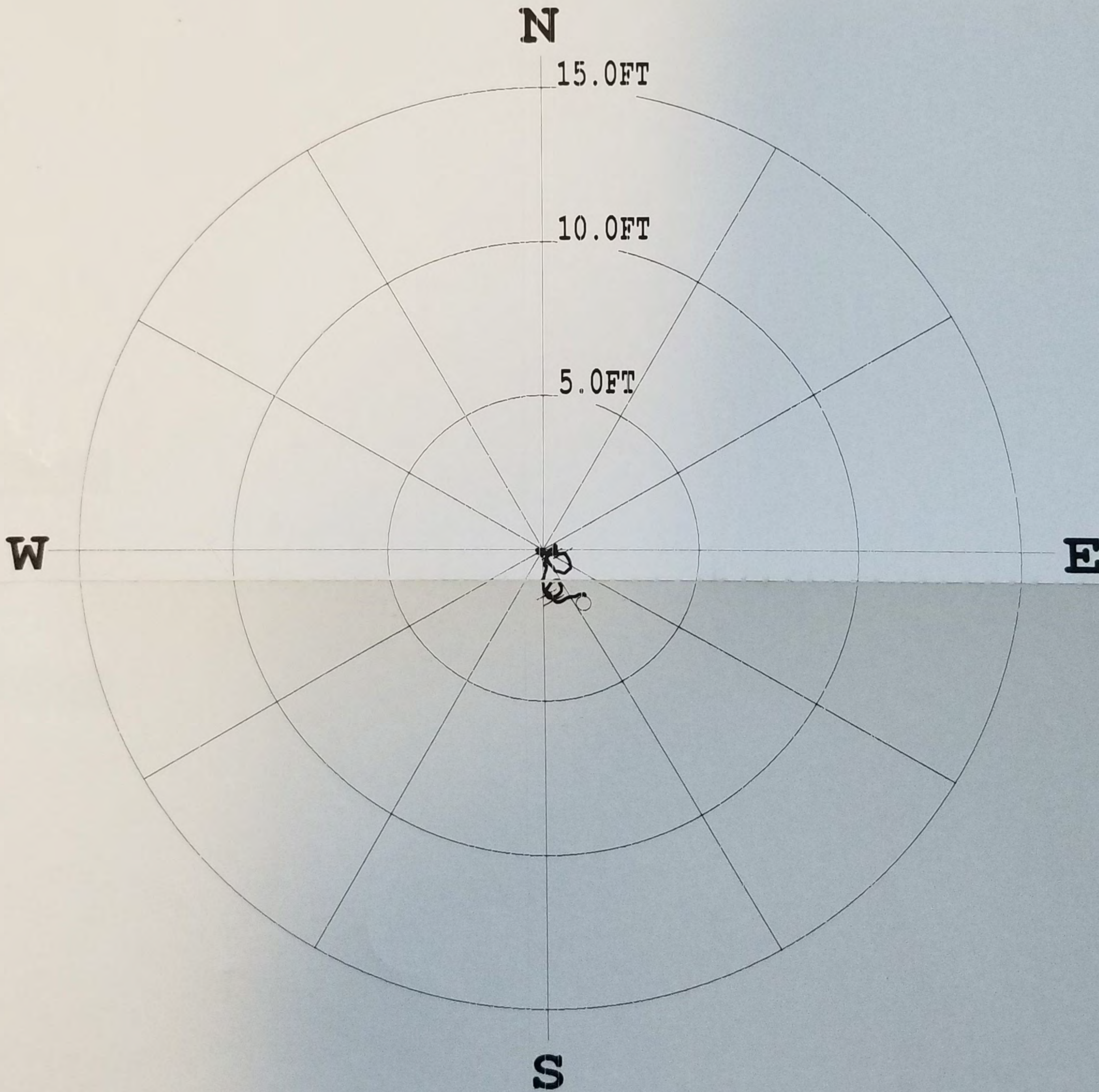
DEVIATION  
Stephen Perez  
#4 (drilled 1st)

CLIENT:  
LOCATION: SAN JOAQUIN  
HOLE ID:  
DATE OF LOG: 06/10/19  
PROBE: 9144A 934



MAG DECL: 14.0

SCALE: 5 FT/IN  
TRUE DEPTH: 500.00 FT  
AZIMUTH: 143.1  
DISTANCE: 2.2 FT  
+ = 100 FT INCR  
○ = BOTTOM OF HOLE



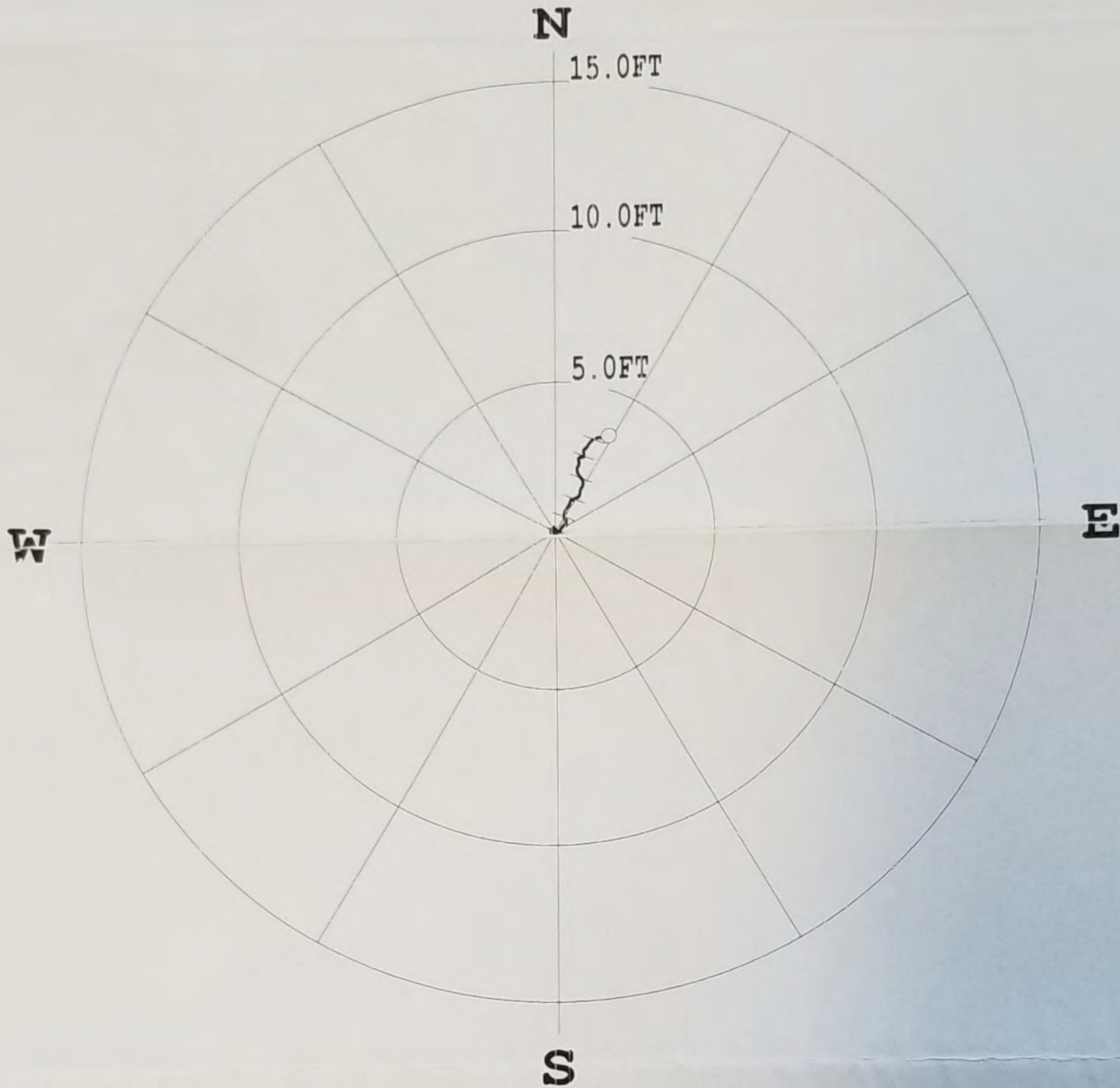
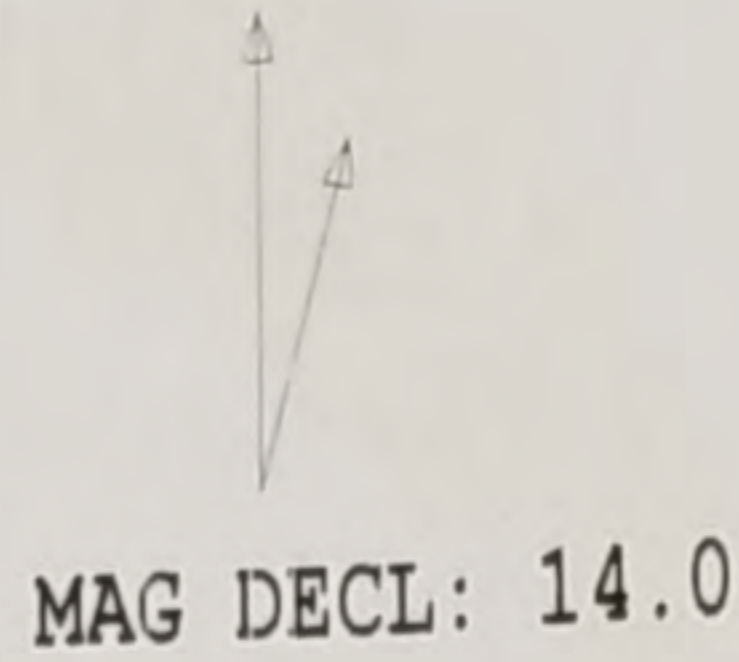


# PLAN VIEW COMPU-LOG DEVIATION

DEVIATION  
Stephen Perez  
#1 (drilled 2nd)

SCALE: 5 FT/IN  
TRUE DEPTH: 340.46 FT  
AZIMUTH: 28.3  
DISTANCE: 3.6 FT  
+ = 50 FT INCR  
○ = BOTTOM OF HOLE

CLIENT: PESCADERO  
LOCATION: SAN JOAQUIN  
HOLE ID: PESCADERO # 2  
DATE OF LOG: 06/11/19  
PROBE: 9144A 934



\* \* \* \* \* COMPU-LOG - VERTICAL DEVIATION \* \* \* \* \*

CLIENT : PESCADERO	HOLE ID. : PESCADERO # 2
FIELD OFFICE : DEWEY DATA	DATE OF LOG : 06/11/19
DATA FROM : N/A	PROBE : 9144A , 934
MAG. DECL. : 14.000	DEPTH UNITS : FEET
LOG: \PESCADERO#2_06-11-19_17-05_9144A_2_1_341.6_DEVI.log	

CABLE DEPTH	TRUE DEPTH	NORTH DEV.	EAST DEV.	DISTANCE	AZIMUTH	SANG	SANGB
6.80	6.80	0.00	-0.00	0.0	331.1	1.0	331.1
11.00	11.00	0.07	-0.00	0.1	356.2	1.0	9.8
21.00	21.00	0.10	-0.09	0.1	317.4	1.1	209.4
31.00	31.00	-0.03	-0.11	0.1	255.4	0.7	91.2
41.00	41.00	-0.06	0.03	0.1	153.8	0.8	102.5
51.00	50.99	0.02	0.08	0.1	77.2	0.8	82.1
61.00	60.99	0.10	0.18	0.2	61.7	0.8	19.4
71.00	70.99	0.21	0.26	0.3	51.2	0.9	52.0
81.00	80.99	0.27	0.33	0.4	50.6	0.9	348.4
91.00	90.99	0.40	0.33	0.5	39.7	1.0	307.7
101.00	100.99	0.53	0.27	0.6	27.1	0.8	356.3
111.00	110.99	0.69	0.30	0.7	23.5	0.9	10.5
121.00	120.99	0.81	0.37	0.9	24.8	0.8	51.8
131.00	130.99	0.92	0.44	1.0	25.5	0.9	31.3
141.00	140.98	1.05	0.49	1.2	24.8	0.8	36.5
151.00	150.98	1.11	0.60	1.3	28.5	0.8	46.6
161.00	160.98	1.18	0.74	1.4	32.1	0.6	55.6
171.00	170.98	1.30	0.78	1.5	30.8	0.8	8.3
181.00	180.98	1.47	0.82	1.7	29.1	1.0	32.2
191.00	190.98	1.63	0.87	1.9	28.0	1.1	8.0
201.00	200.98	1.81	0.80	2.0	23.9	1.2	317.0
211.00	210.97	1.99	0.70	2.1	19.3	1.2	344.8
221.00	220.97	2.17	0.71	2.3	18.1	1.0	77.4
231.00	230.97	2.33	0.74	2.4	17.7	1.2	341.6
241.00	240.97	2.49	0.78	2.6	17.4	0.9	64.7
251.00	250.97	2.53	0.91	2.7	19.9	0.8	4.8
261.00	260.97	2.68	0.89	2.8	18.5	0.9	356.6
271.00	270.96	2.77	0.99	2.9	19.6	0.8	61.2
281.00	280.96	2.89	1.05	3.1	19.9	0.8	34.7
291.00	290.96	2.99	1.13	3.2	20.7	0.7	49.0
301.00	300.96	3.06	1.24	3.3	22.0	0.7	69.7
311.00	310.96	3.12	1.34	3.4	23.3	0.7	77.0
321.00	320.96	3.11	1.48	3.4	25.5	0.9	104.1
331.00	330.96	3.12	1.61	3.5	27.2	0.7	88.8
341.00	340.96	3.16	1.70	3.6	28.3	0.0	0.0
340.50	340.46	3.16	1.70	3.6	28.3	0.6	53.2



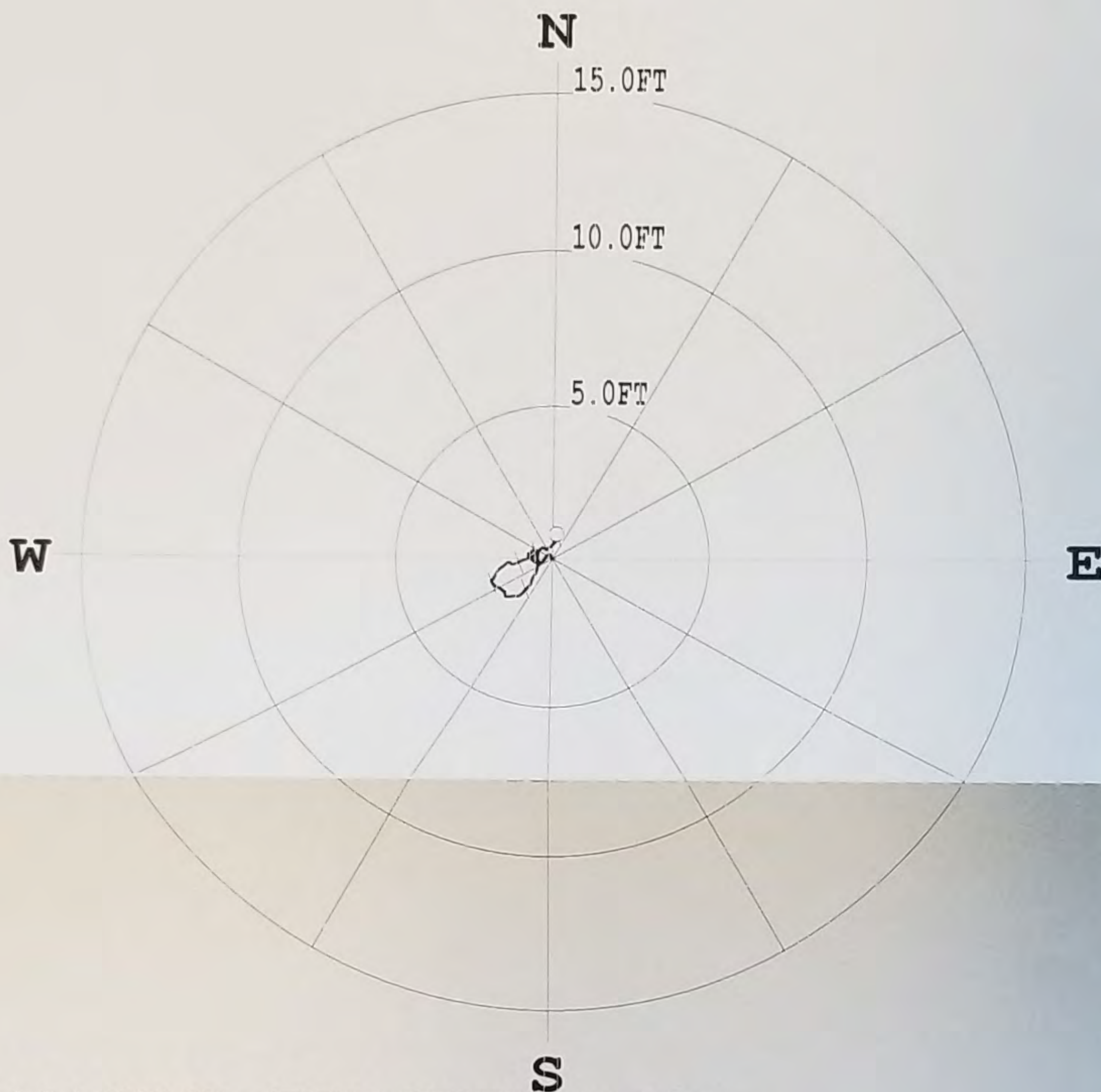
Stephen Perez  
#3  
(drilled 3rd)  
deviation

## PLAN VIEW COMPU-LOG DEVIATION

CLIENT: PESCADERO  
LOCATION: SAN JOAQUIN  
HOLE ID: PESCADERO # 3  
DATE OF LOG: 06/13/19  
PROBE: 9144A 934

MAG DECL: 14.0

SCALE: 5 FT/IN  
TRUE DEPTH: 501.74 FT  
AZIMUTH: 9.2  
DISTANCE: 0.8 FT  
+ = 100 FT INCR  
○ = BOTTOM OF HOLE



\*\*\*\*\* COMPU-LOG - VERTICAL DEVIATION \*\*\*\*\*

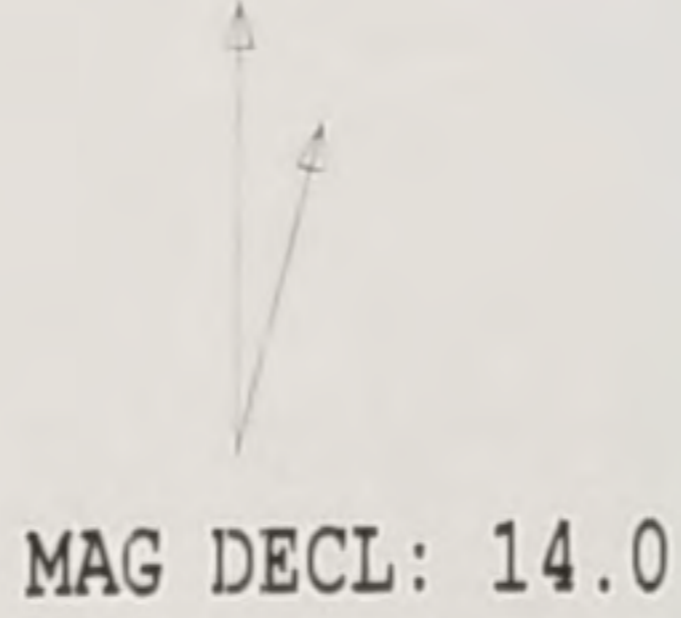
CLIENT : PESCADERO HOLE ID. : PESCADERO # 3  
FIELD OFFICE : DEWEY DATA DATE OF LOG : 06/13/19  
DATA FROM : N/A PROBE : 9144A 934  
MAG. DECL. : 14.000 DEPTH UNITS : FEET  
LOG: PESCADERO#3\_06-13-19\_16-33\_9144A\_.4\_1\_501.4\_DEVI.log

CABLE DEPTH	TRUE DEPTH	NORTH DEV.	EAST DEV.	DISTANCE	AZIMUTH	SANG	SANGB
7.00	7.00	0.00	-0.00	0.0	306.3	1.1	306.3
11.20	11.20	0.08	-0.05	0.1	327.0	1.3	335.7
21.20	21.20	0.09	-0.16	0.2	299.2	0.8	237.9
31.20	31.20	-0.01	-0.24	0.2	266.5	0.8	179.0
41.20	41.20	-0.12	-0.32	0.3	248.5	0.9	244.7
51.20	51.19	-0.16	-0.46	0.5	250.5	0.9	264.2
61.20	61.19	-0.07	-0.60	0.6	263.2	1.0	314.9
71.20	71.19	0.05	-0.74	0.7	273.5	1.2	326.5
81.20	81.19	0.17	-0.73	0.8	283.0	0.6	121.7
91.20	91.19	0.25	-0.63	0.7	291.4	1.0	59.4
101.20	101.19	0.20	-0.52	0.6	290.8	0.7	132.0
111.20	111.19	0.08	-0.46	0.5	280.5	0.9	189.4
121.20	121.19	-0.07	-0.46	0.5	261.7	0.9	172.0
131.20	131.18	-0.22	-0.46	0.5	244.6	0.8	186.4
141.20	141.18	-0.36	-0.48	0.6	233.0	0.8	186.5
151.20	151.18	-0.48	-0.52	0.7	227.3	0.7	198.3
161.20	161.18	-0.59	-0.58	0.8	224.6	0.8	210.4
171.20	171.18	-0.73	-0.64	1.0	221.4	0.6	200.8
181.20	181.18	-0.84	-0.67	1.1	218.8	0.7	206.4
191.20	191.18	-0.95	-0.75	1.2	218.4	0.8	220.7
201.20	201.18	-1.05	-0.85	1.4	219.0	0.8	214.7
211.20	211.18	-1.17	-0.93	1.5	218.5	0.8	222.7
221.20	221.18	-1.25	-1.05	1.6	220.1	0.9	255.5
231.20	231.17	-1.25	-1.18	1.7	223.4	0.8	269.4
241.20	241.17	-1.28	-1.32	1.8	226.0	0.9	265.6
251.20	251.17	-1.27	-1.46	1.9	229.1	0.8	296.5
261.20	261.17	-1.13	-1.49	1.9	232.7	0.9	352.3
271.20	271.17	-1.04	-1.59	1.9	236.8	0.8	310.5
281.20	281.17	-0.97	-1.72	2.0	240.5	0.8	294.5
291.20	291.17	-0.90	-1.83	2.0	243.9	0.7	308.2
301.20	301.17	-0.79	-1.92	2.1	247.6	0.8	330.7
311.20	311.17	-0.71	-1.88	2.0	249.4	0.9	51.8
321.20	321.17	-0.60	-1.82	1.9	251.8	0.7	24.3
331.20	331.17	-0.49	-1.76	1.8	254.4	0.7	28.2
341.20	341.16	-0.39	-1.71	1.8	257.3	0.7	40.5
351.20	351.16	-0.31	-1.62	1.6	259.2	0.7	62.9
361.20	361.16	-0.23	-1.52	1.5	261.3	0.8	48.5
371.20	371.16	-0.14	-1.42	1.4	264.3	0.8	49.3
381.20	381.16	-0.19	-1.30	1.3	261.8	1.1	133.0
391.20	391.16	-0.18	-1.17	1.2	261.4	0.7	70.5
401.20	401.16	-0.12	-1.06	1.1	263.7	0.8	55.8
411.20	411.16	-0.06	-0.93	0.9	266.3	0.8	71.2
421.20	421.16	-0.01	-0.79	0.8	269.5	0.9	57.9
431.20	431.16	0.05	-0.64	0.6	274.7	0.9	65.2
441.20	441.15	0.14	-0.52	0.5	285.3	1.0	48.6
451.20	451.15	0.28	-0.41	0.5	304.5	1.1	41.8
461.20	461.15	0.33	-0.26	0.4	321.7	0.8	122.1
471.20	471.15	0.34	-0.13	0.4	339.2	0.7	43.9
481.20	481.15	0.44	-0.01	0.4	358.7	0.8	29.2
491.20	491.15	0.56	0.10	0.6	10.4	1.2	34.2
501.20	501.14	0.79	0.13	0.8	9.4	1.7	358.0
501.80	501.54	0.80	0.13	0.8	9.3	1.7	358.0



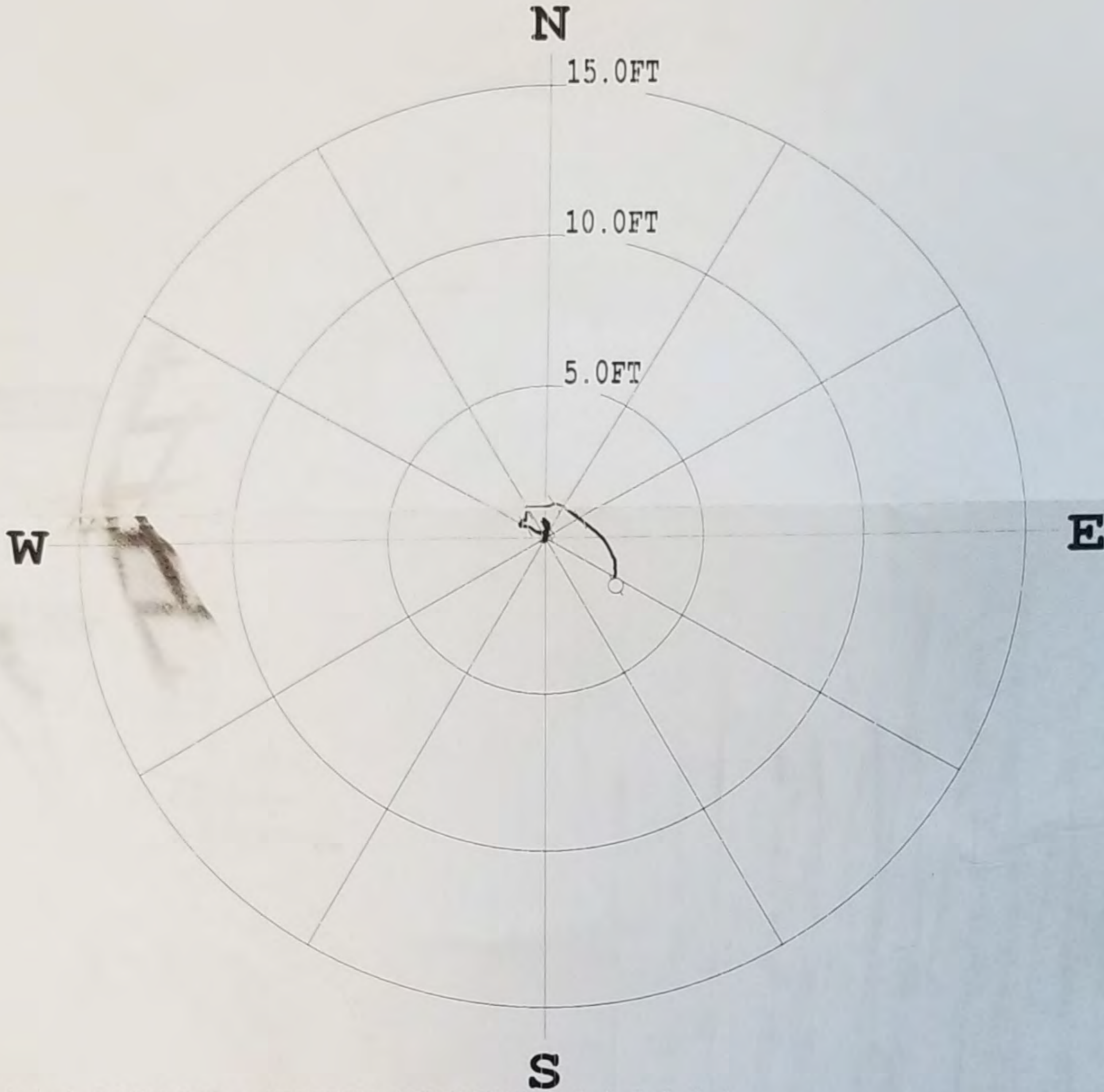
# PLAN VIEW COMPU-LOG DEVIATION

CLIENT: PESCADERO  
 LOCATION: SAN JOAQUIN  
 HOLE ID: PESCADERO # 4  
 DATE OF LOG: 06/14/19  
 PROBE: 9144A 934



DEVIATION  
 stephen perez  
 #2 (drilled 4m)

SCALE: 5 FT/IN  
 TRUE DEPTH: 400.61 FT  
 AZIMUTH: 124.6  
 DISTANCE: 2.7 FT  
 + = 50 FT INCR  
 ○ = BOTTOM OF HOLE



\*\*\*\*\* COMPU-LOG - VERTICAL DEVIATION \*\*\*\*\*

CLIENT : PESCADERO	HOLE ID. : PESCADERO # 4
FIELD OFFICE : DEWEY DATA	DATE OF LOG : 06/14/19
DATA FROM : N/A	PROBE : 9144A , 934
MAG. DECL. : 14.000	DEPTH UNITS : FEET
LOG: PESCADERO#4_06-14-19_17-07_9144A_.4_0.2_400.2_DEVI.log	

CABLE DEPTH	TRUE DEPTH	NORTH DEV.	EAST DEV.	DISTANCE	AZIMUTH	SANG	SANGB
6.20	6.20	0.00	-0.00	0.0	301.1	1.2	301.1
10.40	10.40	-0.03	-0.04	0.1	230.9	1.3	233.3
20.40	20.40	-0.11	-0.05	0.1	202.9	0.9	77.6
30.40	30.40	-0.01	0.00	0.0	160.3	0.9	330.0
40.40	40.39	0.12	0.03	0.1	11.8	0.9	26.1
50.40	50.39	0.24	0.03	0.2	8.2	0.9	3.3
60.40	60.39	0.38	-0.00	0.4	359.5	1.0	309.6
70.40	70.39	0.53	-0.08	0.5	351.4	1.0	4.7
80.40	80.39	0.55	-0.00	0.6	359.7	0.9	184.4
90.40	90.39	0.48	0.09	0.5	11.0	0.9	120.7
100.40	100.39	0.33	0.11	0.3	18.4	1.0	198.1
110.40	110.39	0.21	-0.00	0.2	359.9	1.0	236.5
120.40	120.38	0.17	-0.16	0.2	316.6	0.9	273.0
130.40	130.38	0.21	-0.32	0.4	303.0	0.9	299.9
140.40	140.38	0.31	-0.44	0.5	305.0	0.8	295.3
150.40	150.38	0.37	-0.63	0.7	300.5	1.3	263.3
160.40	160.38	0.41	-0.81	0.9	296.6	0.9	0.6
170.40	170.38	0.54	-0.73	0.9	306.4	1.0	46.9
180.40	180.37	0.61	-0.59	0.9	315.8	0.7	1.4
190.40	190.37	0.75	-0.60	1.0	321.4	1.0	15.8
200.40	200.37	0.90	-0.60	1.1	326.4	0.9	348.0
210.40	210.37	0.98	-0.48	1.1	333.7	1.5	111.5
220.40	220.37	0.98	-0.26	1.0	345.1	1.3	82.2
230.40	230.36	0.99	-0.03	1.0	358.2	1.3	93.4
240.40	240.36	1.03	0.15	1.0	8.1	0.7	60.3
250.40	250.36	1.08	0.28	1.1	14.6	1.0	74.3
260.40	260.36	1.06	0.43	1.1	22.3	0.8	118.1
270.40	270.36	0.98	0.57	1.1	30.0	0.8	119.3
280.40	280.36	0.88	0.70	1.1	38.7	1.3	130.7
290.40	290.35	0.72	0.91	1.2	51.4	1.5	126.5
300.40	300.35	0.56	1.12	1.3	63.3	1.5	125.7
310.40	310.35	0.39	1.33	1.4	73.7	1.7	129.5
320.40	320.34	0.21	1.55	1.6	82.4	1.6	123.9
330.40	330.34	-0.04	1.82	1.8	91.3	2.2	136.5
340.40	340.33	-0.26	1.97	2.0	97.6	0.8	153.2
350.40	350.33	-0.47	2.08	2.1	102.8	0.7	148.4
360.40	360.33	-0.61	2.13	2.2	106.0	1.5	152.9
370.40	370.32	-0.89	2.21	2.4	111.9	1.2	177.8
380.40	380.32	-1.09	2.22	2.5	116.2	1.4	173.4
390.40	390.32	-1.30	2.20	2.6	120.5	1.4	181.9
400.40	400.31	-1.53	2.23	2.7	124.5	1.5	163.8
400.70	400.41	-1.53	2.23	2.7	124.5	1.5	163.8



### Groundwater Elevation Legend:

- Elevation Points
  - ▼
- Elevation Contour
  - Sea Level
  - Primary Contour
  - Secondary Contour

### Groundwater Elevation Change Legend:

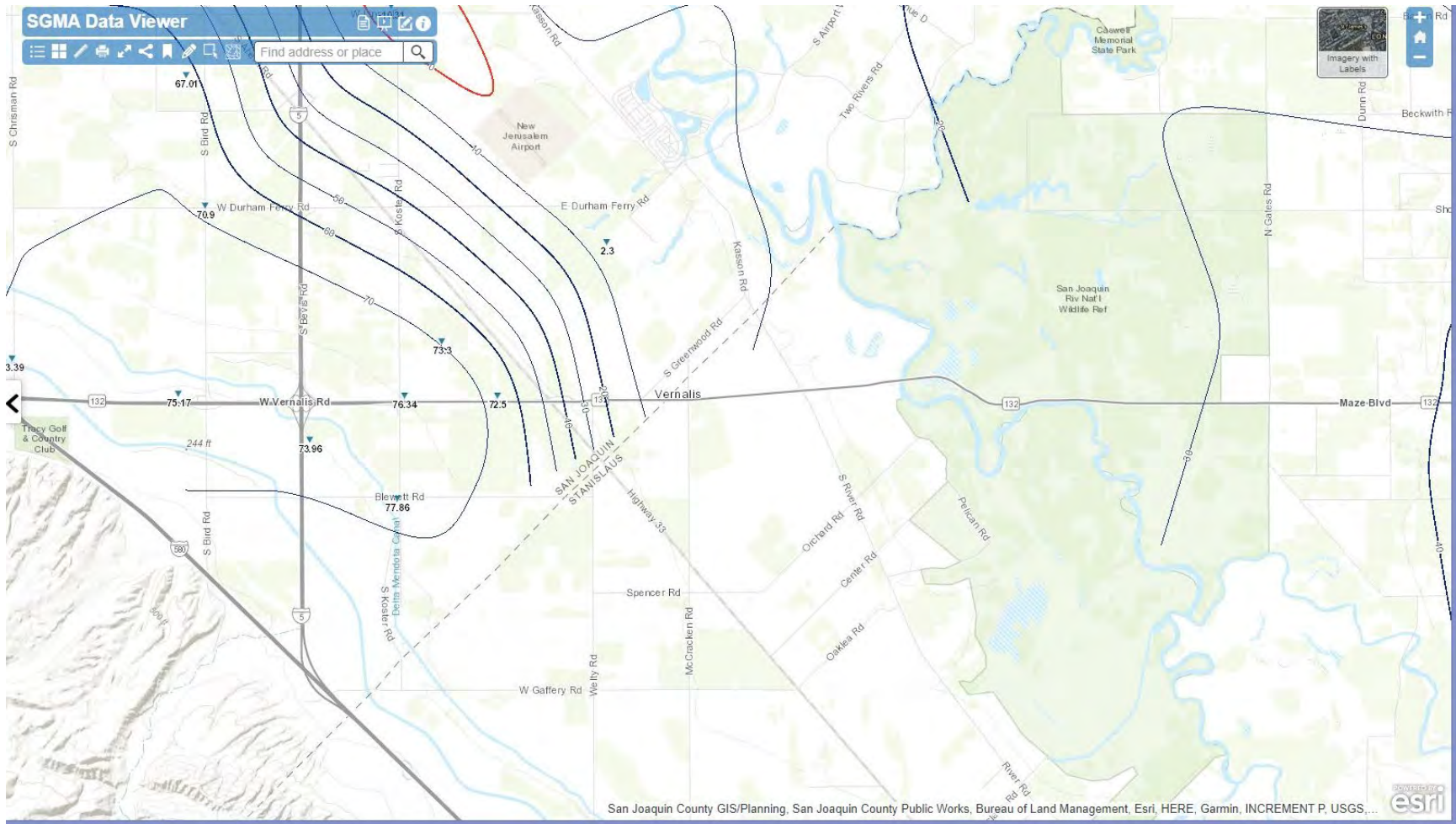
- Change Points
  - Increase > 10 feet
  - Increase 10 to 2.5 feet
  - Change +/- 2.5 feet
  - Decrease 2.5 to 10 feet
  - Decrease > 10 feet
- Change Contour
  - Change in Groundwater Level (ft)



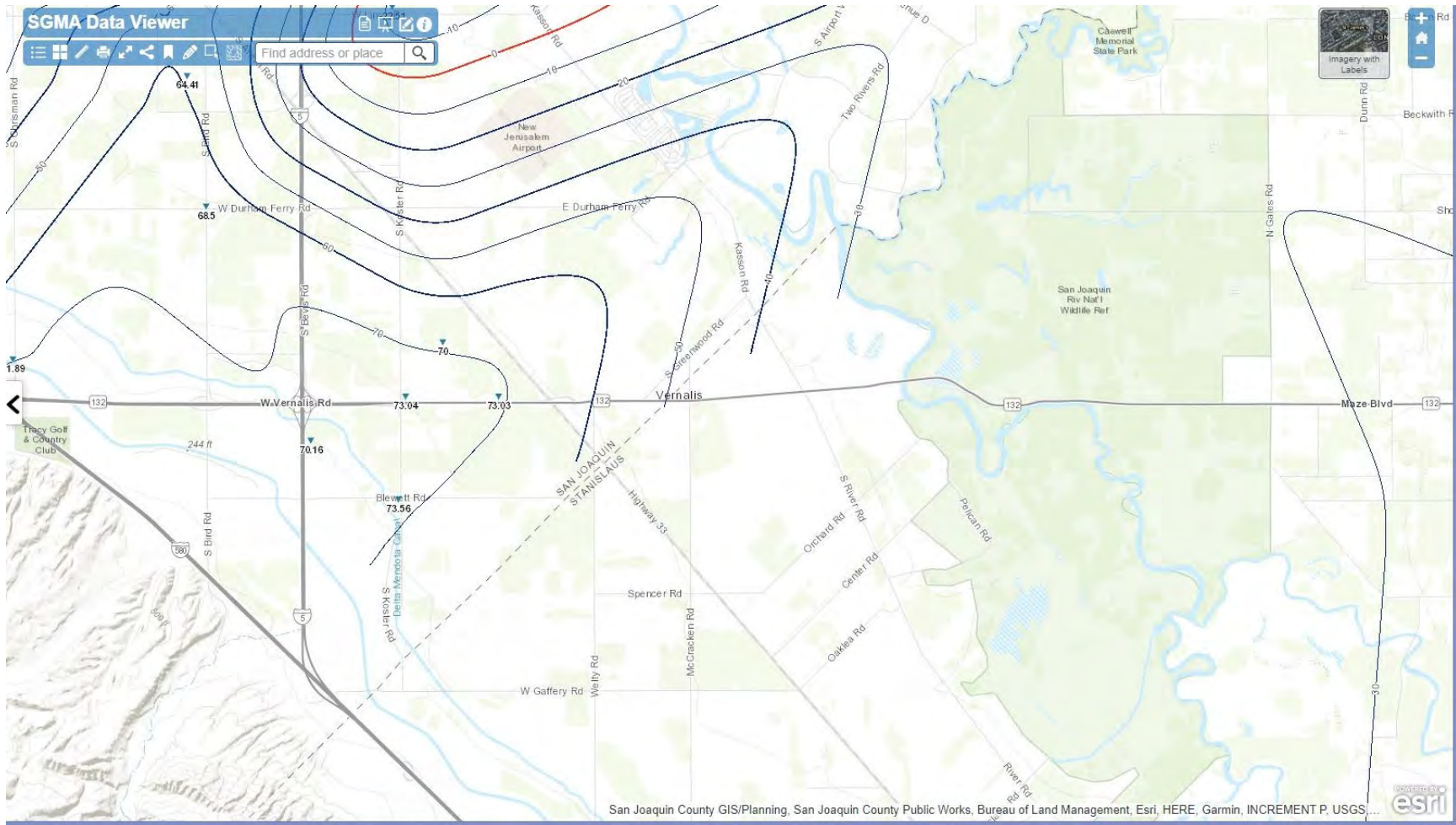
# APPENDIX D – GROUNDWATER ELEVATION CONTOUR MAPS

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## Fall 2013 Groundwater Elevation

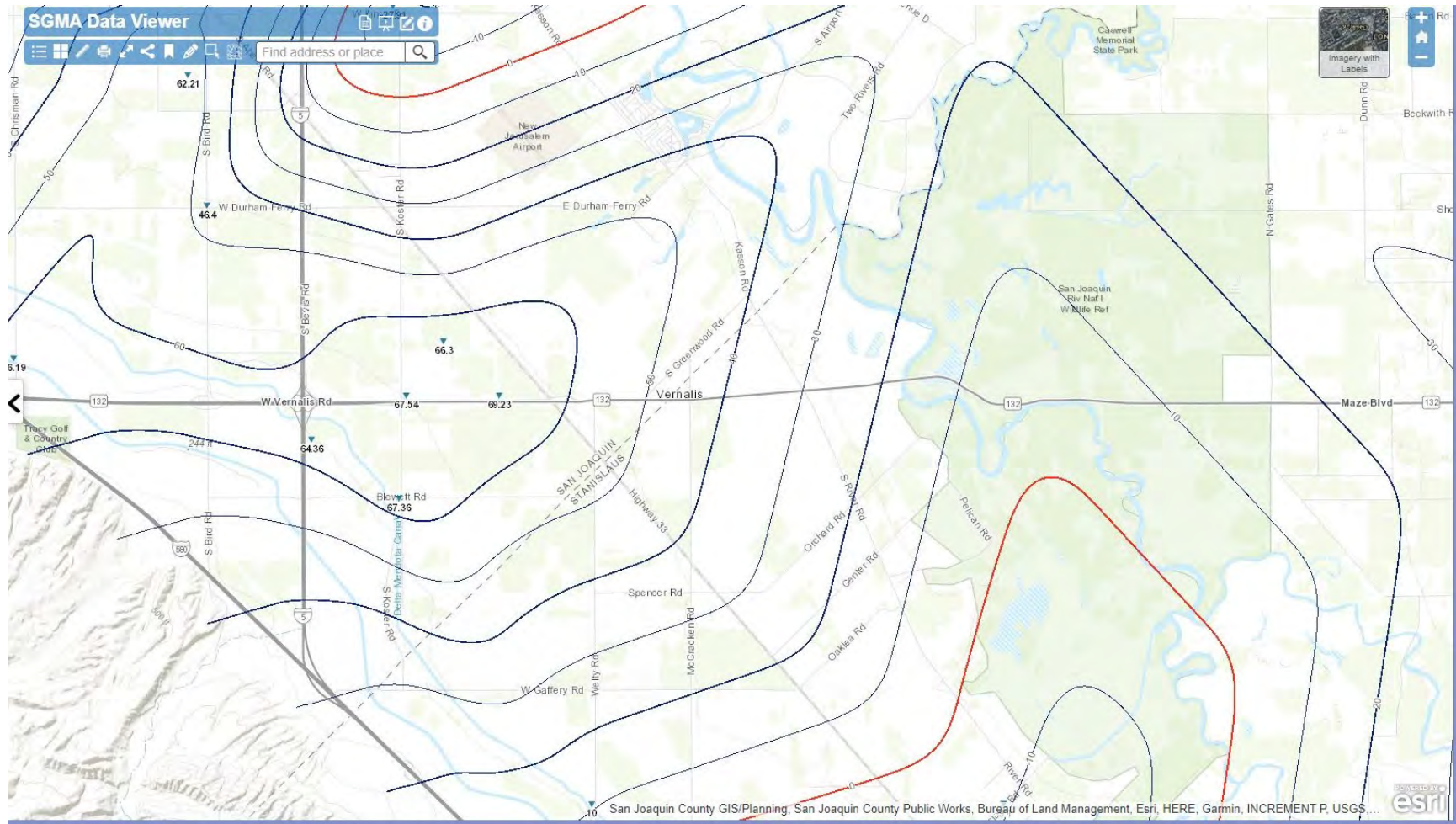


# Fall 2014 Groundwater Elevation

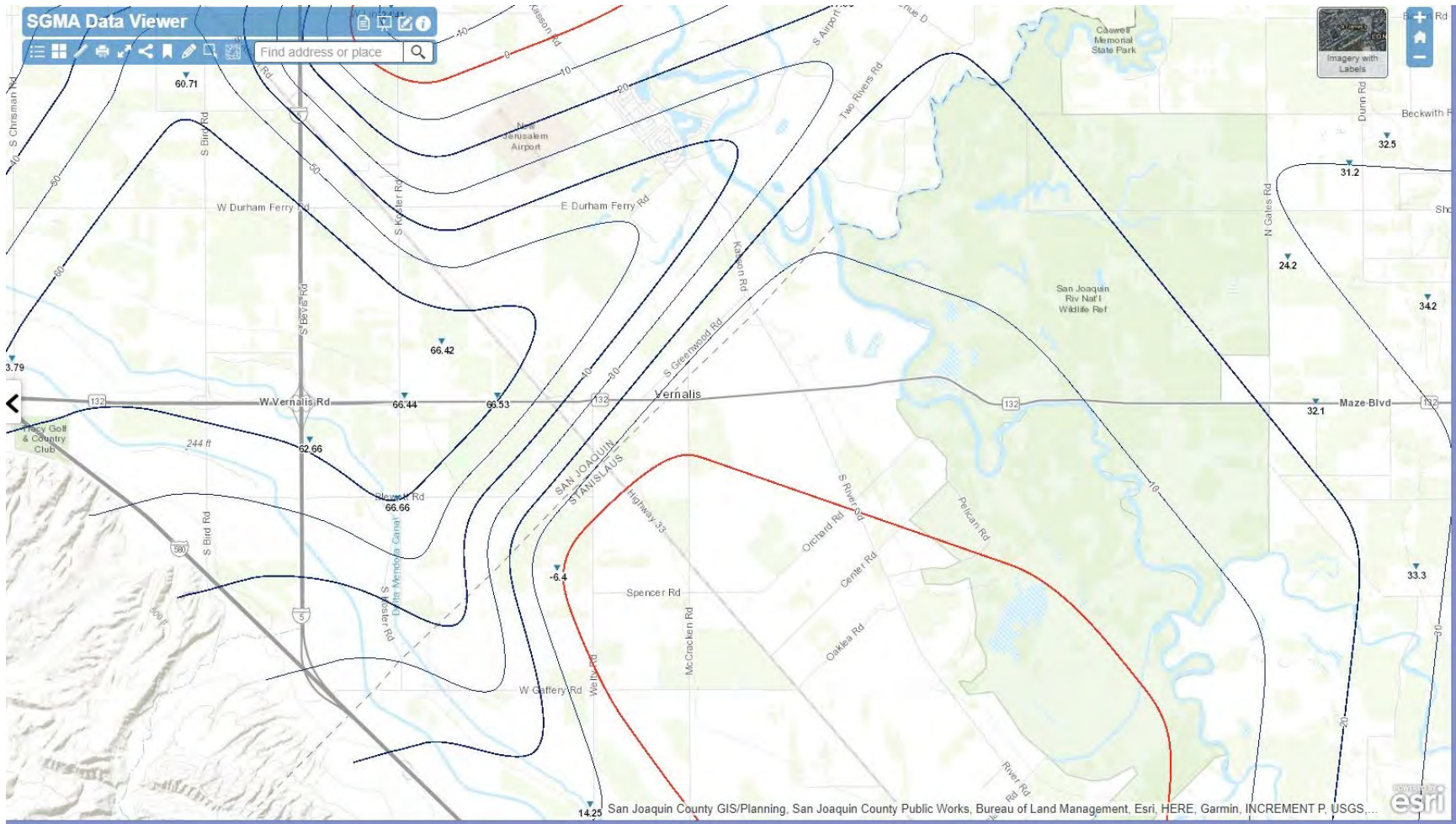




# Fall 2015 Groundwater Elevation

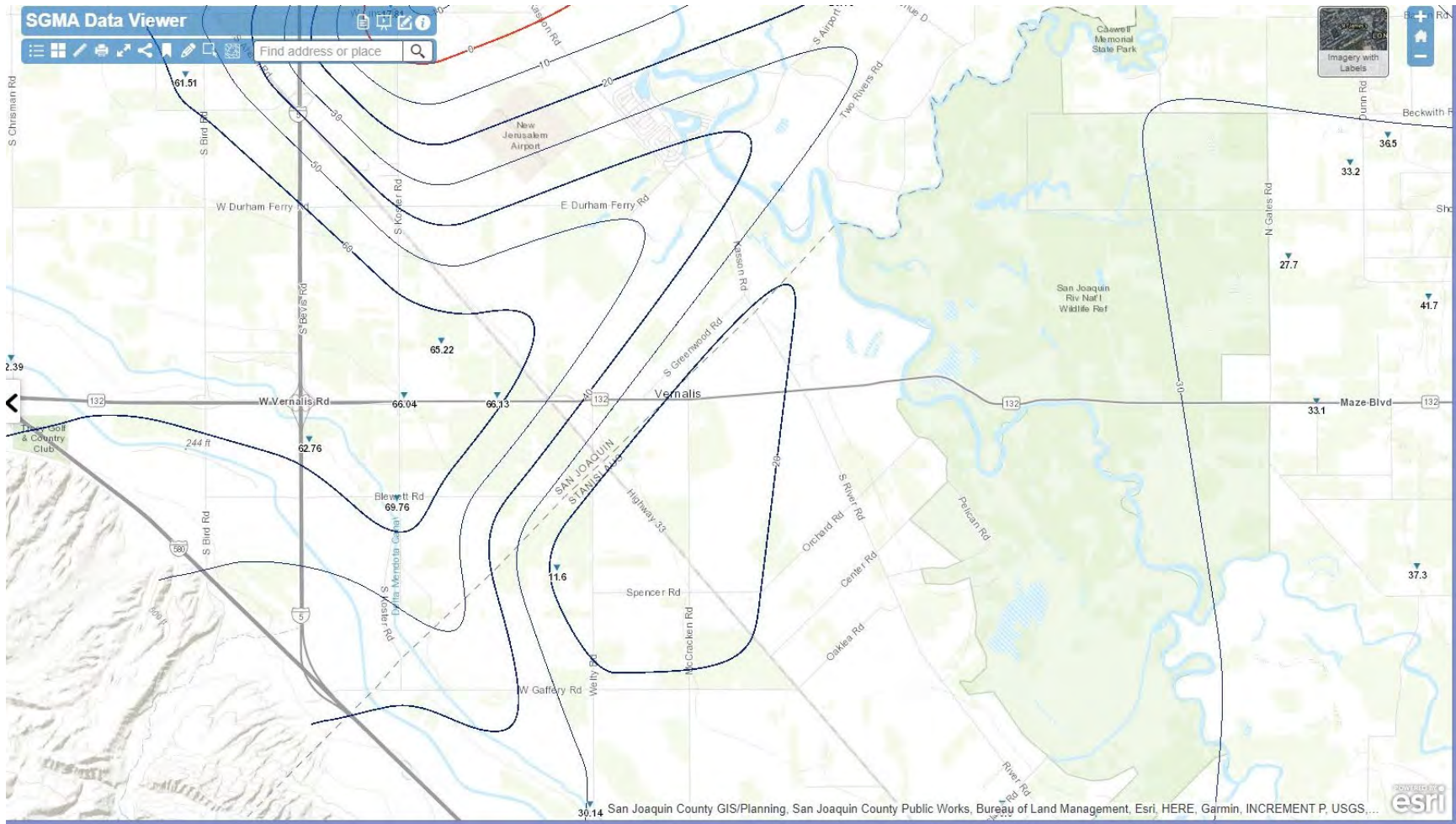


# Fall 2016 Groundwater Elevation



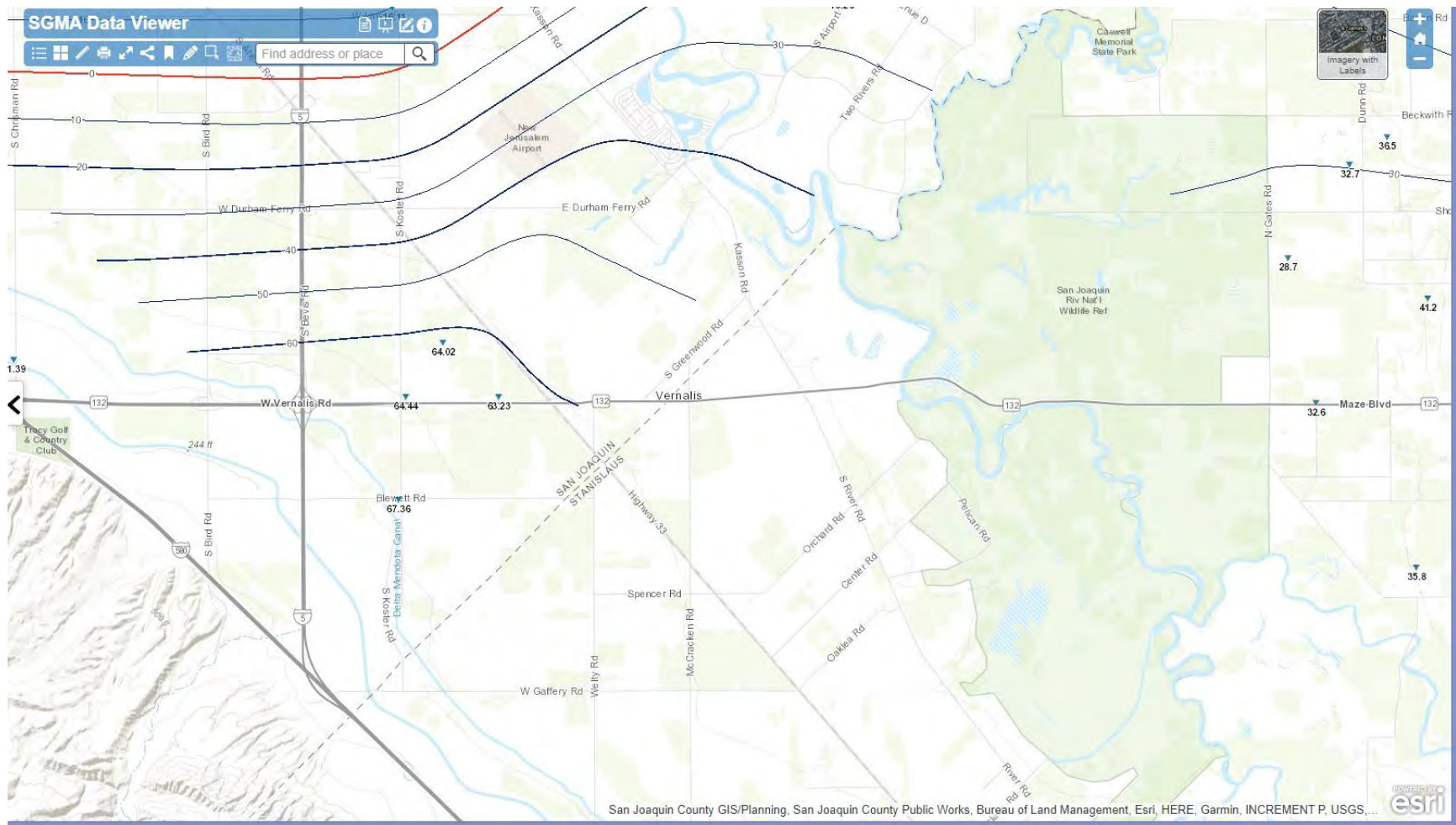


# Fall 2017 Groundwater Elevation

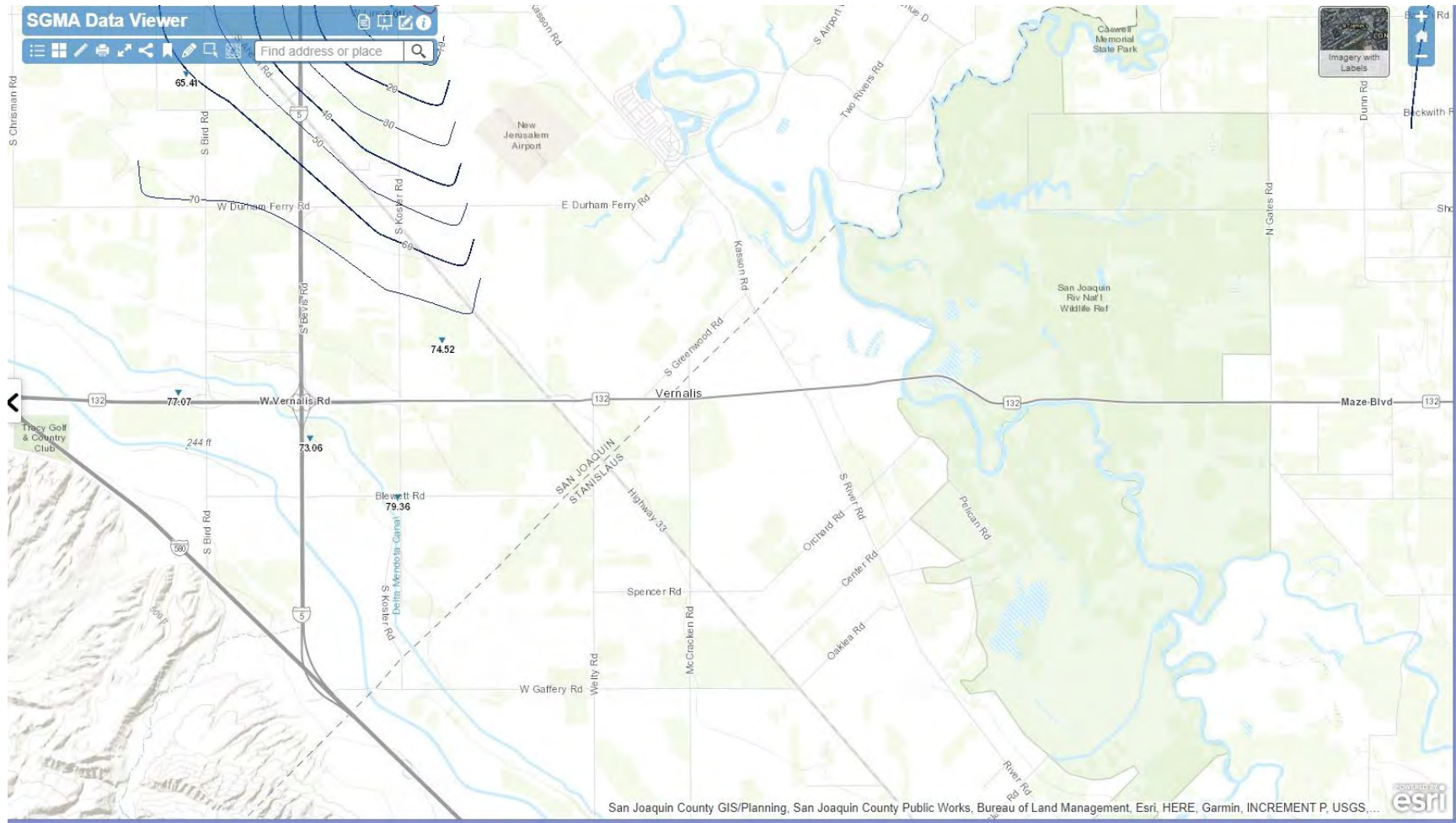




# Fall 2018 Groundwater Elevation

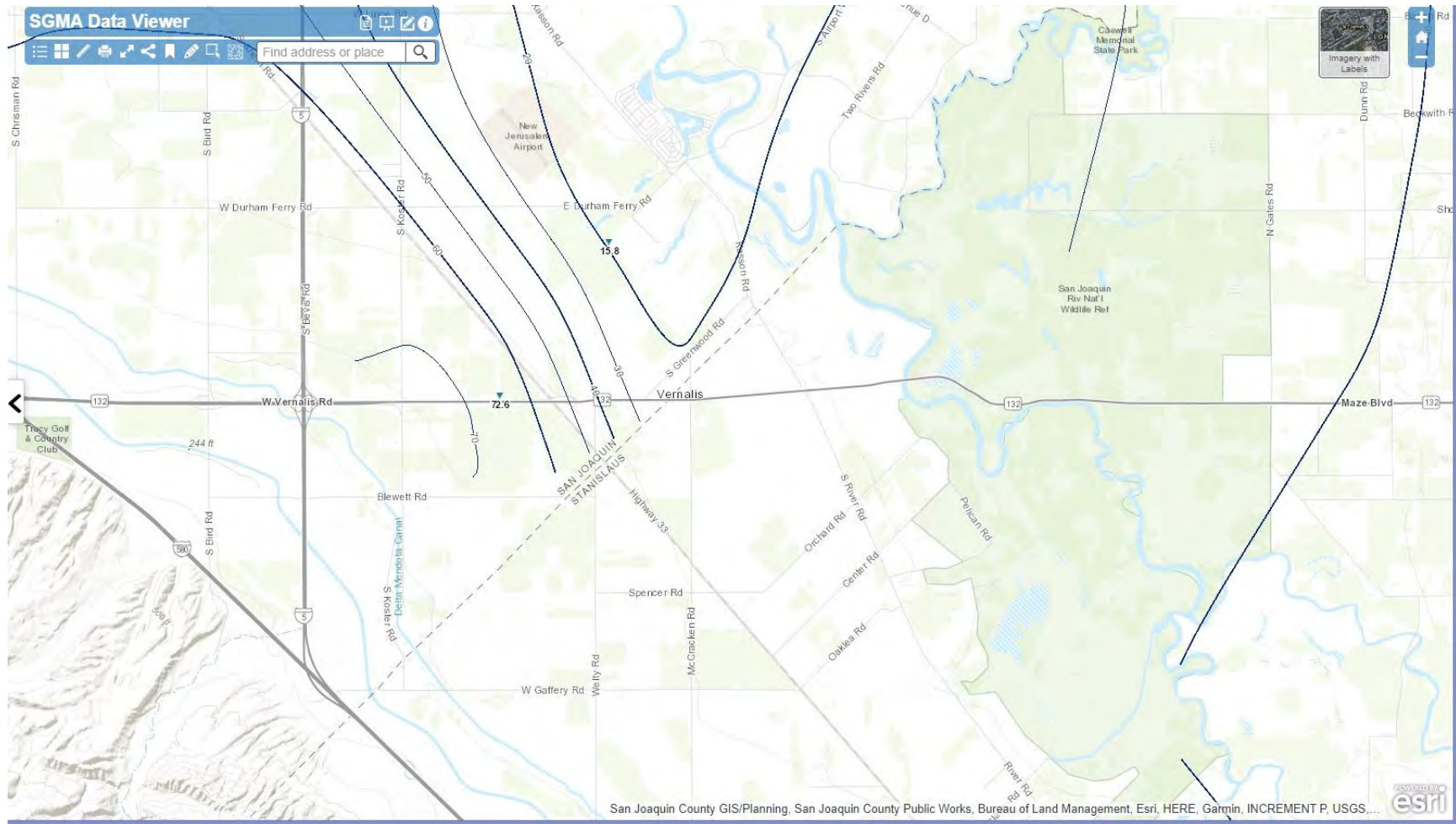


# Spring 2011 Groundwater Elevation



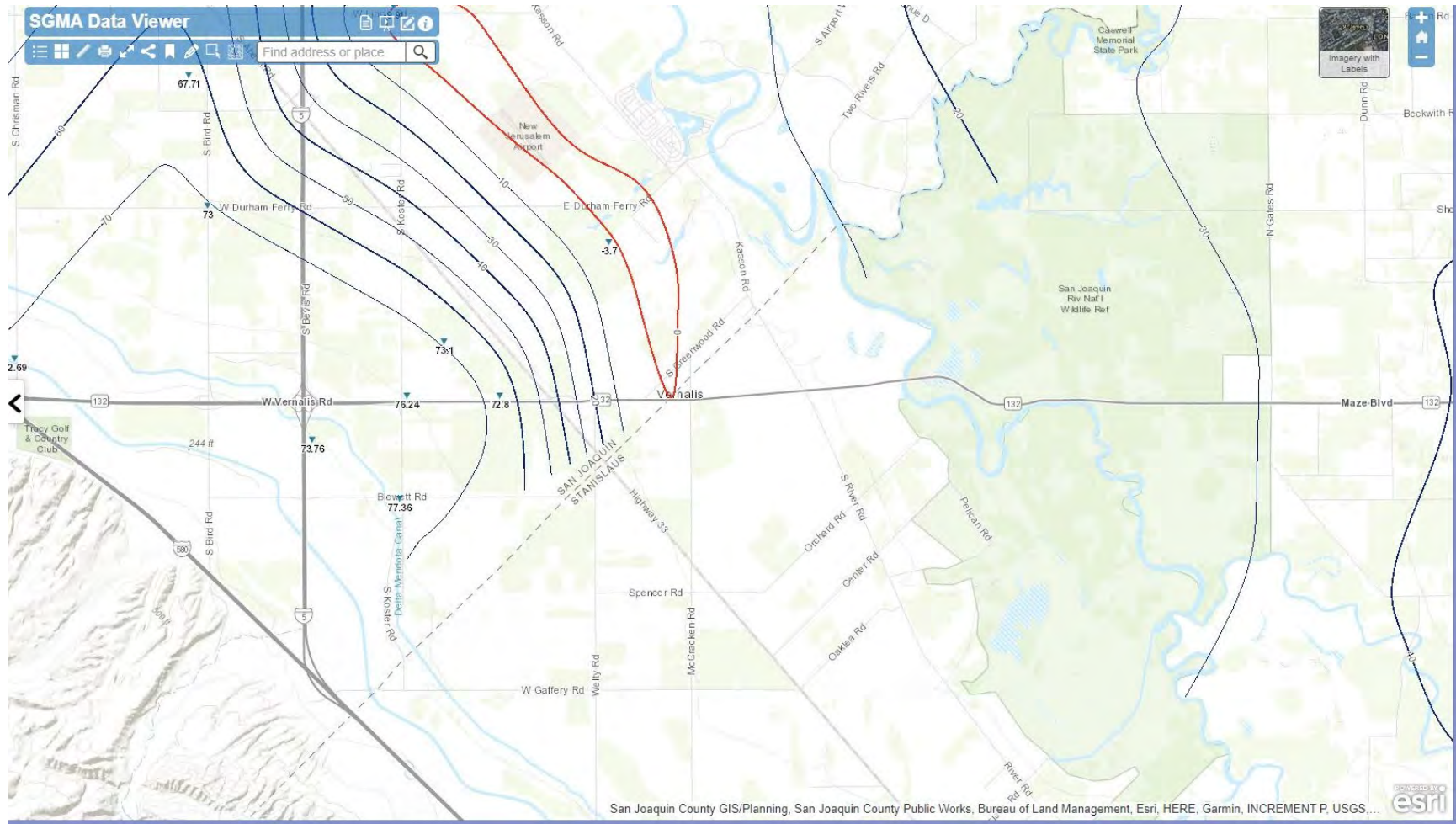


# Spring 2012 Groundwater Elevation

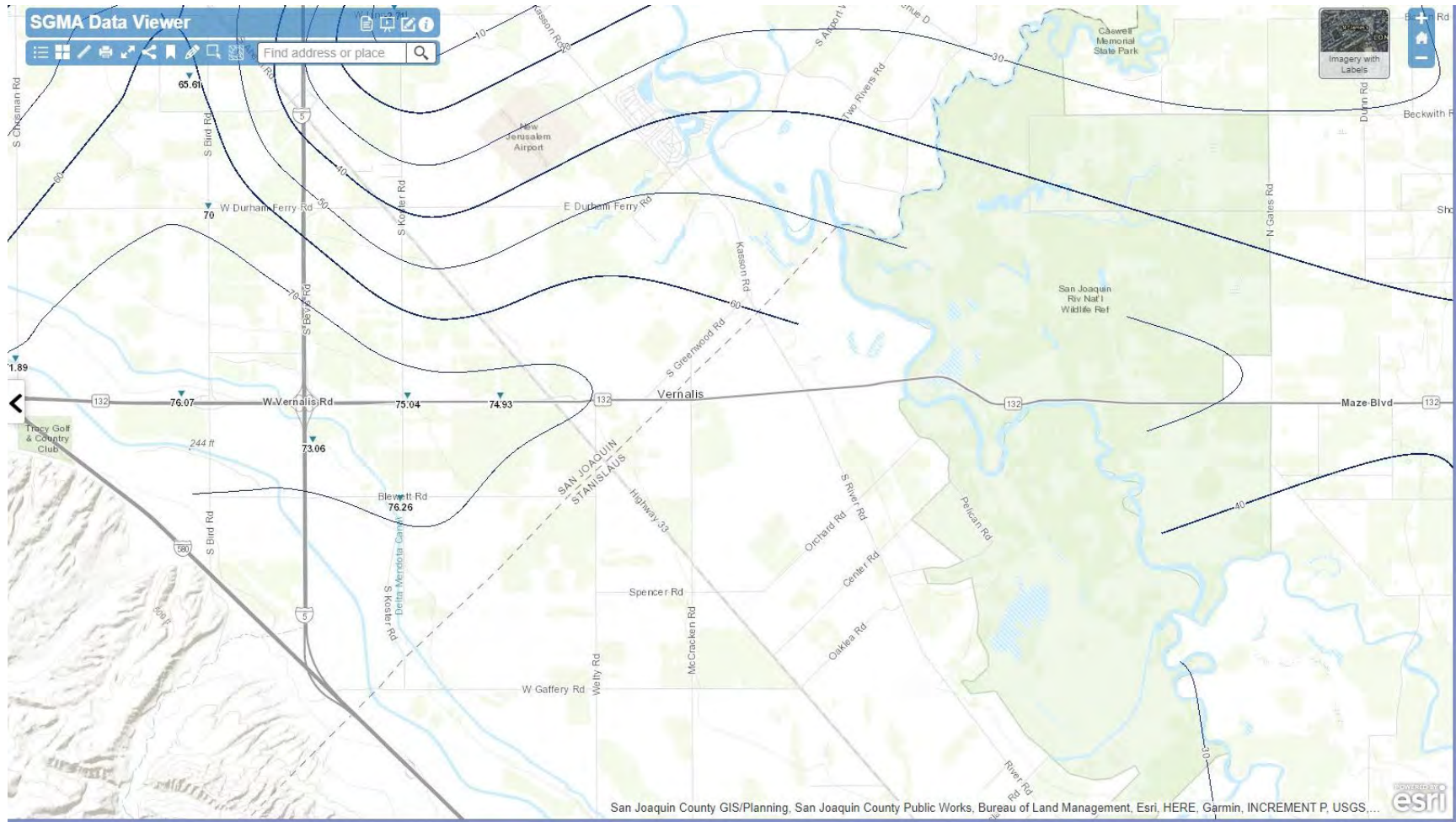




# Spring 2013 Groundwater Elevation

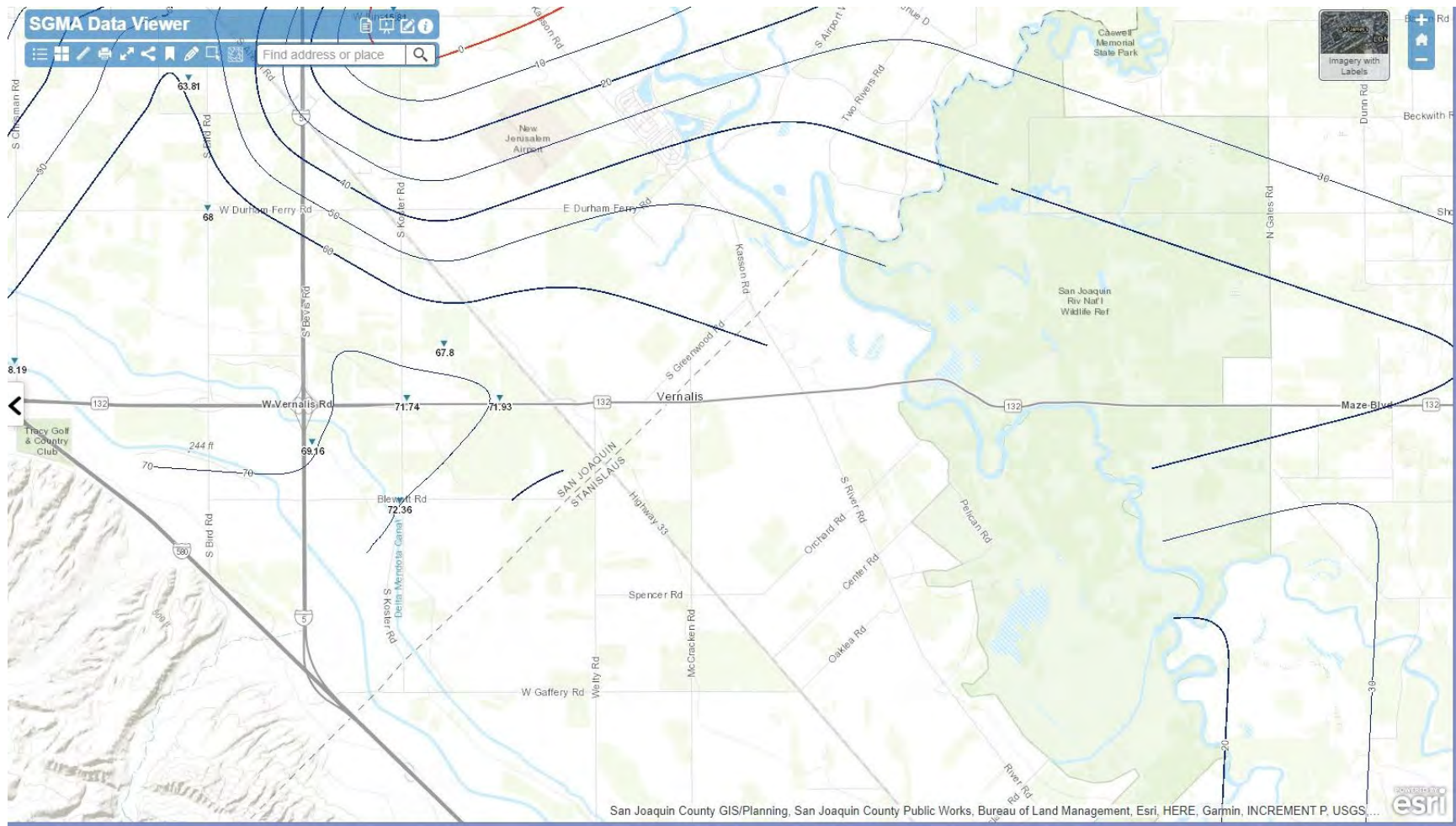


# Spring 2014 Groundwater Elevation



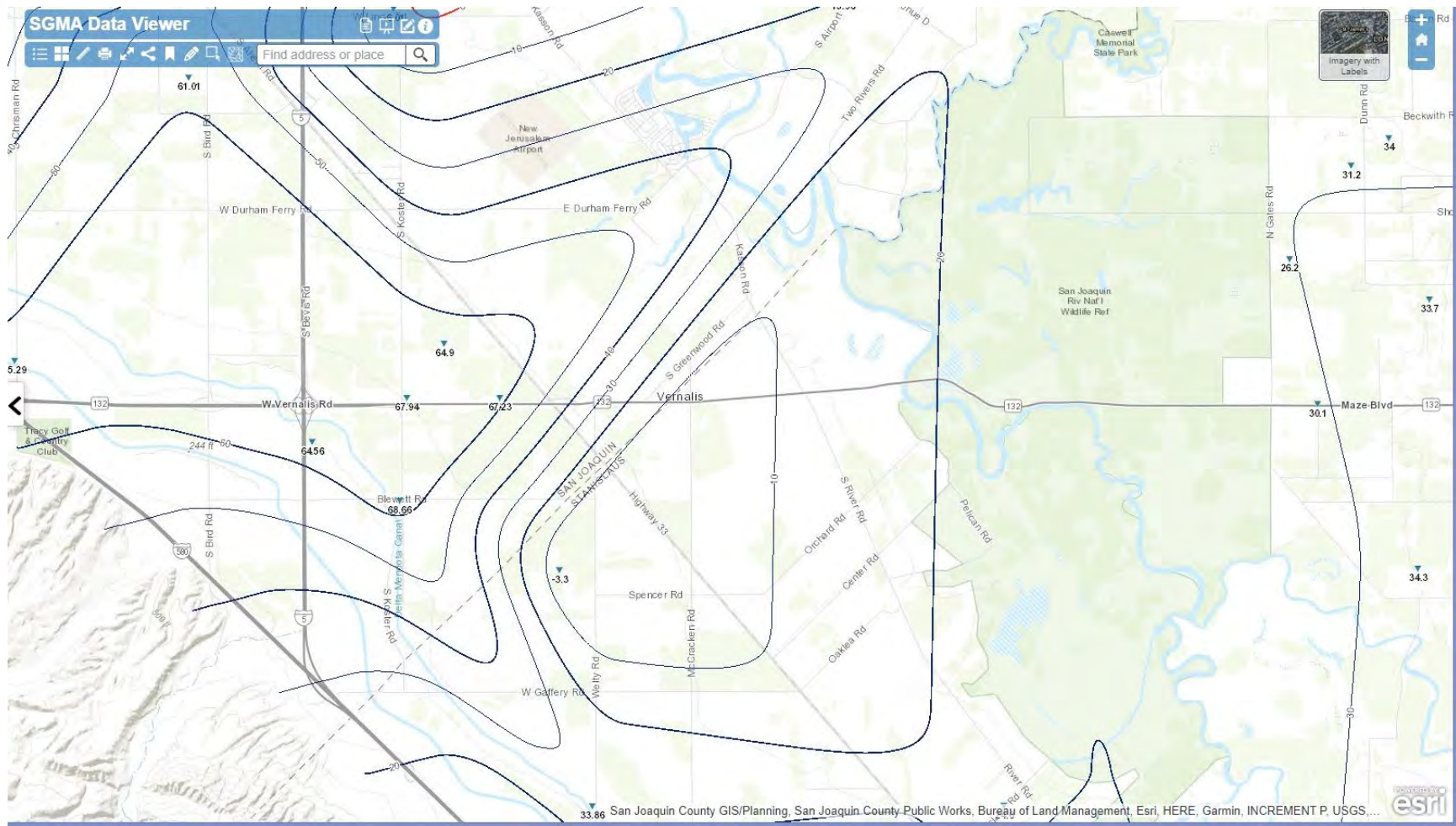


# Spring 2015 Groundwater Elevation

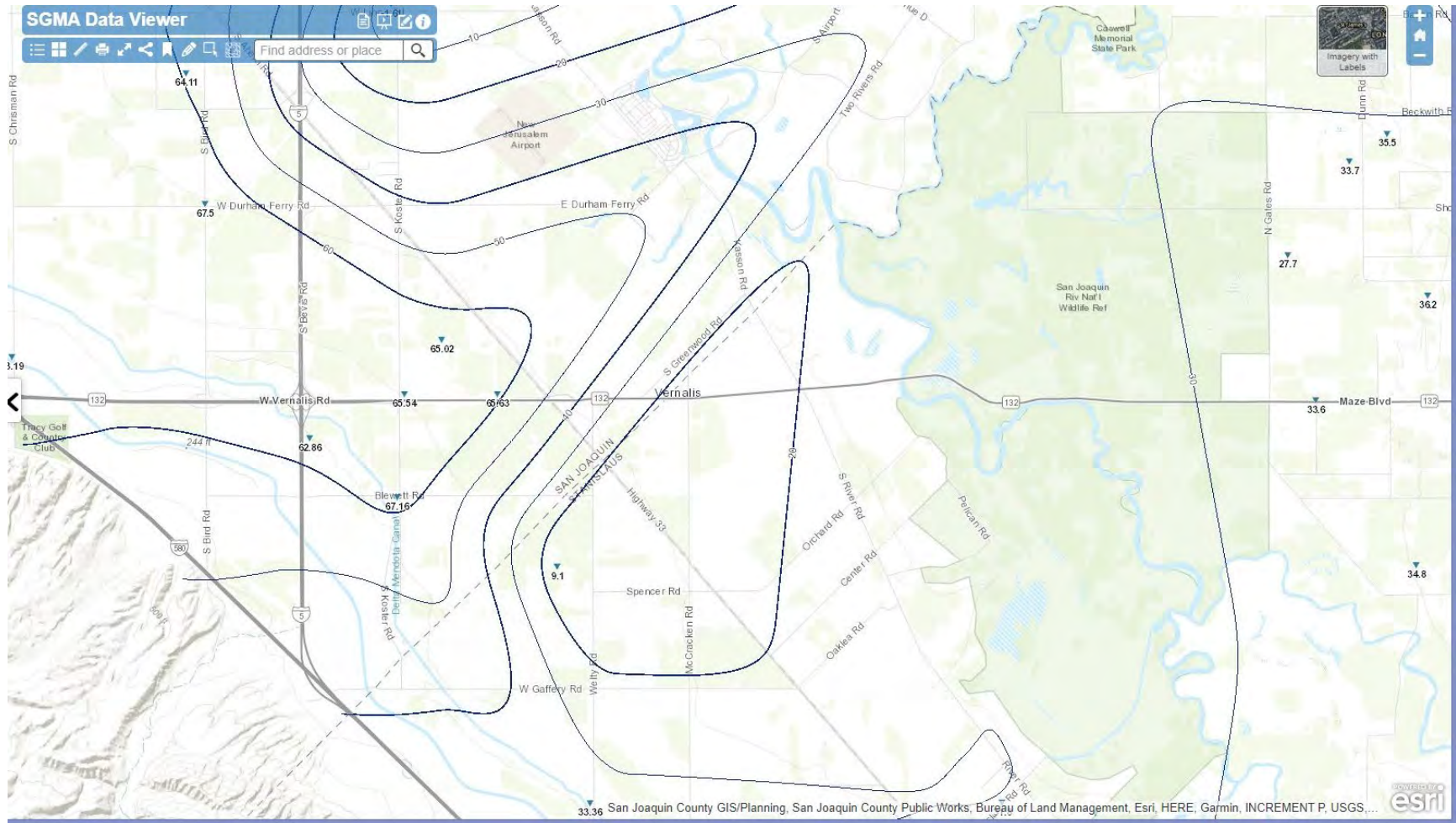




# Spring 2016 Groundwater Elevation

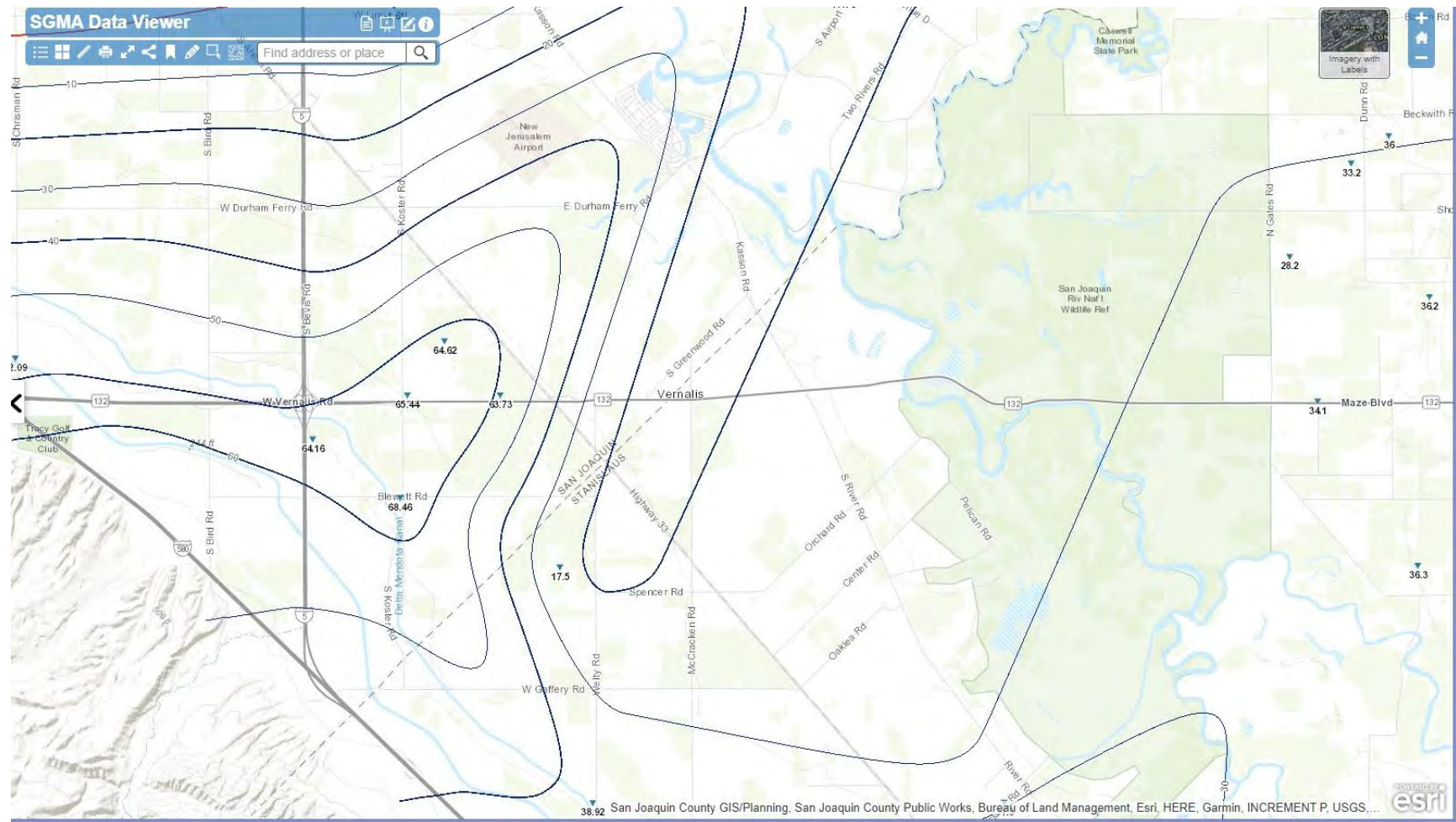


# Spring 2017 Groundwater Elevation



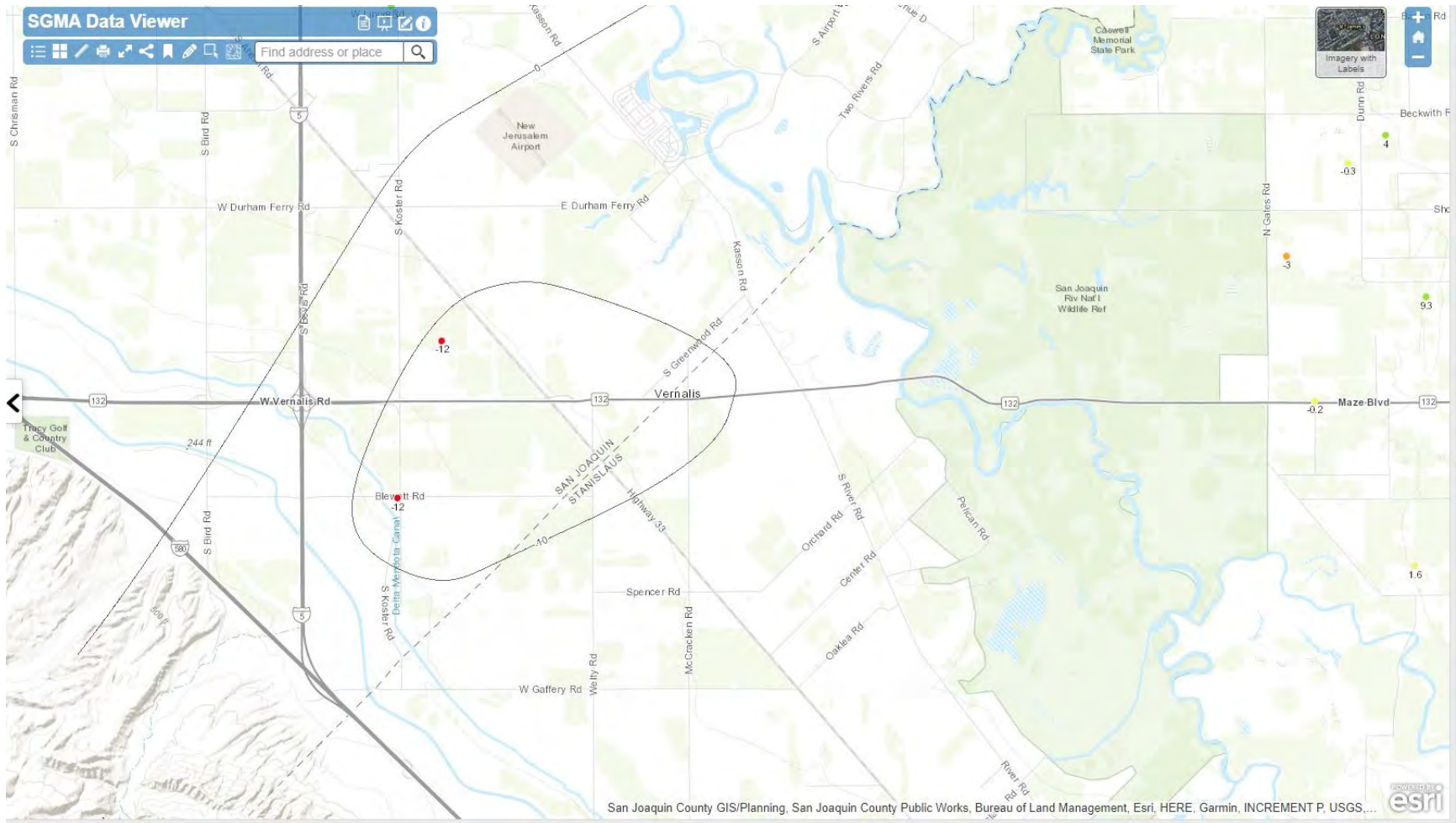


# Spring 2018 Groundwater Elevation





# Groundwater Elevation Change Fall 2008-2018



# Groundwater Elevation Change Spring 2008-2018

