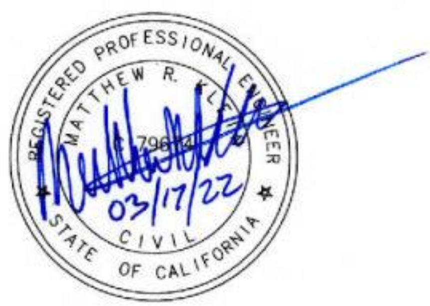
Technical Memorandum

For

Center Grow

Cultivation Operations



Project Name: Center Grow

Project Location: 27084 & 26066 Jerusalem Grade Rd., Lower Lake, CA 95457

Risk Level: Tier 1 Low

Client: Jason Jones

Prepared By: Matthew Klein, CA P.E. 79674, Senior Project Manager

Date: March 11th, 2022

Contents

INTRODUCTION AND PURPOSE

The intent of this hydrology technical memorandum is to analyze the ground water supply for the above-named project in accordance with the Lake County Board of Supervisors Urgency Ordinance 3106 (Ordinance 3106). Requiring land use applicants to provide enhanced water analysis during a declared drought emergency. Ordinance 3106 requires that all projects that require a CEQA analysis of water use include the following items in a Hydrology Report prepared by a licensed professional experienced in water resources:

- Approximate amount of water available for the project's identified water source,
- Approximate recharge rate for the project's identified water source, and
- Cumulative impact of water use to surrounding areas due to the project.

The purpose of this Technical Memorandum (TM) is to provide the information required by Ordinance 3106 for UP 18-32, Center Grow. In addition to the Hydrology Report, Ordinance 3106 requires a Drought Management Plan (DMP) depicting how the applicant proposes to reduce water use during a declared drought emergency.

PROJECT LOCATION

The project is located at 26066 & 27084 Jerusalem Grade Rd., Lower Lake, CA 95457 (APN: 013-017-66 & 013-017-62). The project site is located approximately 4.5-miles East of Hidden Valley Lake.

PROJECT OVERVIEW

Existing Conditions

The existing conditions of the project site is developed, consisting of a single family residence, two sheds, and a well maintained dirt driveway. The site is also heavily vegetated with native grasses, trees and an existing pond. The project site occurs on two parcels with a combined 79.6 acres. Per the Envirostor website, there are no known historic sources of contamination at the site or within 1,000 feet of the project site. The project's proposed cannabis cultivation water source will be an existing well located in the Eastern parcel near the cultivation site. The well has an estimated yield of 37 gpm per the well test conducted by Pollack Pump and Filtration in August 2020. The project site's sheet flow currently flows to the North and East towards Jericho Creek. Stormwater is conveyed through surface runoff and flows across natural vegetation creating a vegetative buffer between discharge area and watercourses. Stormwater discharge at all locations on the site are not considered direct discharges into the creek, as defined by the State Water Board. The property varies in slope, ranging from 0%-30%. The project parcel ranges in elevation from 1,250-1,350 feet above mean sea level (Information derived from Google Earth). The location where cannabis cultivation will occur slopes roughly at 0%-6%. Existing site vegetation, topography, drainage patterns, stormwater conveyance systems, and watercourses are shown on the Overall Site Plan submitted to the County of Lake.

The area that will be utilized for the proposed cannabis operation consists of Skyhigh-Asbill complex. The topsoil consists of clay loam to silty clay and the subsoil horizons consist of clay loam and clay. The Soil Analysis reference for the proposed cultivation area can be found in Appendix B.

Proposed Conditions

The project is proposing 22,000 square feet of mixed-light cannabis cultivation. This project proposes a number of site improvements to ensure that the cultivation site meets all local and state regulations and guidelines. The proposed improvements consist of a security fence, security system, employee parking, trash bins, storage sheds, portable toilets, etc. Plants are to be planted in above ground planter bags or raised planter beds. The limits of the canopy and cultivation area are shown on the Overall Site Plan that was submitted to the County of Lake.

PROJECT WATER DEMAND

The CalCannabis Environmental Impact Report (CDFA, 2017) uses a conservative estimate of 6.0 gpd and assumes that there are approximately 500 plants per acre of canopy and the demand is 3,000 gpd (2.1 gallons per minute [gpm]) per acre of canopy; this use rate is more conservative with the Water Use Management Plan section (Section 12) of the project's Property Management Plan. The total water demand for 0.5 acres of canopy is approximately as follows:

Water Demand Calculations:

- Daily – 1,500 gpd (1.05 gpm)
- Annually (Cultivation Season)
  - i. 120-day cultivation season – 0.56 acre-feet (AF)
    - ➢ Typical for Indoor, Mixed-light, and Auto-flowering plants.
  - ii. 180-day cultivation season – 0.83 acre-feet (AF)
    - ➢ Typical for Outdoor plants.

WATER SOURCE AND SUPPLY

There is one (1) existing permitted groundwater well that will be used for all cultivation activities. The well is located approximately (Lat/Long, 38.824°, -122.428°). The well has a surface elevation of 1,240-feet and is approximately 125 feet deep. A well test and a water analysis were performed by Pollock Pump & Filtration on August 3, 2020 and July 10, 2020 respectively, in which the static water level was at 5-feet below the ground surface prior to pumping, Appendix A. Using USGS topography, the well has initial and static water level elevation of approximately 1,235-feet.

The well was estimated to have a yield of 37 gpm (59.68 acre-feet per year). The potential daily demand of 0.83 gpm represents 2.2% of the well yield and between 0.9%-1.4% of the annual well production in acre-feet.

IRRIGATION AND WATER STORAGE

Irrigation for the cultivation operation will use water supplied by the existing well. The irrigation water would be pumped from the well via PVC piping to (4) 2,500-gallon water storage tanks, totaling 10,000 gallons of water storage and then delivered to a drip irrigation system. The drip lines will be sized to irrigate the cultivation areas at a rate slow enough to maximize absorption and prevent runoff.

GROUNDWATER BASIN INFORMATION AND HYDROGEOLOGY

The well site is located nearest to the Coyote Valley groundwater basin (Basin #5-018). The well is approximately 3 miles Northeast of the basin boundary (Appendix D). Thus, it is likely the well does not draw from the Coyote Valley groundwater basin, but for this report it will be assumed that the well will depend on the Coyote Valley groundwater basin for the site's irrigation. According to the California Department of Water Resources (DWR), the major source of recharge is from Putah Creek. A lesser amount of recharge occurs from precipitation and side-stream runoff. (DWR Bulletin 118).

Coyote Valley is a northwest-southeast trending valley located within the southeastern portion of Lake County along Putah Creek about 4 miles Northeast of Middletown. The valley is approximately 5 miles long and a maximum of 2.5 miles in width. The alluvial plain of the valley is bounded by sediments of the Jurassic-Cretaceous Franciscan-Knoxville groups and undifferentiated Cretaceous rocks on the west and northwest. The south and southeastern part of the valley is nearly isolated by low hills of basalt of Upper Jurassic age. The Plio-Pleistocene Cache Formation out crops along the northern edge of the valley and Plio-Pleistocene basalt out crops are observed at the northeastern valley edge valley (Koenig 1963). Annual precipitation in the valley ranges from 37 to 41 inches, increasing to the north (DWR Bulletin 118).

The Coyoye Valley Basin consists of two water-bearing formations: Quaternary Holocene alluvial deposits and the Pilo-Pleistocene Cache Formation deposits. The Quaternary Holocene alluvial is the primary water-bearing unit. It is made up of floodplain and channel deposits of Putah Creekand gently sloping alluvial fan depostis. The Pilo-Pleistocene Cache Formation outcrops on the northeast edge of Coyote Valley and underlies much of the Holocene alluvium. Groundwater flow through a few coarse sedimentary strata may be appreciable (DWR 1957).

Evaluation of the groundwater levels in the Coyote Valley Basin are shallow in the spring, decrease over the summer, and recover during the winter. Water levels in the basin are between 10 to 15 feet below ground surface on average in the spring. Spring groundwater levels have been generally stable throughout the valley. Spring to summer drawdown of the water table varies by position in the Coyote Valley Basin, with areas in the west experiencing larger drawdown than the rest of the basin. Spring to summer drawdown in the western areas ranges from 20 to 25 feet, and drawdown on the eastern side of the valley ranges from 5 to 10 feet. The general direction of groundwater flow in the Coyote Valley is to the southeast, in the direction of Putah Creek flow. The Department of Water Resources estimated 29,000 acre feet of storage capacity and 7,000 acre feet of useable storage capacity in 1960. Average-year agricultural groundwater demand in the Coyote Valley basin is roughly 670 AF per year.

The Coyote Valley Basin has not been identified by the California Department of Water Resources (SGMA 2019) as a critically overdrafted basin. DWR defines critically overdrafted as, "A basin subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." The California Statewide Groundwater Elevation Monitoring (CASGEM) program was developed by DWR to establish a permanent, locally managed system to monitor groundwater elevation in California's alluvial groundwater basins and subbasins. A statewide ranking system, CASGEM Groundwater Basin Prioritization, was created to prioritize California ground water basins to help assess the need for additional groundwater level monitoring. The rankings for the Groundwater Basin Prioritization are classified into four categories high-priority, medium-priority, low-priority, or very low-priority. The Coyote Valley is ranked as very low-priority basins by the California Department of Water Resources (SGMA 2019).

Recharge Rate

The annual recharge rate can be estimated using a water balance equation, where recharge is equal to precipitation (P) minus runoff (Q) and abstractions that do not contribute to infiltration (e.g., evapotranspiration). The equation that can be used to estimate runoff and abstractions, that uses readily available data, is the Natural Resources Conservation Service (NRCS) Curve Number (CN) Method (NRCS, 1986). Determination of the CN depends on the watershed's soil and cover conditions, cover type, treatment, and hydrologic condition.

The CN Method runoff equation is:

$$Q = \frac{(P - I_a)^2}{(P - I_a) + S}$$

Where:

- Q = runoff (inches)
- P = rainfall (inches)
- S = potential maximum retention after runoff begins (inches) and
- I_a = initial abstraction (inches)

The initial abstraction (I_a) represents all losses before runoff begins, including initial infiltration, surface depression storage, evapotranspiration, and other factors. The initial abstraction is estimated as

$I_a = 0.2 * S$, S is related to soil and cover conditions of the watershed through the CN, determined as $S = \frac{1000}{CN} - 10$. Using these relations, the runoff equation becomes:

$$Q = \frac{(P - 0.2 * S)^2}{(P + 0.8 * S)}$$

The CN is estimated based on hydrologic soil group (HSG), cover type, condition, and land use over the area of recharge. The area of recharge being an estimate of the area that Coyote Valley Basin Watershed contributes to the well. The well has a depth of 125-feet and a static water level elevation 1,235-feet, measured when the well was tested on August 3, 2020. The surface elevations of the Coyote Valley Basin Watershed range between a maximum of 1,400-feet and a minimum of 1,100-feet at the outlet. Due to the proximity of the observed well being nearest to the Coyote Valley groundwater basin, it is assumed that the project will affect the Coyote Valley groundwater basin. To be conservative a localized area of approximately 373 acres is assumed as the recharge area for the observed well, shown on the Watershed Area Map, Appendix D.

The recharge area soils are classified using the NRCS Web Soil Survey. The different classifications of the recharge soils are classified into four Hydrologic Soil Groups (HSGs) A, B, C, and D. The HSGs are used to determine the soil's ability to infiltrate water. HSG A has the highest infiltration potential and HSG D has the lowest infiltration potential. The project's site recharge area is considered HSG D. The site is undeveloped with a cover type of brush and is in fair condition (50% to 75% ground cover) and has a CN of 84.

The PRISM Climate Group gathers climate observations from a wide range of monitoring networks and provides time series values of precipitation for individual locations (https://prism.oregonstate.edu/explorer/). Using the annual precipitation from 1895 to 2020, as predicted by PRISM, the annual average precipitation over this period is 34.41 inches and the minimum precipitation over this period is 6.43 inches (Appendix C).

Using the above information, and assuming that 50% of the initial abstraction infiltrates and the remainder is evapotranspiration (0.19 inches or 5.92 AF), the estimated annual recharge over the recharge area of 373 acres is 62 AF during an average year and 51 AF during a dry year (Table 1).

Table 1. Estimated annual recharge over the recharge area of the project's well.

	Recharge Area (acres)	P (inches)	CN	S (inches)	I_a (inches)	Q (inches)	Recharge = $P - Q - 0.5*I_a$ (inches)	Recharge (AF)
Min	373	6.43	84	1.9	0.38	4.60	1.64	50.95
Avg	373	34.41	84	1.9	0.38	32.23	1.99	61.99

CUMULATIVE IMPACT TO SURROUNDING AREAS

The Coyote Valley Basin groundwater is accumulated from rain that falls within the 10 square mile and from Putah Creek (DWR). Coyote Valley Basin estimated storage capacity is 29,000 AF and has a usable storage capacity of 7,000 AF. Coyote Valley Basin is not considered a critically overdrafted basin according to the California Department of Water Resources (SGMA 2019). The proposed Center Grow project's annual water demand could change depending on the length of the cultivation season. The demand is estimated to be 0.56 to 0.83 AF per year, or approximately 1.3% and 1.6% of the annual recharge during an average and dry year, respectively. Center Grow would need approximately 0.23 inches of rainfall to infiltrate into the recharge area shown in Appendix D, to satisfy its demand. Thus, there is sufficient recharge, on an annual basis, to meet the project's demand.

The Lake County Groundwater Management Plan (Table 3-1), states that there are 86 domestic wells, 17 irrigation wells, 5 municipal wells, 6 monitoring wells, and 13 others wells in in the Coyote Valley Basin. The groundwater demand from agriculture in an average year is 4,073 AF (Table 2-5). The demand from additional proposed cannabis cultivation projects in the Coyote Valley Basin is not included in the Lake County Groundwater Management Plan, so the total additional proposed cannabis cultivation is unknown. It will be assumed that new cannabis cultivation could add an additional 15 to 25 acres to the Coyote Valley Basin. This additional agricultural demand of the groundwater could increase by 45 AF. With the addition of these new cultivations and the proposed Center Grow project, the annual groundwater demand could increase up to 46 AF of the leftover usable storage capacity of the Coyote Valley Basin. Therefore, the proposed project water use would have little to no cumulative impact on the agricultural groundwater demand.

QUALIFICATIONS OF AUTHOR

I am a registered Professional Engineer with the State of California with 5-years of experience practicing Water Resources Engineering.

LIMITATIONS

North Bay Civil Consulting is not responsible for the independent conclusions, recommendations, or opinions made by other individuals or agencies based on the well test, research data, topographic mapping, site visit, and interpretations presented in this report.

Hydrogeologic interpretations are based on the drillers' reports which are made available to us through the California department of water resources (DWR), existing geological maps, hydrogeologic findings and professional assessment. This analysis is based on limited hydrogeologic data and therefore relies extensively on individual interpretation of data.

In addition, the passage of time may result in environmental changes, impacting the characteristics at this site and surrounding properties. This report does not guard against future operations or conditions, nor does this allow for operations or conditions present of a type or at a location not investigated.

This report is for the exclusive use of Center Grow, their affiliates, designates and assignees. No other party shall have any right to rely on any service provided by North Bay Civil Consulting without prior written consent.

REFERENCES

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APPENDIX A: Well Report & Test

POLLACK PUMP & Filtration

Box 5169 HCR, Middletown CA 95461 — 987-0917/1-800-233-7992

Name KYLE GENTNER Phone 2934224
Address 20084 [illegible] City lower lake
State CA Zip ______ Order # 4112

WATER ANALYSIS

Hardness (lime) .... ______ gpg
Iron (rust) .... ______ ppm
Ph (acid) .... ______ gpm
Gal Per Min ....37+.............. ______
Well Depth ....125'.............. ______
Casing Size ....8" plastic.............. ______
Static Level:
Before Pumping ....6', 21hrs.............. ______
After Pumping ....5'.............. ______
Number of Persons in Family .... ______
Water Supply: Municipal ☐ Private Well ☒

RECOMMENDATIONS

Install pressure system (2 tanks) to avoid over pressurizing system @ 3850 — completed [illegible]

COMMENTS

1½ Std 230v 2wire pump
on generator

[signature]

Kyle Geitner

From: jackpollack42@gmail.com
Sent: Monday, August 3, 2020 5:42 PM
To: Kyle Geitner
Subject: Well test

29084 Jerusalem grade we conducted a 2 hour well testing with results as follows
Static level before test 5’
Pumped we’ll for 2 hours @ 37-40 gpm
Static level after 2 hours of pumping @ 37-40 gpm still 5 ‘
You have yourself a very good well I’m my opinion Mr Genitner
Thank You!
Jack
We checked the static level as you requested when we put you water flow meter on 21/2 weeks after and it was still @ 5’

Sent from my iPhone

APPENDIX B: NRCS Soil Survey Results

United States Department of Agriculture

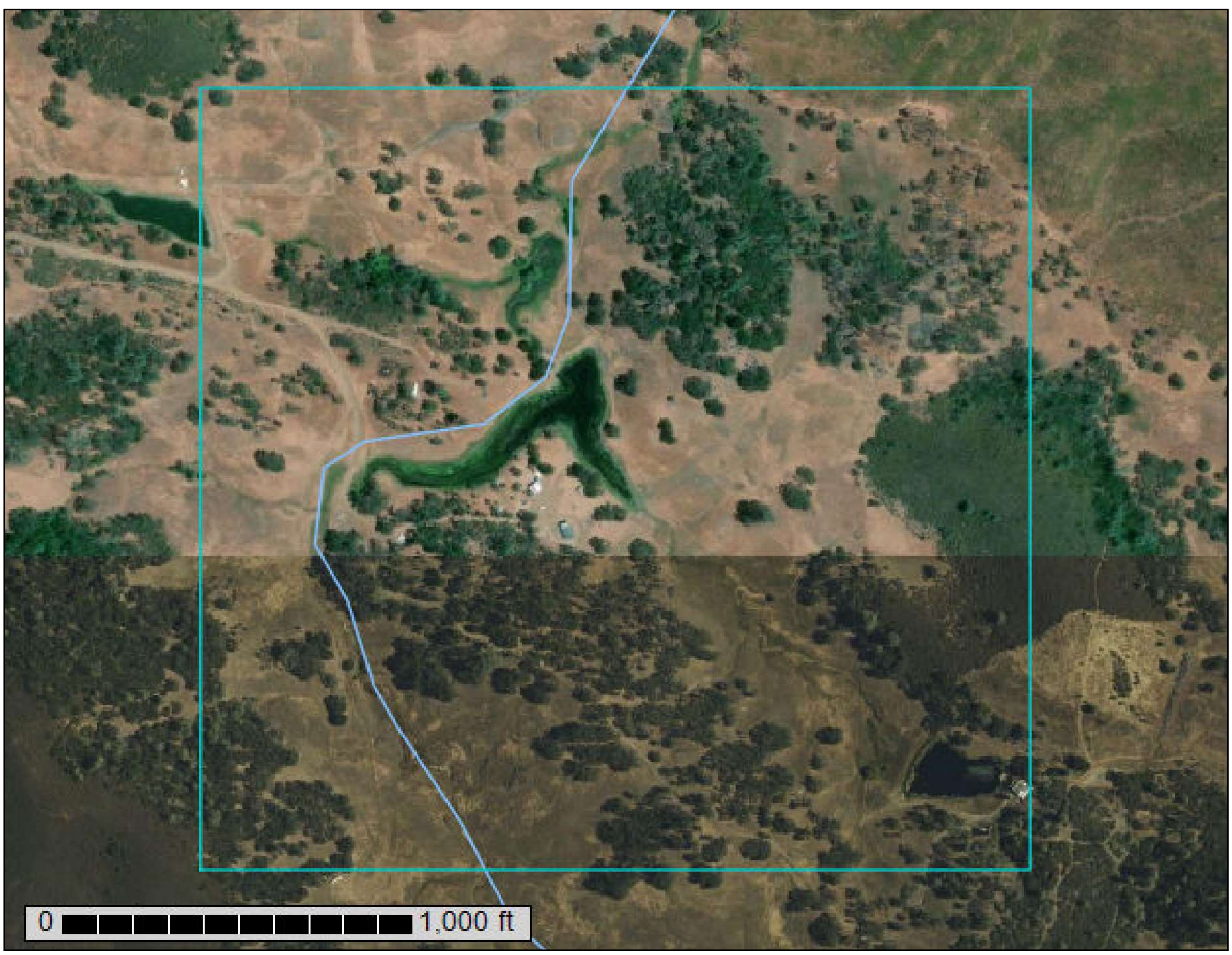
NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for

Lake County, California



March 11, 2022

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

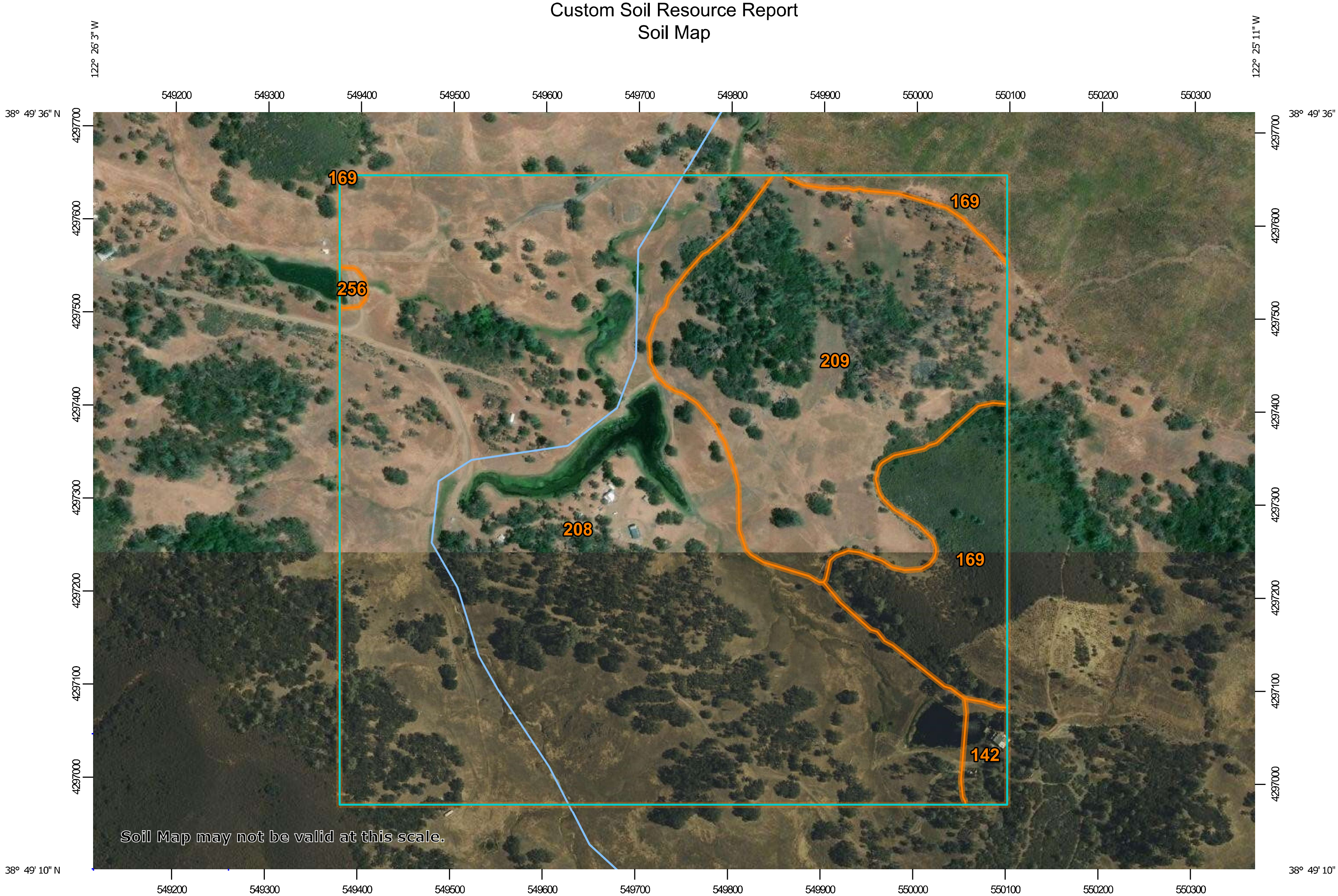
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Soil Map



Map Scale: 1:5,730 if printed on A landscape (11" x 8.5") sheet.

N

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lake County, California
Survey Area Data: Version 18, Sep 6, 2021

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

Date(s) aerial images were photographed: Sep 18, 2016—Jul 5, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
142	Henneke-Montara-Rock outcrop complex, 10 to 50 percent slopes, MLRA 15	1.3	1.0%
169	Maymen-Etsel-Snook complex, 30 to 75 percent slopes	11.0	9.1%
208	Skyhigh-Asbill complex, 15 to 50 percent slopes	80.9	66.9%
209	Skyhigh-Millsholm loams, 15 to 50 percent slopes	27.5	22.7%
256	Water	0.3	0.2%
Totals for Area of Interest		**120.9**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Lake County, California

142—Henneke-Montara-Rock outcrop complex, 10 to 50 percent slopes, MLRA 15

Map Unit Setting

National map unit symbol: 2xcb0
Elevation: 1,000 to 3,250 feet
Mean annual precipitation: 26 to 52 inches
Mean annual air temperature: 57 to 60 degrees F
Frost-free period: 212 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Henneke and similar soils: 40 percent
Montara and similar soils: 30 percent
Rock outcrop: 16 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Henneke

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from serpentinite

Typical profile

A - 0 to 3 inches: gravelly loam
Bt1 - 3 to 11 inches: gravelly clay loam
Bt2 - 11 to 16 inches: very gravelly clay
Bt3 - 16 to 19 inches: very gravelly clay
R - 19 to 29 inches: bedrock

Properties and qualities

Slope: 10 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.2 to 0.5 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D

Ecological site: F015XY010CA - Hills >40"ppt
Hydric soil rating: No

Description of Montara

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from serpentinite

Typical profile

A - 0 to 6 inches: clay loam
Bt - 6 to 12 inches: clay loam
R - 12 to 16 inches: bedrock

Properties and qualities

Slope: 10 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.2 to 0.5 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F015XY010CA - Hills >40"ppt
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Free face
Down-slope shape: Convex
Across-slope shape: Convex

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: F015XY015CA - Loamy Mountains >40"ppt
Hydric soil rating: No

Minor Components

Dubakella

Percent of map unit: 5 percent
Landform: Hillslopes

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Okiota

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Maxwell

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Millsholm

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

169—Maymen-Etsel-Snook complex, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: 2y4jn
Elevation: 1,970 to 3,310 feet
Mean annual precipitation: 74 to 83 inches
Mean annual air temperature: 54 to 55 degrees F
Frost-free period: 221 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Maymen and similar soils: 35 percent
Snook and similar soils: 25 percent
Etsel and similar soils: 25 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maymen

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Colluvium derived from sandstone and shale and/or residuum weathered from sandstone and shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 11 inches: loam
Bw - 11 to 17 inches: loam
R - 17 to 27 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: F015XY015CA - Loamy Mountains >40"ppt
Hydric soil rating: No

Description of Snook

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone and shale and/or residuum weathered from sandstone and shale

Typical profile

A - 0 to 6 inches: loam
R - 6 to 16 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: F015XY015CA - Loamy Mountains >40"ppt
Hydric soil rating: No

Description of Etsel

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone and shale and/or residuum weathered from sandstone and shale

Typical profile

A - 0 to 5 inches: gravelly sandy loam
C - 5 to 14 inches: very gravelly loam
R - 14 to 24 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 4 to 14 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F015XY015CA - Loamy Mountains >40"ppt
Hydric soil rating: No

Minor Components

Wohly

Percent of map unit: 4 percent
Landform: Mountains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

Gube

Percent of map unit: 4 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Hopland

Percent of map unit: 4 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

208—Skyhigh-Asbill complex, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: hf85
Elevation: 1,200 to 2,500 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 160 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Skyhigh and similar soils: 50 percent
Asbill and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Skyhigh

Setting

Landform: Hills

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Concave, convex
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 2 inches: loam
H2 - 2 to 8 inches: clay loam
H3 - 8 to 38 inches: clay
H4 - 38 to 48 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 38 to 42 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R015XF006CA - Steep Clayey Hills
Hydric soil rating: No

Description of Asbill

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from shale and siltstone

Typical profile

H1 - 0 to 13 inches: clay loam
H2 - 13 to 39 inches: silty clay
H3 - 39 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 39 to 43 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R015XY009CA - Hills 20-40"ppt
Hydric soil rating: No

Minor Components

Sleeper

Percent of map unit: 10 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

209—Skyhigh-Millsholm loams, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: hf86
Elevation: 300 to 3,700 feet
Mean annual precipitation: 12 to 50 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 130 to 330 days
Farmland classification: Not prime farmland

Map Unit Composition

Skyhigh and similar soils: 45 percent
Millsholm and similar soils: 25 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Skyhigh

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Concave, convex
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 2 inches: loam
H2 - 2 to 8 inches: clay loam
H3 - 8 to 38 inches: clay
H4 - 38 to 48 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 38 to 42 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R015XF006CA - Steep Clayey Hills
Hydric soil rating: No

Description of Millsholm

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, concave
Across-slope shape: Convex
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 16 inches: clay loam
H3 - 16 to 26 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 16 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R015XY009CA - Hills 20-40"ppt
Hydric soil rating: No

Minor Components

Bressa

Percent of map unit: 10 percent

Hydric soil rating: No

Etsel

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

Asbill

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

Hopland

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

Unnamed

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

Sleeper

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

Maymen

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

256—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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APPENDIX C: Prism Climate Precipitation

PRISM Time Series Data
Location: Lat: 38.8240   Lon: -122.4280   Elev: 1591ft
Climate variable: ppt
Spatial resolution: 4km
Period: 1895 - 2020
Dataset: AN81m
PRISM day definition: 24 hours ending at 1200 UTC on the day shown
Grid Cell Interpolation: Off
Time series generated: 2022-Mar-11
Details: http://www.prism.oregonstate.edu/documents/PRISM_datasets.pdf

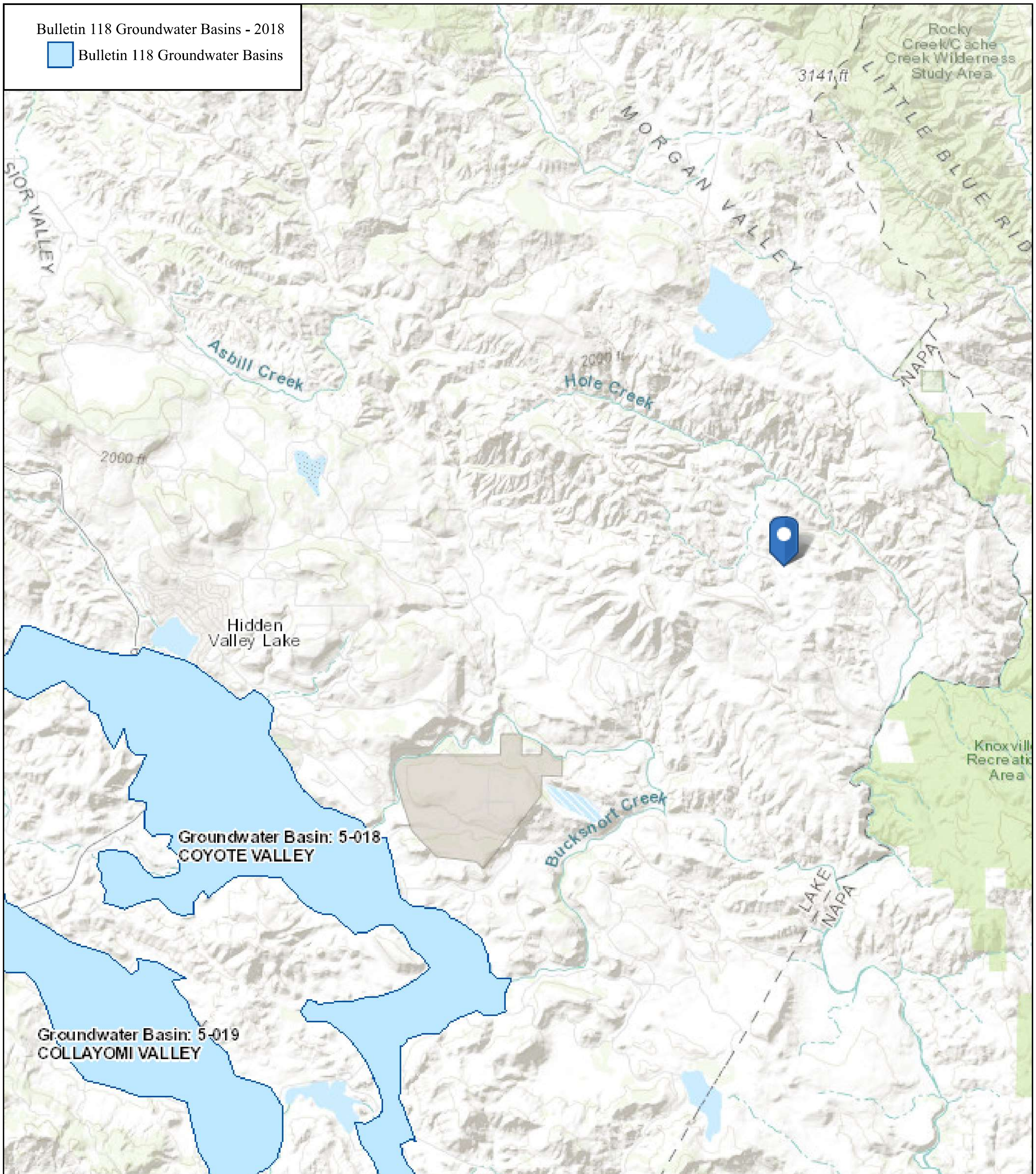
Date	ppt (inches)
1895	41.62
1896	47.26
1897	30.34
1898	18.65
1899	43.98
1900	29.58
1901	32.19
1902	43.09
1903	32.87
1904	53.8
1905	27.29
1906	52.28
1907	44.01
1908	22.41
1909	57
1910	21.57
1911	39.88
1912	26.64
1913	32.96
1914	39.54
1915	46.66
1916	38.6
1917	19.63
1918	27.31
1919	30.18
1920	35.61
1921	30.19
1922	36.69
1923	17.83
1924	25.28
1925	31.91
1926	41.1
1927	37.7
1928	26.9
1929	20.86
1930	21.06

	ppt (inches)
Minimum:	6.43
Average:	34.41
Maximum:	74.99

1931	31.87
1932	16.5
1933	27.73
1934	23.25
1935	30.45
1936	32.9
1937	42.46
1938	38.47
1939	17
1940	59.57
1941	55.61
1942	41.91
1943	27.33
1944	33.96
1945	37.91
1946	17.98
1947	21.4
1948	28.99
1949	21.02
1950	42.26
1951	35.75
1952	42.96
1953	27.47
1954	37.24
1955	35.03
1956	30.08
1957	39.42
1958	44.06
1959	26.41
1960	36.76
1961	26.16
1962	36.44
1963	38
1964	35.21
1965	31.73
1966	31.7
1967	37.94
1968	37.87
1969	47.05
1970	50.51
1971	23.59
1972	26.08
1973	52.05
1974	32.1
1975	33.39
1976	11.61
1977	25.53

1978	38.33
1979	43.33
1980	33.45
1981	41.94
1982	49.82
1983	74.99
1984	24.54
1985	22.53
1986	45.96
1987	32.13
1988	22.02
1989	22.28
1990	17.96
1991	29.16
1992	35.91
1993	41.09
1994	25.14
1995	62.84
1996	50.36
1997	33.5
1998	54.72
1999	28.91
2000	32.96
2001	40.9
2002	34.95
2003	36.33
2004	36.31
2005	47.44
2006	39.99
2007	19.21
2008	26.36
2009	25.3
2010	46.47
2011	29.76
2012	43.91
2013	6.43
2014	35.2
2015	16.56
2016	41.77
2017	50.33
2018	27.8
2019	50.3
2020	11.83

APPENDIX D: Maps



0 1 2mi

N W E S

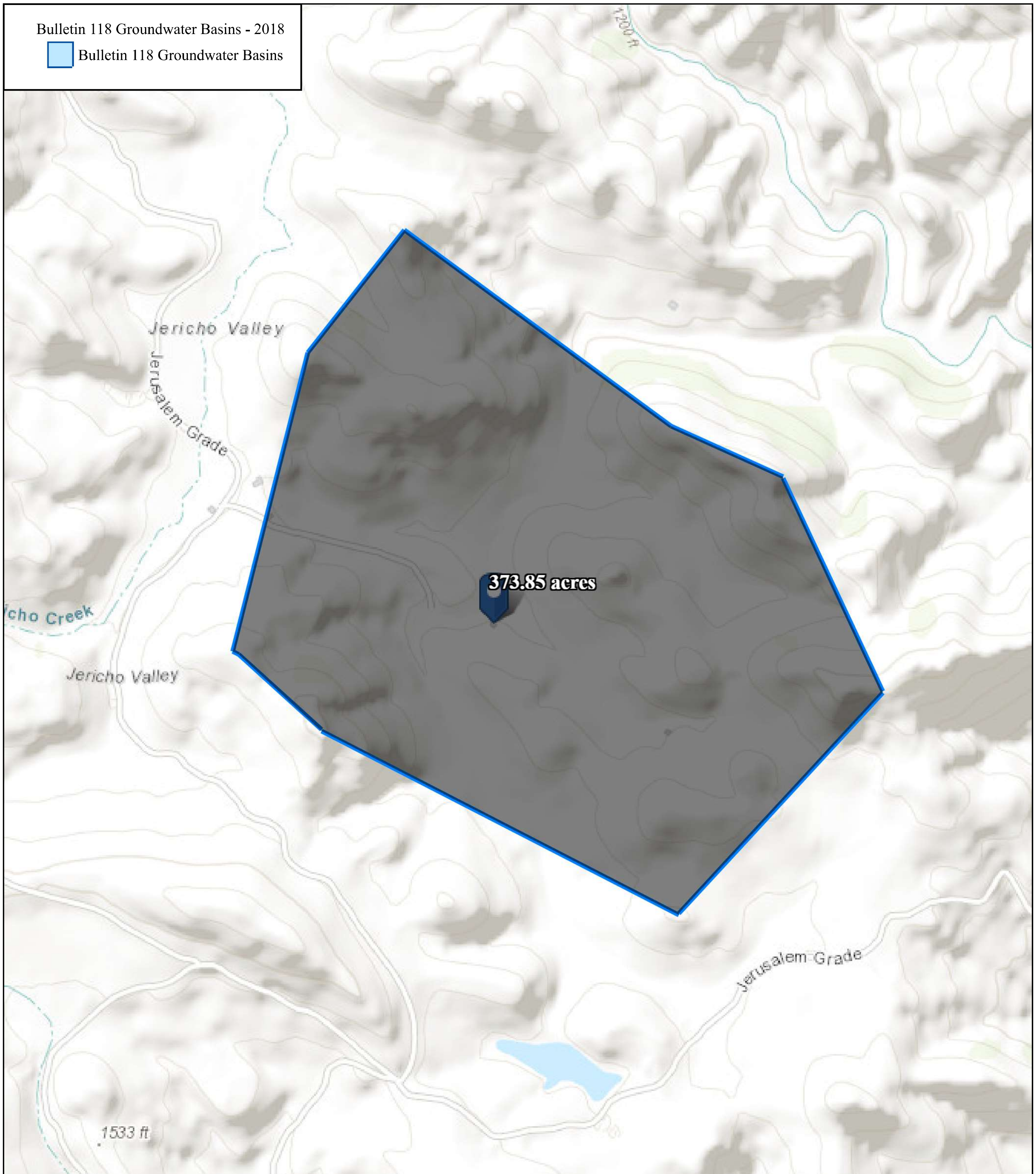
Datum: WGS 1984
Projection: Mercator Auxiliary
Zone:
Units: Mile
Source:

Groundwater Basin Map

Project Location:
27084 Jerusalem Grade Rd.
Lower Lake, CA 95457

NORTH BAY CIVIL CONSULTING

Prepared	MK	Figure:	001
Job No.:	20-022	Date:	3/11/2022
File:			



Datum: WGS 1984
Projection: Mercator Auxiliary
Zone:
Units: Mile
Source:

Watershed Area Map

Project Location:
27084 Jerusalem Grade Rd.
Lower Lake, CA 95457

NORTH BAY CIVIL CONSULTING

Prepared	MK	Figure: 002	
Job No.:	20-022	Date: 03/11/2022	
File:			