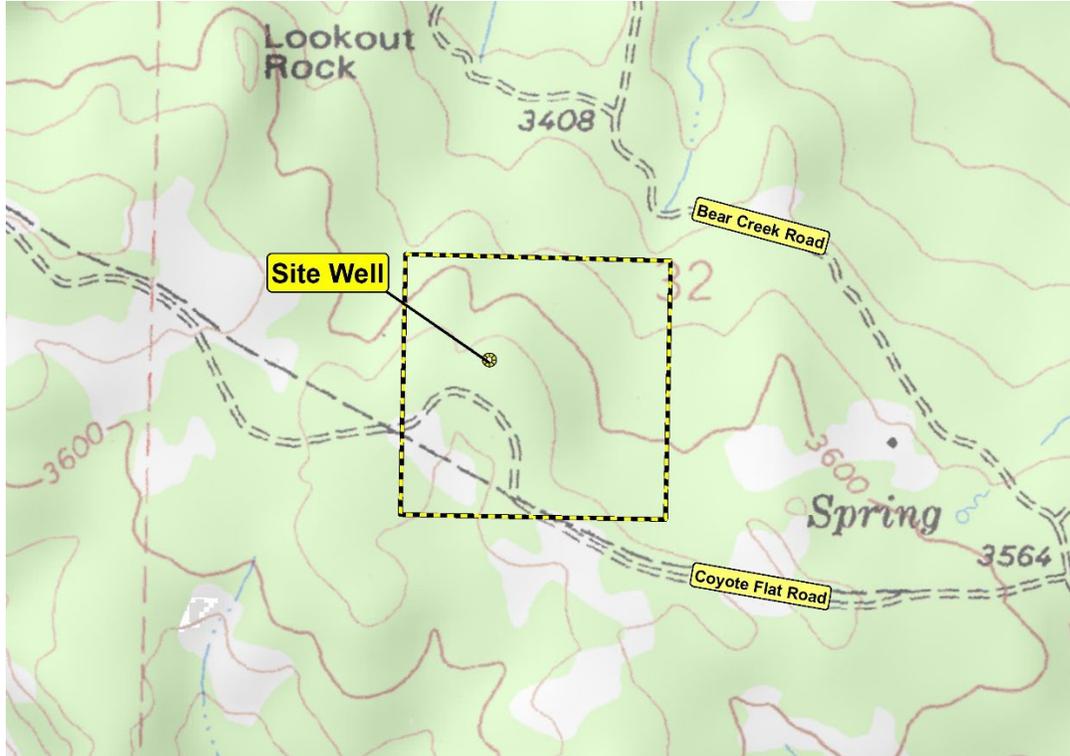


**REVISED WELL CONNECTION REPORT  
(APN 208-271-011)  
HUMBOLDT COUNTY, CALIFORNIA**



Prepared for:

Gold Rush Farms  
PO Box 96  
Bridgeville, CA

December 7, 2023

Prepared by:

Stan Thiesen and Orrin Plocher  
Freshwater Job Number: 142



**Freshwater Environmental Services**

Sunny Brae Center  
Arcata, California 95521  
Phone (707) 839-0091

## PROFESSIONAL CERTIFICATION

This report has been prepared by Freshwater Environmental Services under the professional supervision of Stan Thiesen. The findings, recommendations, specifications and/or professional opinions presented in this report have been prepared in accordance with generally accepted professional hydrogeologic and environmental consulting practices, and within the scope of the project. There is no other warranty, either express or implied.



Stan Thiesen  
P.G. No. 7990  
Geologist  
**Freshwater Environmental Services**

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## **LIST OF ATTACHMENTS**

Site Well Completion Report

NRCS Web Soil Survey Map Unit 4426 and 4433 Descriptions

## INTRODUCTION

Freshwater Environmental Services (Freshwater) has prepared this Revised Well Connection Report for Humboldt County APN 208-271-011 (the Site) as shown on Figures 1 and 2. The Site is located approximately 1.8 miles northeast of Dinsmore, CA. This report was revised because the initial report dated August 7, 2023 was based on water usage volumes that were less than the actual proposed usage. This report is based on the “*Minimum Contents of Well Connection Report*” document provided by the Humboldt County Planning Department.

### 1.0 PROJECT DESCRIPTION

The location of the Site Well is shown on Figures 1, 2, and 3. The Site Well is operational and is the primary water source. The Site owner provided the following estimate of proposed well usage for domestic use and cannabis cultivation for the Site Well.

#### Site Well

<b>Proposed Well Usage</b>		<b>Units</b>
Planned discharge rate	~2	gpm
Daily pumping duration	0 to ~6	hours
<b>Estimated Monthly Volume</b>		<b>Units</b>
January	0	gallons
February	3,000	gallons
March	5,000	gallons
April	10,000	gallons
May	15,000	gallons
June	20,000	gallons
July	25,000	gallons
August	20,000	gallons
September	15,000	gallons
October	10,000	gallons
November	3,000	gallons
December	3,000	gallons
<b>Annual Total</b>	<b>129,000</b>	<b>gallons</b>

The following table shows the average gallons pumped per day and average hours per day for each month based on a pumping rate of 2 gallons per minute for the Site Well.

### Site Well

Month	Estimated Monthly Volume	Units	Estimated Pumping Rate Gallons per Minute	Average Gallons Pumped per Day	Average Well Usage Hours per Day
January	0	gallons	2	0	0.00
February	3,000	gallons	2	107	0.89
March	5,000	gallons	2	161	1.34
April	10,000	gallons	2	333	2.78
May	15,000	gallons	2	484	4.03
June	20,000	gallons	2	667	5.56
July	25,000	gallons	2	806	6.72
August	20,000	gallons	2	645	5.38
September	15,000	gallons	2	500	4.17
October	10,000	gallons	2	323	2.69
November	3,000	gallons	2	100	0.83
December	3,000	gallons	2	97	0.81
<b>Annual Total</b>	<b>129,000</b>	<b>gallons</b>			

The following table shows recharge calculations based on an estimated recharge area of approximately 2.5 acres for the Site Well as shown on Figure 8. The average annual precipitation of approximately 71 inches is based on GIS data for 1981 to 2010 from the PRISM Climate Group at Oregon State University [<https://www.prism.oregonstate.edu>].

### Site Well

Recharge Calculations		Units
Recharge Area (estimated)	2.5	acres
Average Annual Precipitation	71	inches
Average Annual Precipitation	5.92	feet
Annual Precipitation Volume	14.79	acre/feet
Annual Precipitation Volume	4,819,879	gallons
Estimated Volume After 25% Loss to Surface Runoff	3,614,910	gallons
Estimated Annual Use	129,000	gallons
Percent of Precipitation Volume Used After 25% Loss to Surface Runoff	3.57%	percent

## 2.0 SITE DESCRIPTION

Freshwater Professional Geologist Stan Thiesen visited the Site on July 28, 2023. The Site was accessed from the graded gravel Bear Creek Road that begins just east of the Dinsmore Store and continuing on Coyote Flat Road to the Site. The Site Well is located in the west-central portion of APN: 208-271-011. Most of the Site is forested with oak trees and brush. No paved areas were observed.

APN: 208-271-011 includes approximately 41.07 acres and ranges in elevation from approximately 3,500 feet in the northeast portion to approximately 3,680 in the southwest portion as shown on Figure 2. The Site Well is approximately 1,150 feet southwest of the upper end of an unnamed intermittent stream shown on the Showers Mountain, USGS 7.5-minute topographic quadrangle (Figure 3). The intermittent stream drains into the Mad River approximately 6,500 feet northeast of the Site. The Site Well is located on a northeast-trending gentle slope.

There are no known seeps, springs, or wetlands shown within 1,000 feet from the Site on the topographic map. The location of a spring approximately 2,500 feet from the Site is shown on Figure 3.

The nearest well to the Site Well in the California Department of Water Resources (DWR) Online System for Well Completion Reports (OSWCR) is approximately 3,400 feet northwest of the Site Well as shown on Figure 3. This well (WCR Number: WCR2016-003524) was drilled by Fisch Drilling in May 2016. The total depth is approximately 195 feet below ground surface (bgs) with a screened interval of approximately 20 to 195 feet bgs. The driller estimated the yield at 12 gallons per minute with a static water level of approximately 48 feet bgs. This well is not in the same drainage as the Site Well.

### 3.0 REGIONAL AND LOCAL GEOLOGY

The Site lies within the Coast Range Geologic Province, Central Belt of the Franciscan Complex based on U.S. Geological Survey, *Open-File Report 2012-1228, Digital Geologic Map of the Redding 1° x 2° Quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California, Luis A. Fraticelli, John P. Albers, William P. Irwin, Milton C. Blake, Jr, and Carl M. Wentworth.*

The underlying rocks within the Central Belt were formed between approximately 23 to 153 million years ago. Most of the rocks within the Site originated as sediments deposited offshore and later pushed up onto the continent.

The Site is shown on the USGS geologic map as underlain by melange matrix (ctmm) and described on the map legend as:

ctmm – melange matrix

Chiefly sheared argillite and lithic sandstone or graywacke with some interbedded green tuff. Includes scattered high-grade blueschist, eclogite, and amphibolite blocks.

No rock outcrops were observed in the vicinity of the Site Well during the Site visit. Rocks exposed in the vicinity of the Site Well appeared to be consistent with the USGS map description of sandstone or graywacke. The sheared nature of the bedrock and matrix of fine-grained sediments suggest a low potential for hydrologic connectivity with surface waters.

The nearest fault zoned as active (within the last approximately 11,000 years) under the Alquist-Priolo Earthquake Fault Zoning Act, is approximately 19.5 miles to the west of the Site near Carlotta as shown on the *State of California Special Studies Zones, Hydesville Quadrangle, 1993.*

#### 4.0 HYDROGEOLOGICAL CONCEPTUAL MODEL

The Site Well is located within the melange matrix (ctmm) geologic unit as described in Section 3. The driller’s description in the Well Completion Report is generally consistent with the melange matrix unit shown on the 2012 USGS map (Figure 4). The table below lists the driller’s description and our interpretation. The driller’s description of Top Soil (0 to 2 feet bgs) is consistent with topsoil. The driller’s description of Brown Sandstone (2 to 18 feet bgs) is consistent with the sandstone/graywacke component of the melange matrix. The driller’s description of Sandstone Shale Mix (18 to 140 feet bgs) is consistent with the sandstone/graywacke/argillite component of the melange matrix.

#### Site Well

Depth (feet bgs)		Depth (feet bgs)	Driller’s Description from Well Completion Report	Freshwater Interpretation of Drillers Description
0	to	2	Top Soil	topsoil
2	to	18	Brown Sandstone	sandstone/graywacke
18	to	140	Sandstone Shale Mix	graywacke and argillite

We consider the Site Well to be likely screened in an unconfined aquifer based on the driller’s description of the materials encountered although the fine-grained shale/argillite could function as an aquitard at various depths in the well. The driller’s description of well materials did not provide enough detail to determine if aquitards and/or aquicludes were present.

The extent of the aquifer is unknown but is likely limited by the fine-grained sediments in the melange matrix and by the drainage divides shown on Figure 7. The likely limited extent of the aquifer indicates a low potential for hydrologic connectivity with surface waters.

The Natural Resources Conservation Services (NRCS) Web Soil Survey shows that the Site Well and estimated recharge area are within the 4433-Pasturerock-Maneze-Coyoterock complex, 5 to 30 percent slopes (Figure 9). The saturated hydraulic conductivity (Ksat) of map unit 4433 is “*Moderately low to moderately high (0.06 to 0.60 in/hr)*”. Some precipitation events at the Site likely exceed the Ksat of 0.06 to 0.60 inches per hour. We used a conservative estimate of a 25 percent loss to surface runoff when estimating groundwater recharge.

## 5.0 DESCRIPTION OF WELL

The Site Well (Figures 1, 2, and 3) is located in the west-central portion of APN 208-271-011 at an elevation of approximately 3,680 feet. The Site Well is located approximately 150 feet north of the main access road. The Site Well was drilled between June 10 and June 16, 2015 by C-57-licensed Fisch Drilling based in Hydesville, CA.

The 10-inch diameter borehole was drilled to a total depth of 140 feet bgs. Blank 5-inch diameter PVC casing was installed from 0 to 40 feet bgs. The well is screened from 40 to 140 feet bgs with 5-inch diameter PCV casing with milled 0.0032-inch slots. The annular material from 20 to 140 feet bgs is 3/8 inch pea gravel. The well was constructed with a bentonite sanitary seal from 0 to 20 feet bgs. The area around the well appears to be well drained so there is unlikely to be significant surface runoff impact to the well.

The driller performed an air lift pump test on June 16, 2015 at the time the well was drilled. The static water level was reportedly 20 feet bgs. The driller reported a total drawdown during the pump test of 136 feet on the Well Completion Report. The driller estimated the yield of the well at 8 gallons per minute which may not be representative of a wells long term yield as stated on the Well Completion Report form.

Air lift pump tests are used by drillers because they can be performed with the drilling equipment used for drilling the well at the time of drilling. Although the air lift test is very basic, a driller with extensive local experience may be able to provide a reasonable estimate of well yield. No other pump tests have reportedly been performed after the well was completed.

## **6.0 DEVIATION FROM GUIDELINES**

We have used a published regional geologic map, Site topography, the well driller's descriptions, published estimates and records of precipitation, published soil survey descriptions, and Site observations for this report. This report has addressed the items listed in the "*Minimum Contents of Well Connection Report.*"

## 7.0 CONCLUSIONS

Based on the data presented in this report and summarized below we consider it to be unlikely that the Site Well is hydrologically connected to the nearest wells, streams, springs, wetlands, and seeps.

- The distance to the nearest well is approximately 3,400 feet to the northwest (Figure 3) and the well is located in a different drainage than the Site Well;
- The distance to the nearest spring shown on the USGS Showers Mountain 7.5-Minute quadrangle is approximately 2,500 feet to the east-southeast (Figure 3) and the spring is located in a different drainage than the Site Well;
- The distance to the nearest intermittent stream shown on the USGS Showers Mountain 7.5-Minute quadrangle is approximately 1,150 feet as shown on Figure 3;
- The Site Well was constructed with a 20-foot sanitary seal that prevents surface water from entering the well;
- The aquifer is likely unconfined based on the materials encountered during well installation (attached Well Completion Report) which suggests that it is locally recharged as opposed to confined aquifers that may be recharged at significant distances;
- The aquifer is likely limited in extent because the bedrock consists of a melange matrix which includes blocks of sandstone in a matrix of sheared fine-grained sediments;
- The aquifer is likely laterally limited by the drainage area as shown on Figure 7; and
- The estimated annual volume of groundwater withdrawal is significantly less than 4 percent of the estimated annual recharge of approximately 3.6 million gallons based on a recharge area of approximately 2.5 acres and a 25 percent loss to surface runoff as shown on Figure 8.

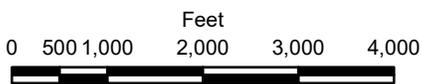
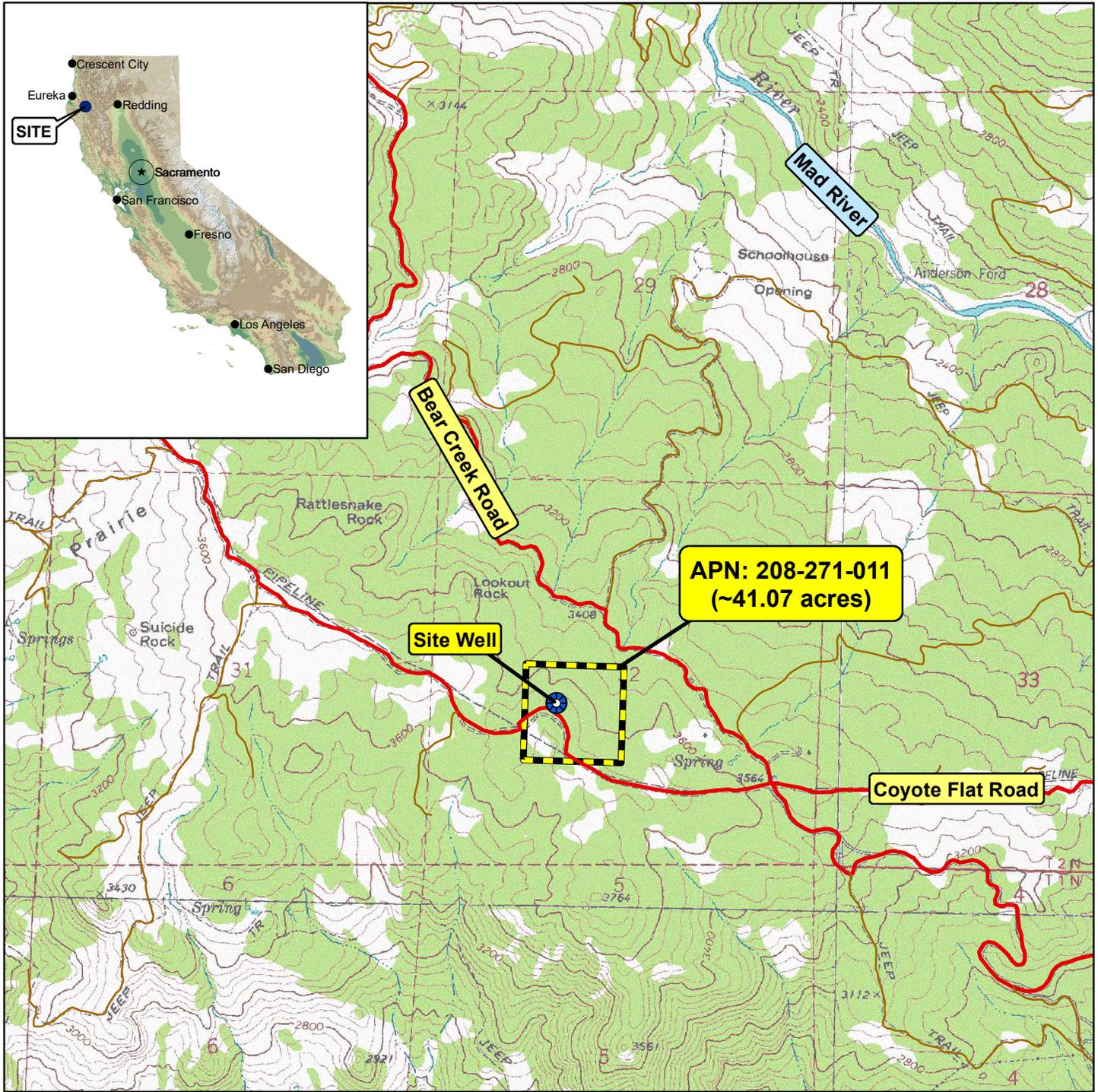
## 8.0 REFERENCES

Charles W. Jennings and William A. Bryant, 2010. *Fault Activity Map of California*, GIS shapefiles obtained from California Geological Survey website.

PRISM Climate Group, Oregon State University, *Precipitation data from 1981 through 2010*, <https://prism.oregonstate.edu>.

U.S. Geological Survey, Open-File Report 2012-1228, *Digital Geologic Map of the Redding 1° x 2° Quadrangle, Shasta, Tehama, Humboldt, and Trinity Counties, California*, Luis A. Fraticelli, John P. Albers, William P. Irwin, Milton C. Blake, Jr, and Carl M. Wentworth.

U.S. Geological Survey, *Showers Mountain 7.5 Minute Quadrangle*.



**LEGEND**

Base Image Data Source:  
1:24,000 Digital Raster Graph Mosaic of  
Humboldt County, California.

ALL LOCATIONS APPROXIMATE

Revised Well Connection Report  
Humboldt County APN: 208-271-011

Figure 1  
Site Location Map  
Humboldt County  
APN: 208-271-011

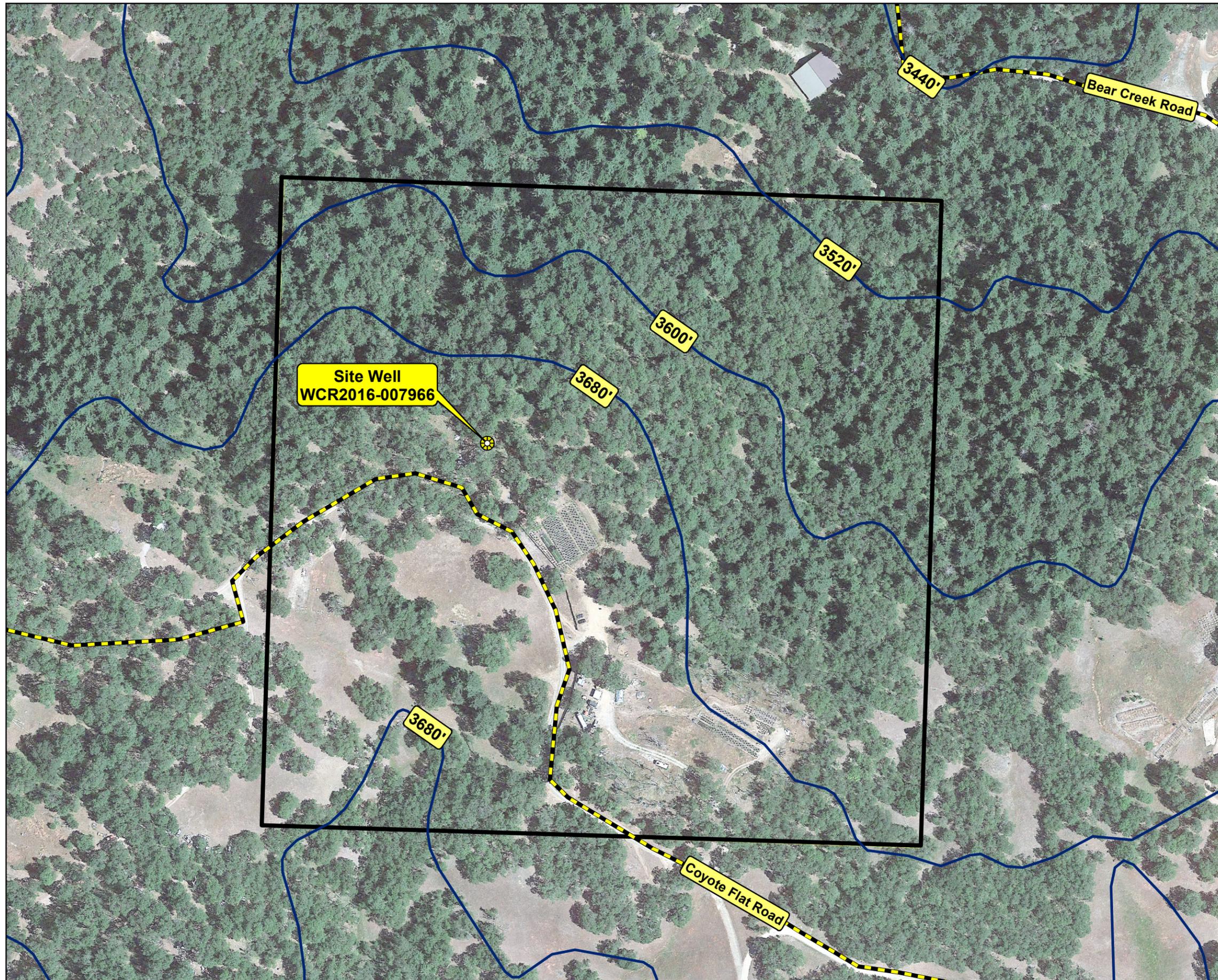


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Project No.  
FES-142

Figure Date  
12-7-23

By  
SJT

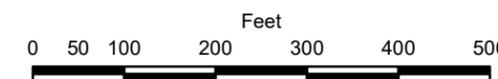


**LEGEND**

- APN: 208-271-011  
(from Humboldt County GIS)
- Site Well
- Roads
- Elevation Contours (80-foot interval)

Base Image Data Source:  
Google Earth Pro: 7-29-22

ALL LOCATIONS APPROXIMATE



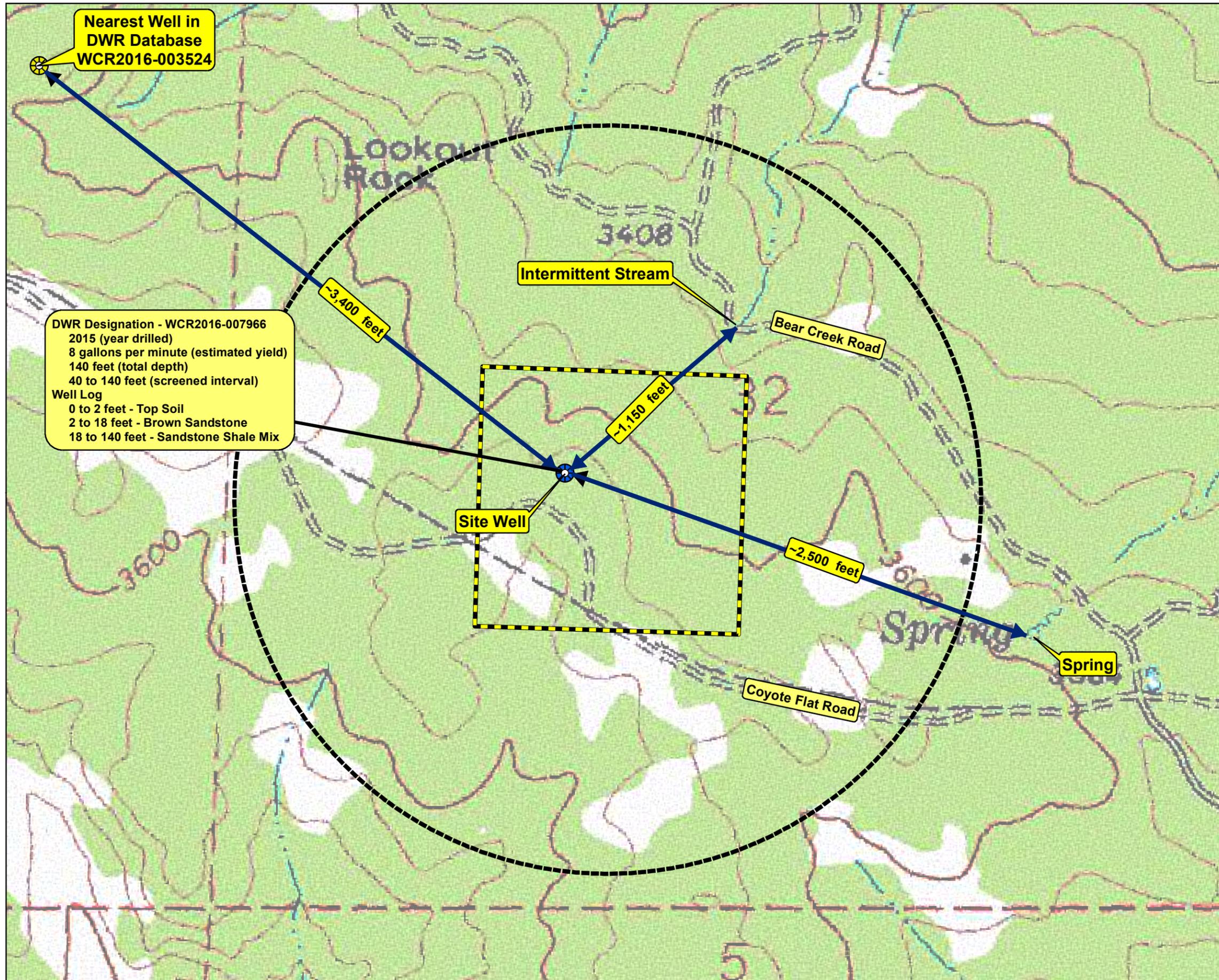
Revised Well Connection Report  
Humboldt County APN: 208-271-011

Figure 2  
Site Plan  
with Elevation Contours  
2022 Aerial Photograph

Project No. FES-142	Figure Date 12-7-23	By SJT
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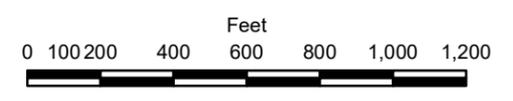


**LEGEND**

- APN: 208-271-011  
(from Humboldt County GIS)
- Site Well
- Nearest Well

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Humboldt County, California

ALL LOCATIONS APPROXIMATE



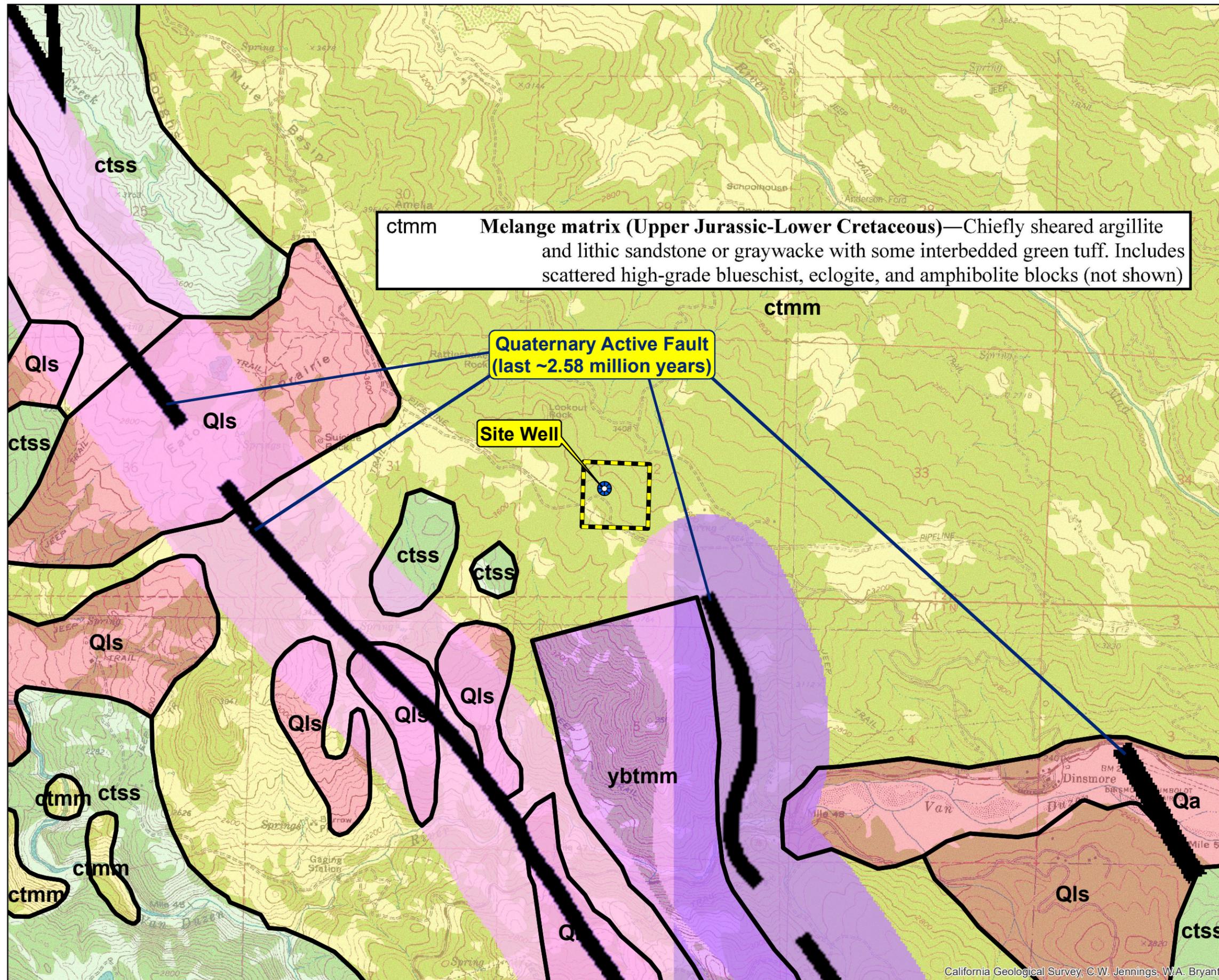
Revised Well Connection Report  
Humboldt County APN: 208-271-011

**Figure 3**  
Nearest Well in DWR Database  
Nearest Intermittent Stream  
Nearest Spring

Project No. FES-142	Figure Date 12-7-23	By SJT
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**Services**



**LEGEND**

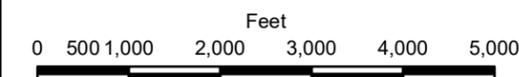
APN: 208-271-011  
(from Humboldt County GIS)

Site Well

Base Image Data Source:  
U.S. Geological Survey  
Open-File Report 2012-1228  
Digital Geologic Map of the Redding  
1° x 2° Quadrangle, Shasta, Tehama,  
Humboldt, and Trinity Counties, California  
Luis A. Fraticelli, John P. Albers,  
William P. Irwin, Milton C. Blake, Jr,  
and Carl M. Wentworth.

Fault Locations and age from  
California Geological Survey  
Digital Fault Activity Map of California

ALL LOCATIONS APPROXIMATE



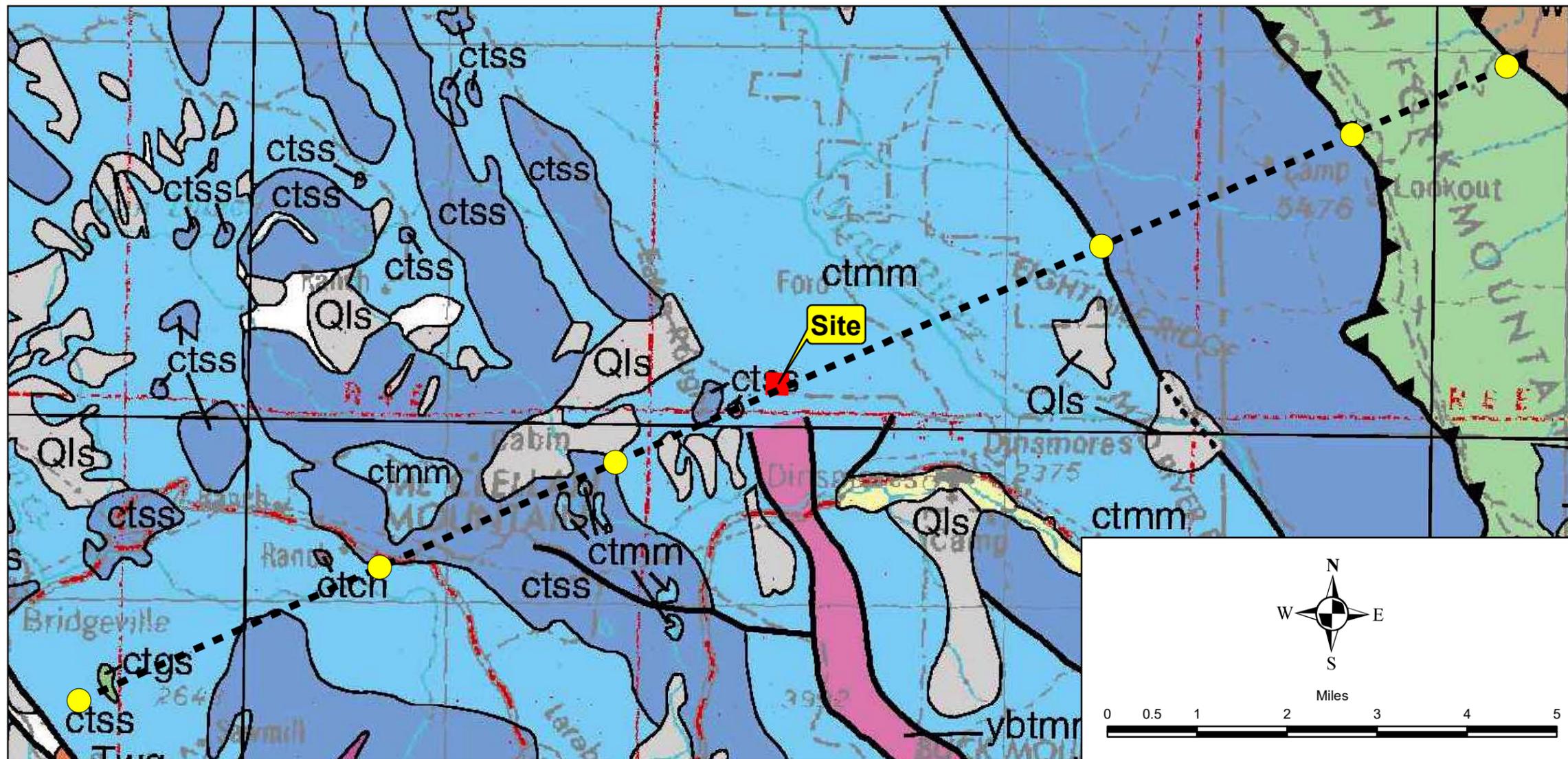
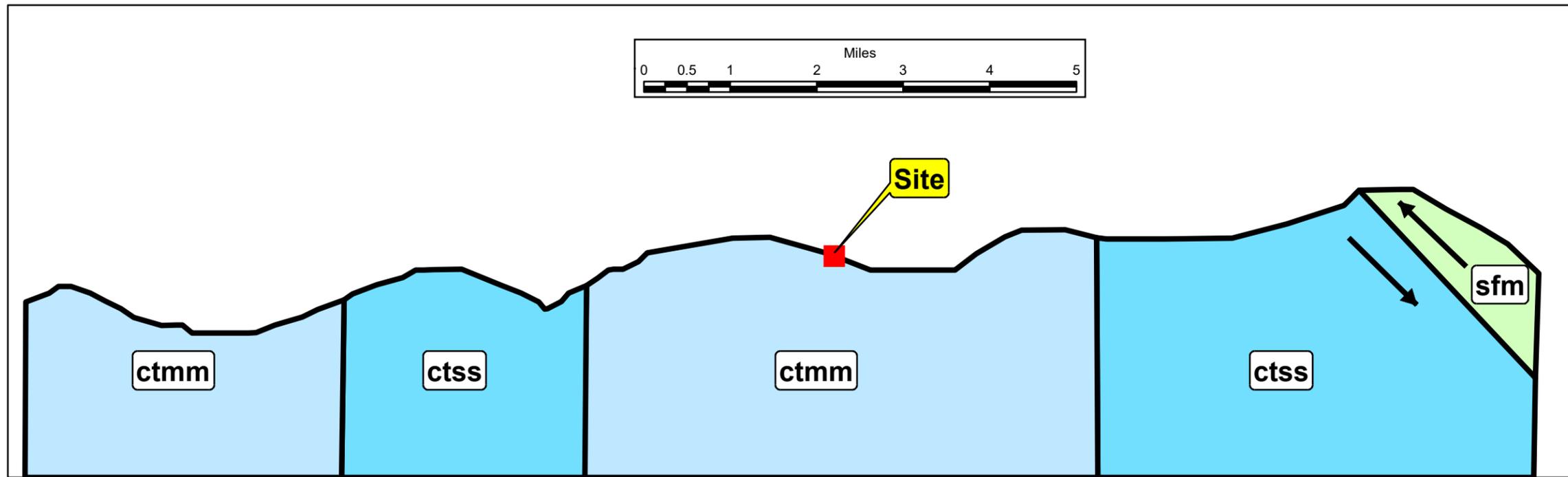
Revised Well Connection Report  
Humboldt County APN: 208-271-011

Figure 4  
Geologic Map  
U.S. Geological Survey  
Open-File Report 2012-1228

Project No. FES-142	Figure Date 12-7-23	By SJT
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**LEGEND**

■ APN: 208-271-011  
(from Humboldt County GIS)

Base Image Data Source:  
U.S. Geological Survey  
Open-File Report 2012-1228  
Digital Geologic Map of the Redding  
1° x 2° Quadrangle, Shasta, Tehama,  
Humboldt, and Trinity Counties, California  
Luis A. Fraticelli, John P. Albers,  
William P. Irwin, Milton C. Blake, Jr,  
and Carl M. Wentworth.

ALL LOCATIONS APPROXIMATE

Revised Well Connection Report  
Humboldt County APN: 208-271-011

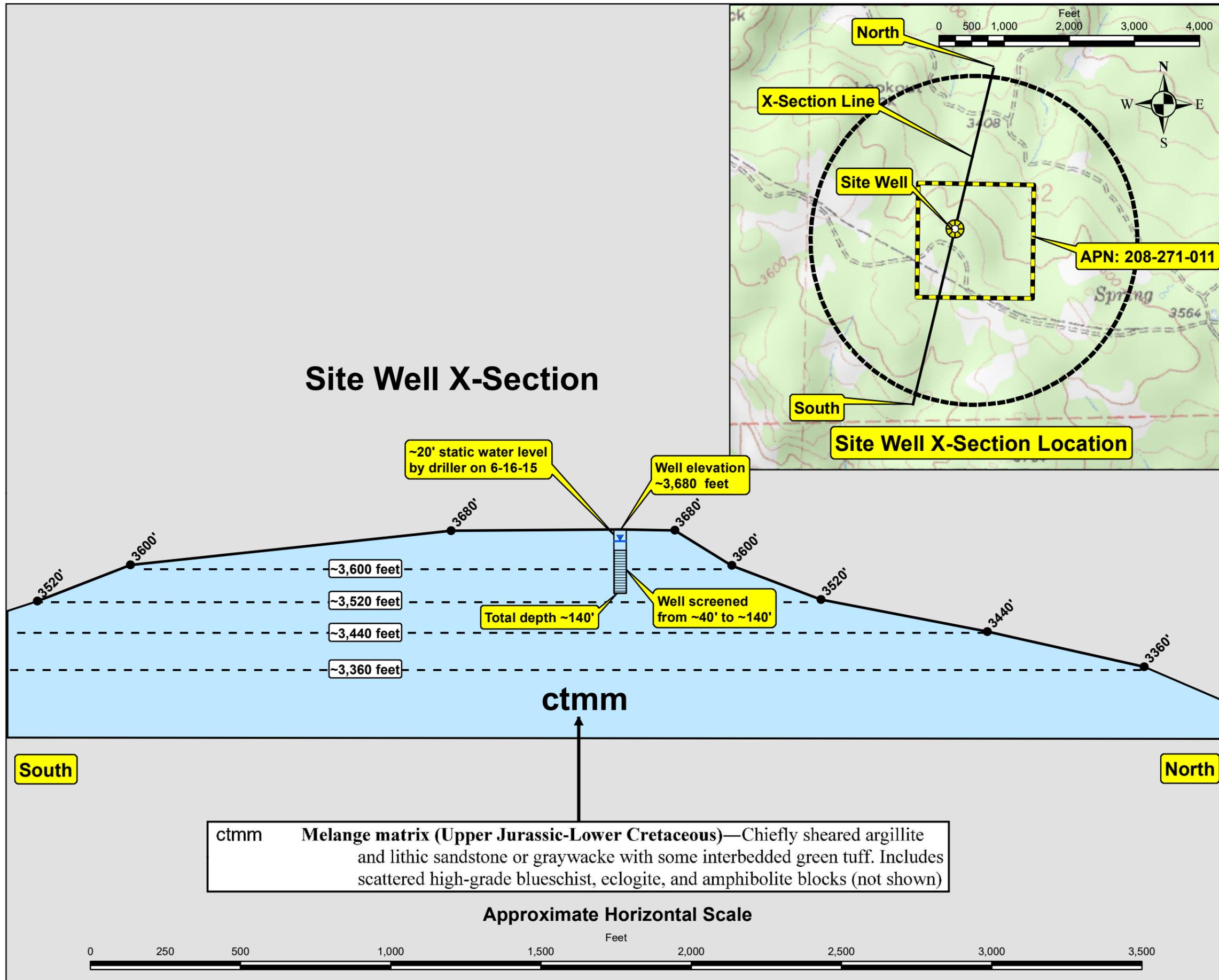
Figure 5  
X-Section Interpreted from  
U.S. Geological Survey  
Open-File Report 2012-1228

Project No. FES-142	Figure Date 12-7-23	By SJT
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# Site Well X-Section



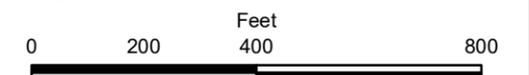
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Site X-Section based on  
 U.S. Geological Survey  
 Open-File Report 2012-1228  
 Digital Geologic Map of the Redding  
 1° x 2° Quadrangle, Shasta, Tehama,  
 Humboldt, and Trinity Counties, California  
 Luis A. Fraticelli, John P. Albers,  
 William P. Irwin, Milton C. Blake, Jr,  
 and Carl M. Wentworth.

Topography derived from USGS  
 National Elevation Dataset  
 Contour Interval = 80 feet

ALL LOCATIONS APPROXIMATE

## Approximate Horizontal Scale



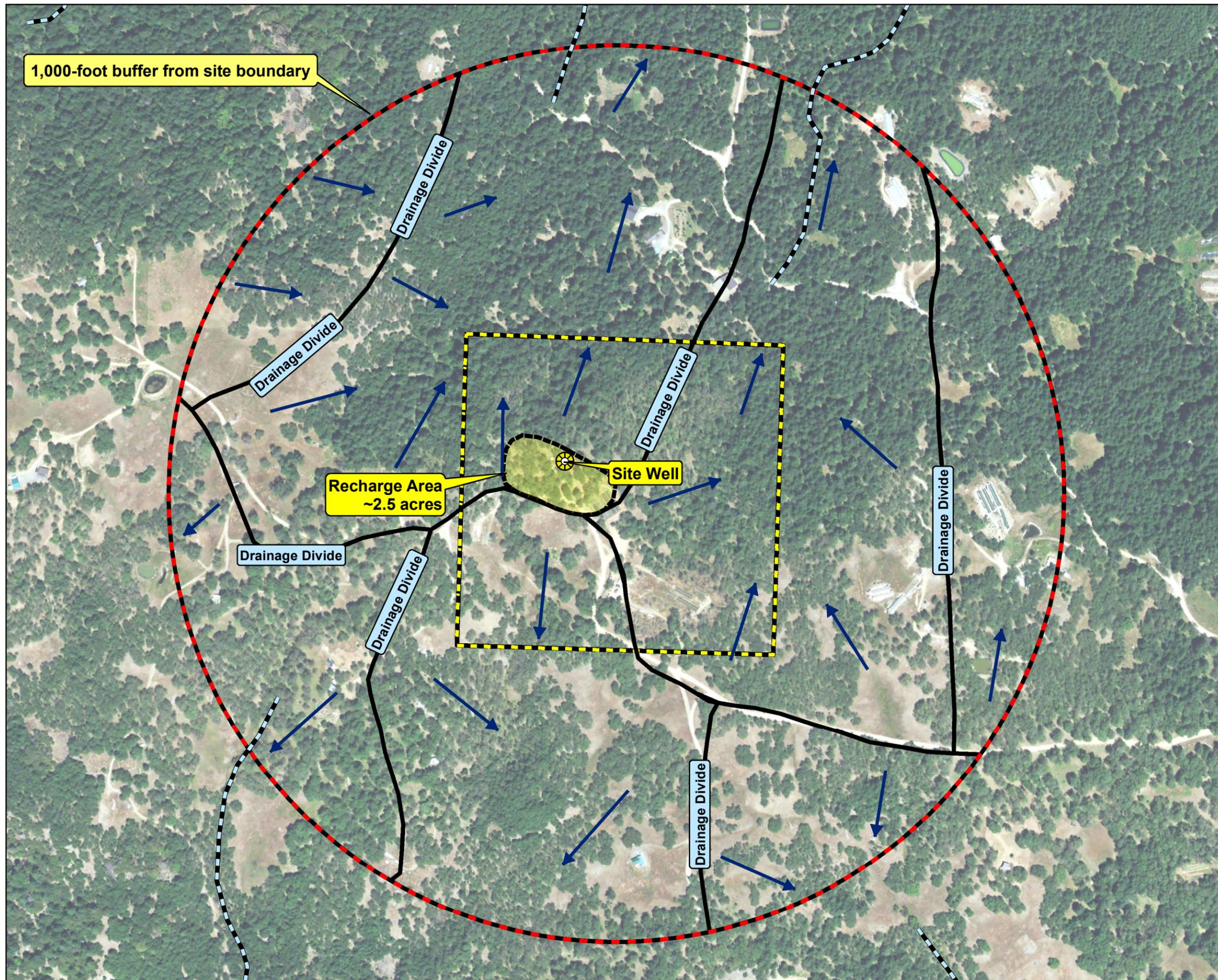
Revised Well Connection Report  
 Humboldt County APN: 208-271-011

Figure 6  
 Site Well X-Section based  
 on U.S. Geological Survey  
 Open-File Report 2012-1228

Project No. FES-142	Figure Date 12-7-23	By SJT
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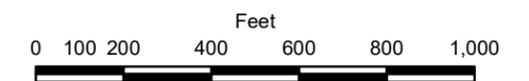


**LEGEND**

-  APN: 208-271-011  
(from Humboldt County GIS)
-  1,000-foot buffer from site boundary
-  Estimated Recharge Area for Site Well  
(based on stereo aerial photograph interpretation using 1965 photos)
-  Drainage Divide  
(based on stereo aerial photograph interpretation using 1965 photos)
-  Streams (Intermittent)  
based on USGS topographic map
-  Groundwater Flow Lines
-  Site Well

Base Image Data Source:  
USDA NAIP: 2020

ALL LOCATIONS APPROXIMATE



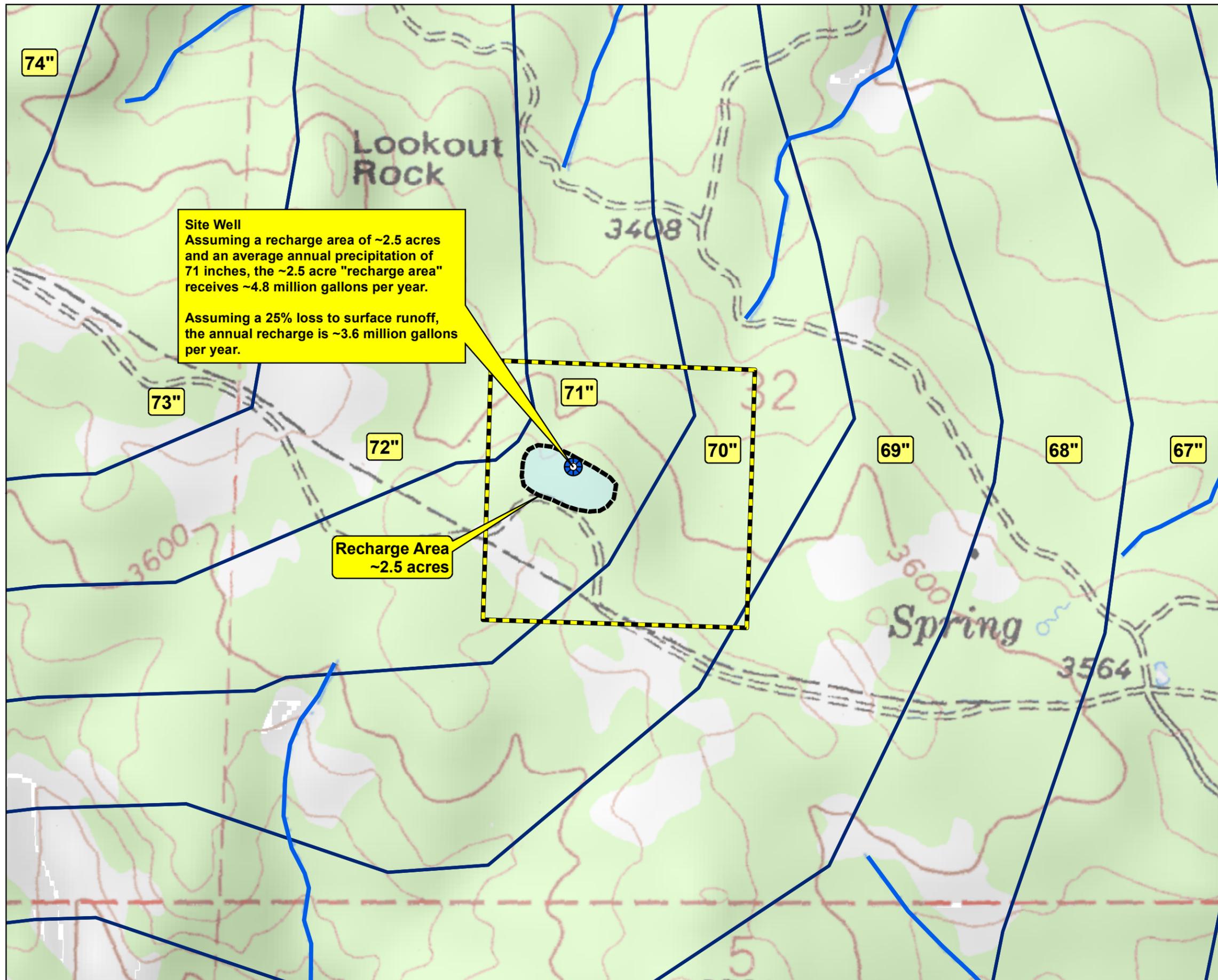
Revised Well Connection Report  
Humboldt County APN: 208-271-011

**Figure 7**  
Groundwater Flow Lines and  
Drainage Divides based on Stereo  
Aerial Photograph Interpretation

Project No. FES-142	Figure Date 12-7-23	By SJT
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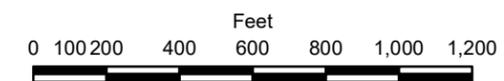


**LEGEND**

- APN: 208-271-011  
(from Humboldt County GIS)
- Recharge Area (estimated)  
(based on site topography)
- Average Annual Precipitation  
1981-2010. Oregon State University  
and the Oregon Climate Service at  
Oregon State University.
- Streams (Intermittent)  
based on USGS topographic map
- Site Well

Base Image Data Source:  
 Topo Hillshade Layer for California  
<https://map.dfg.ca.gov/arcgis/rest/services>

ALL LOCATIONS APPROXIMATE



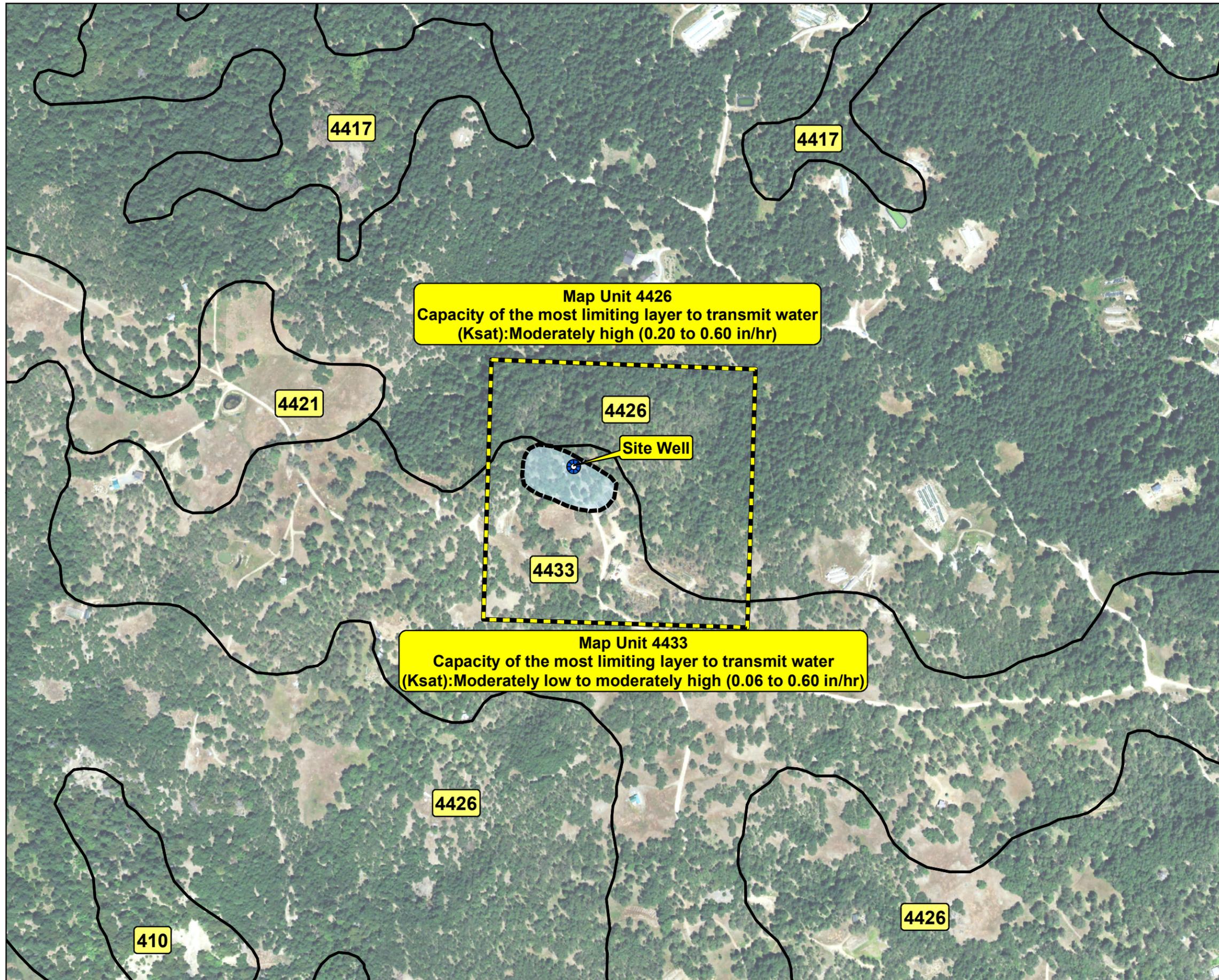
Revised Well Connection Report  
 Humboldt County APN: 208-271-011

**Figure 8**  
 Average Annual Precipitation  
 (inches) 1981 to 2010

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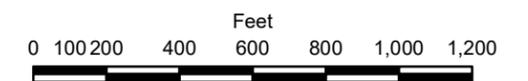


**LEGEND**

-  APN: 208-271-011  
(from Humboldt County GIS)
-  Recharge Area (estimated)  
(based on site topography)
-  Soil Map Units  
Shapefile for the soil survey  
of Humboldt County, California  
U.S. Department of Agriculture  
Natural Resources Conservation Service
-  Site Well

Base Image Data Source:  
USDA NAIP: 2020

ALL LOCATIONS APPROXIMATE



Revised Well Connection Report  
Humboldt County APN: 208-271-011

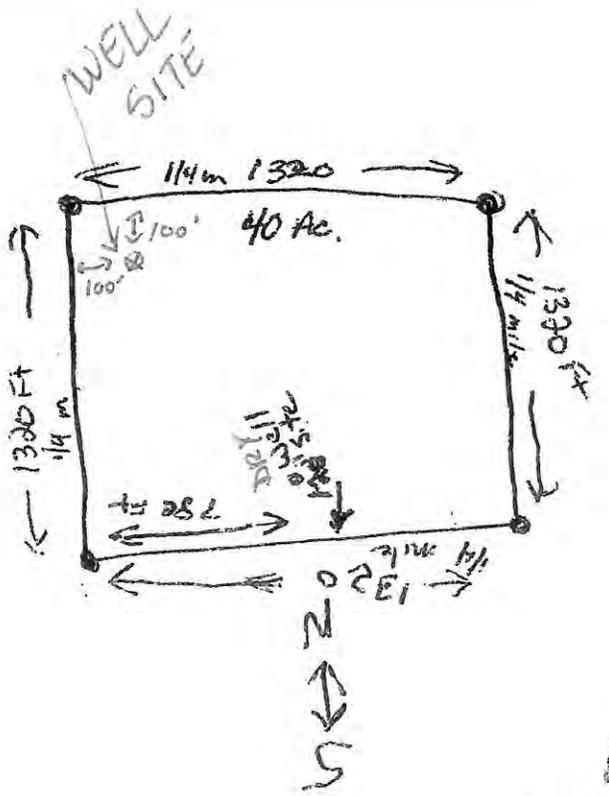
Figure 9  
NRCS Soil Survey  
Map Units

Project No. FES-142	Figure Date 12-7-23	By SJT
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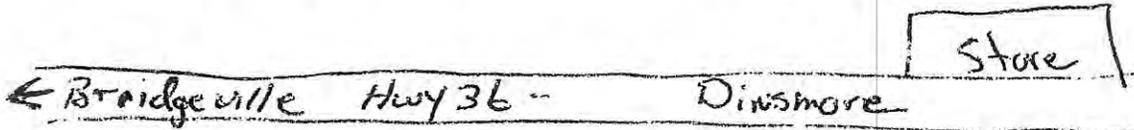
**Freshwater  
Environmental  
Services**



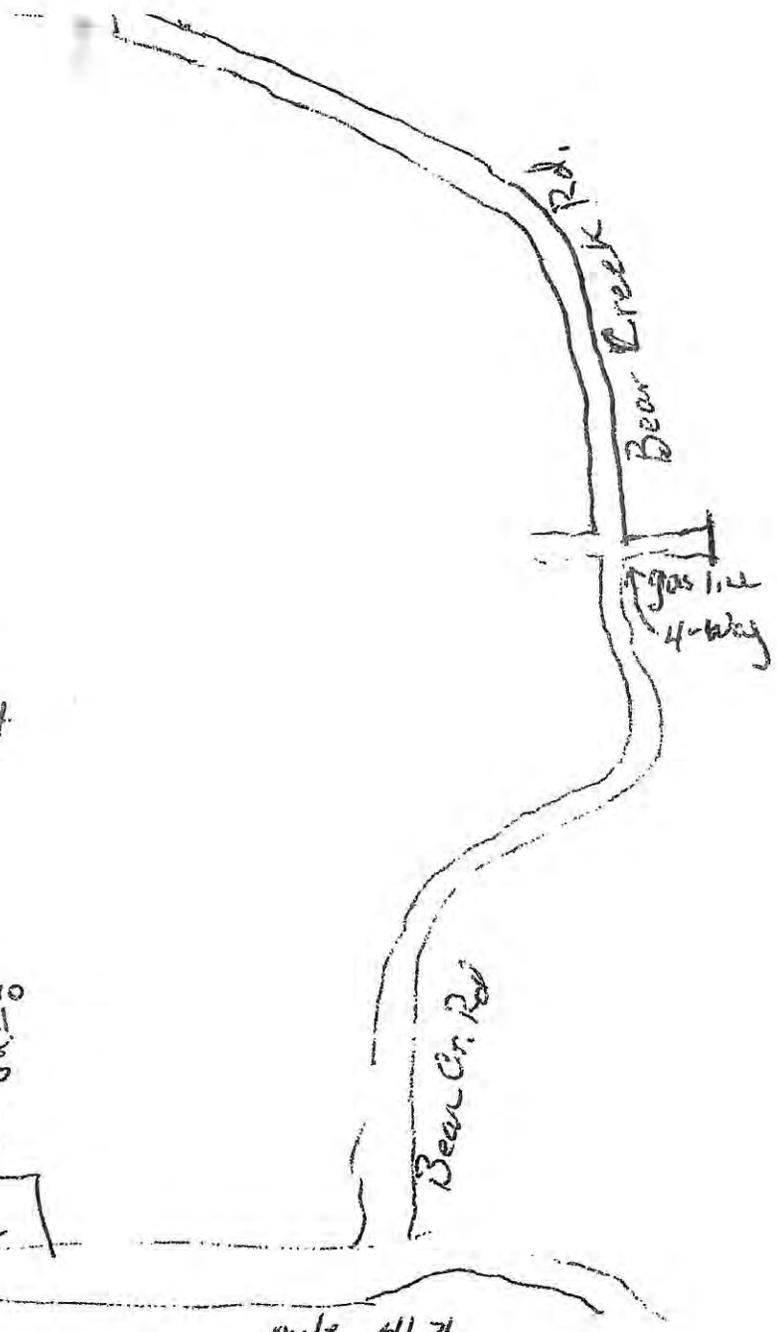


Plot map  
 AP# 208-271-005  
 Bear Creek Road

Driving Directions  
 From Fortuna, Ca, about 18 miles  
 go east on Hwy 36 past Bridgeville, at mile marker 41.76 Turn Left  
 on to Bear Creek Rd go approx 4 miles.



mile 41.76  
 marker.



## Humboldt County, Central Part, California

### 4426—Pasturerock-Coyoterock-Maneze complex, 15 to 50 percent slopes, dry

#### Map Unit Setting

*National map unit symbol:* 2pt36  
*Elevation:* 520 to 3,160 feet  
*Mean annual precipitation:* 56 to 80 inches  
*Mean annual air temperature:* 50 to 59 degrees F  
*Frost-free period:* 200 to 260 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Pasturerock, dry, and similar soils:* 40 percent  
*Coyoterock, dry, and similar soils:* 25 percent  
*Maneze, dry, and similar soils:* 15 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Pasturerock, Dry

##### Setting

*Landform:* Mountain slopes  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Upper third of mountainflank  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Colluvium derived from sandstone and mudstone

##### Typical profile

*A - 0 to 10 inches:* gravelly loam  
*A2 - 10 to 24 inches:* loam  
*Bt1 - 24 to 35 inches:* clay loam  
*Bt2 - 35 to 47 inches:* gravelly clay loam  
*Bt3 - 47 to 71 inches:* gravelly clay loam

##### Properties and qualities

*Slope:* 15 to 50 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* 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:* High (about 9.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* C

*Ecological site:* F004BX114CA - Oregon white oak/perennial and annual grasses, mountain slopes, sandstone and mudstone, clay loam

*Other vegetative classification:* Oak Woodland (RNPOW001CA)

*Hydric soil rating:* No

### Description of Coyoterock, Dry

#### Setting

*Landform:* Mountain slopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Mountainflank

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Colluvium derived from sandstone and mudstone

#### Typical profile

*A - 0 to 14 inches:* loam

*ABt - 14 to 24 inches:* loam

*Bt1 - 24 to 31 inches:* clay

*Bt2 - 31 to 37 inches:* clay

*Cg - 37 to 71 inches:* clay

#### Properties and qualities

*Slope:* 15 to 50 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately low (0.01 to 0.06 in/hr)

*Depth to water table:* About 28 to 39 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 8.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* D

*Ecological site:* F004BX114CA - Oregon white oak/perennial and annual grasses, mountain slopes, sandstone and mudstone, clay loam

*Other vegetative classification:* Oak Woodland (RNPOW001CA)

*Hydric soil rating:* No

## Description of Maneze, Dry

### Setting

*Landform:* Mountain slopes  
*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 mudstone

### Typical profile

*Oi - 0 to 1 inches:* slightly decomposed plant material  
*A - 1 to 11 inches:* very cobbly loam  
*AB - 11 to 24 inches:* very cobbly loam  
*Bw1 - 24 to 37 inches:* extremely gravelly clay loam  
*Bw2 - 37 to 55 inches:* very gravelly clay loam  
*Bw3 - 55 to 79 inches:* very gravelly clay loam

### Properties and qualities

*Slope:* 15 to 50 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* About 39 to 63 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:* Low (about 4.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* C  
*Ecological site:* F004BX114CA - Oregon white oak/perennial and annual grasses, mountain slopes, sandstone and mudstone, clay loam  
*Other vegetative classification:* Oak Woodland (RNPOW001CA)  
*Hydric soil rating:* No

## Minor Components

### Rock outcrop

*Percent of map unit:* 10 percent  
*Landform:* Mountain slopes  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Mountainflank  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Other vegetative classification:* Oak Woodland (RNPOW001CA)  
*Hydric soil rating:* No

**Airstrip, dry**

*Percent of map unit:* 10 percent

*Landform:* Mountain slopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Mountainflank

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Ecological site:* R004BX101CA - Upper prairie, mountain slopes,  
sandstone and mudstone, clay loam

*Other vegetative classification:* Prairie (RNPP001CA)

*Hydric soil rating:* No

## Data Source Information

Soil Survey Area: Humboldt County, Central Part, California

Survey Area Data: Version 9, Sep 1, 2022

Soil Survey Area: Six Rivers National Forest Area, California

Survey Area Data: Version 17, Sep 7, 2022

## Humboldt County, Central Part, California

### 4433—Pasturerock-Maneze-Coyoterock complex, 5 to 30 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2pt3m  
*Elevation:* 1,970 to 4,000 feet  
*Mean annual precipitation:* 49 to 120 inches  
*Mean annual air temperature:* 52 to 57 degrees F  
*Frost-free period:* 240 to 280 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Pasturerock, dry, and similar soils:* 40 percent  
*Coyoterock, dry, and similar soils:* 25 percent  
*Maneze, dry, and similar soils:* 20 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Pasturerock, Dry

##### Setting

*Landform:* Ridges  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Colluvium derived from mudstone and/or colluvium derived from sandstone

##### Typical profile

*Oi - 0 to 0 inches:* slightly decomposed plant material  
*A1 - 0 to 5 inches:* loam  
*A2 - 5 to 13 inches:* gravelly loam  
*Abt - 13 to 24 inches:* gravelly clay loam  
*Bt - 24 to 43 inches:* gravelly clay loam  
*BC - 43 to 63 inches:* very gravelly clay loam

##### Properties and qualities

*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 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 7.5 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* F005XZ022CA - Mesic Mountains >60"ppt

*Hydric soil rating:* No

### **Description of Coyoterock, Dry**

#### **Setting**

*Landform:* Mountain slopes

*Down-slope shape:* Linear

*Across-slope shape:* Concave

*Parent material:* Colluvium derived from mudstone

#### **Typical profile**

*Oi - 0 to 0 inches:* slightly decomposed plant material

*A - 0 to 8 inches:* loam

*AB - 8 to 18 inches:* loam

*Bt1 - 18 to 26 inches:* clay loam

*Btg2 - 26 to 47 inches:* silty clay

*Cg - 47 to 71 inches:* gravelly silty clay

#### **Properties and qualities**

*Slope:* 15 to 30 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)

*Depth to water table:* About 22 to 30 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 8.2 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* D

*Ecological site:* F005XZ022CA - Mesic Mountains >60"ppt

*Hydric soil rating:* No

### **Description of Maneze, Dry**

#### **Setting**

*Landform:* Ridges

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Colluvium derived from siltstone and/or colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from sandstone and/or

residuum weathered from mudstone and/or residuum  
weathered from siltstone

### Typical profile

*Oi - 0 to 0 inches:* slightly decomposed plant material  
*A1 - 0 to 6 inches:* gravelly loam  
*A2 - 6 to 18 inches:* very gravelly loam  
*Bw - 18 to 38 inches:* very gravelly loam  
*Bt - 38 to 45 inches:* very gravelly clay loam  
*C - 45 to 63 inches:* extremely gravelly clay loam

### Properties and qualities

*Slope:* 15 to 30 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water*  
*(Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* 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:* Low (about 5.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* F005XZ022CA - Mesic Mountains >60"ppt  
*Hydric soil rating:* No

### Minor Components

#### Elkcamp, dry

*Percent of map unit:* 10 percent  
*Landform:* Mountains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Highyork

*Percent of map unit:* 5 percent  
*Landform:* Mountain slopes  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank  
*Down-slope shape:* Concave, convex, linear  
*Across-slope shape:* Linear, concave

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Humboldt County, Central Part, California  
Survey Area Data: Version 9, Sep 1, 2022

Soil Survey Area: Six Rivers National Forest Area, California  
Survey Area Data: Version 17, Sep 7, 2022