LINDBERG GEOLOGIC CONSULTING
David N. Lindberg, CEG
Post Office Box 306
Cutten California 95534
(707) 442-6000

April 12, 2022

Project No: 0445.00

Lost Coast Elixirs, LLC
Mr. Thomas Harwood
Post Office Box 610
Redway, California 95560

Subject: Hydrologic Isolation of Existing Well from Surface Waters
569 Eubanks Road, Whitethorn, APN: 220-081-016, WCR2021-11658

To Whom It May Concern:

As requested, Lindberg Geologic Consulting has assessed an existing permitted well on the above-referenced parcel to estimate its potential for hydrologic connectivity with any adjacent wetlands and or surface waters, and if pumping this well could affect surface waters in nearby water courses. Creeks in the vicinity of this well drain to the Mattole River (Figure 1). A California-Certified Engineering Geologist visited this site on March 16, 2022 to observe the subject well and local conditions. Based on our professional experience, observations, and research, it is our opinion the subject well has a low likelihood of being hydrologically connected to nearby surface waters in any manner that could affect adjacent wetlands and or surface waters in the vicinity. The client plans to use the water to irrigate cannabis. We are not aware of the volume of water to be extracted or what the pumping schedule might be but expect that the client can supply that information.

This well was drilled by Vic's Well Drilling Inc. of Acton, California, in July, 2021, under county permit #20/21-0663. Vic's Well Drilling is a licensed well-drilling contractor (C-57 #886439). Vic's Well Drilling submitted the well completion report (DWR 188) on September 13, 2021 (attached). Vic's Well Drilling estimated the yield of this well at 12 gallons per minute on July 15, 2021. Based on a four-hour air lift pump test, the total drawdown was reported to be zero (0) feet. The well location is shown approximately on Figures 1 and 3.

Borehole diameter is specified as 8.75-inches in the driller's report. Reported drilled depth is 260 feet. A bentonite surface sanitary seal was installed from grade to 21 feet below the ground surface (bgs). From the surface to the total depth, the well was constructed of 4.5-inch diameter, PVC pipe, and from 21 feet bgs to the total completed total depth of 260 feet bgs, the annulus was backfilled with #6 silica sand. The well is cased and sealed through any potential shallow subsurface aquifers and is screened (0.032" slots) from 140 to 240 feet. Depth to first water was reported as 140 feet below grade, and depth to static water in the completed and developed well was reported to be 132 feet bgs when the driller conducted the pump test on July 15, 2021.

Parcel 220-081-016 (Figure 2) encompasses approximately 40 acres. Based on our on-site GPS measurements, the subject well is located approximately at latitude 40.09703° north, and longitude 123.96557° west (±13'). According to the driller's report, this well is in Section 21, T4S, R2E,

HB&M (Figures 1 and 2). Based on the Humboldt County WebGIS mapping, this well is approximately 830 feet south-southwest of Eubank Creek, the nearest mapped watercourse. Based on interpolation from the USGS Briceland topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, well elevation is approximately 1,440 feet above sea level. Elevation of Eubank Creek at the nearest point to the well is approximately 1,060 feet. The elevation of the bottom of the well is approximately 1,180 feet which is approximately120 feet higher than Eubank Creek at its nearest point.

On the geologic map (Figure 4) this area is underlain by intact sandstone and argillite (co4). These materials were described by McLaughlin and Others (2000) as "intact sandstone and argillite". The unit is described as exhibiting "sharp crested topography with a regular, well-incised system of sidehill drainage".

Materials reported on the geologic log of the driller's well completion report include five feet of "Soil or organic" over 30 feet of "Sand" ("sandstone brown dry"). From the depth of 35 to 95 feet, the driller logged "Claystone" (blueshale stone) which was underlain by 60 feet of "Clayey Gravel" (blue shale stone clay with basalt). From the base of the clayey gravel at 155 feet, to the total depth at 260 feet, 105 feet of "Rock" was logged. The driller further described the 105 feet of "Rock" as "basalt water bearing".

Below the five feet of (soil or organic) topsoil, the earth materials encountered in the boring are likely co4 deposits. Intact sandstone and argillite materials may be expected to have a moderate hydraulic conductivity and should not constitute a significant aquitard. We interpret the underlying sequence of materials described by the driller (sand, claystone, clayey gravel, and rock), as lithologies within the co4 unit of the Coastal Belt of the Franciscan formation. The sandstone is expected to have a higher hydraulic conductivity than the claystone and clayey gravel sections, making the rock (basalt) the water bearing unit in this well.

A geologic cross section of the area after McLaughlin and Others (2000) shows the structural and stratigraphic relationships between the local geologic units (Figure 5). The intact sandstone and argillite (co4) unit is shown schematically as isoclinally folded, and bounded by steeply dipping, near vertical faults. On-site, no dipping of the rock units could be observed in the co4 because it was covered with soil. We interpret the faults to be hydrologic boundaries of minimal permeability (due to grinding and shearing along the fault plane) which effectively separate portions of the co4 from the co1 and co3 and limit groundwater flow between these fault-bound units.

In our professional opinion, based on our experience, observations, and review of pertinent and available information, this well has a low potential of having any direct connection to surface waters. This well is sealed through the upper 21 feet of any potential unconfined, near-surface aquifers with which it could communicate hydraulically through the borehole because the bentonite-sealed surface casing isolates the topsoil and dry sandstone materials from the deep c04 intact sandstone (called basalt by the driller) aquifer. When considered with the stratigraphy and

geologic structure, distances (horizontal and vertically) from the nearest surface waters, depth of the producing zone of this well (~155 feet, in rock), and its position relative to the nearest adjacent watercourse (Eubank Creek), we concluded that the depth of the surface seal is sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none on the steep hillside. Thus, the water source from which this well draws appears to be a subsurface aquifer not connected to an unconfined, near-surface aquifer. Therefore, this well does not appear likely to be hydraulically connected to nearby wells, surface waters, or wetlands.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating from source areas proximal to the well site. As noted, the "Water Level and Yield of Completed Well" section of the Well Completion Report estimated the yield of this well at 12 gallons per minute (gpm) on July 15, 2021, with zero (0) feet of drawdown, after a four-hour air-lift pump test. As noted on the well completion report, this capacity may not be representative of this well's long-term yield. In separate correspondence, the driller recommended that this well be pumped at six gallons per minute.

As discussed, in our opinion the subject well does not appear to be hydrologically connected to, or capable of influencing surface water flows in the nearest tributary of the Mattole River (Eubank Creek), or ephemeral wetlands. Given the horizontal distances involved, and the elevation differences between the water-producing zone in the subject well, and the surface waters of the nearest watercourse, the potential for hydrologic connectivity between surface waters and groundwater in the deep bedrock aquifer appears negligible. Further, given the apparently limiting condition of 120 feet of presumably low-transmissivity "Claystone", and "Clayey Gravel", the deeper, "Rock" zone is the water-producing unit, and is considered hydrologically isolated from, and not connected to any other aquifer(s) in the surrounding, slope mantling colluvial soil, or other sections of the co4 deposits.

On the Briceland USGS topographic quadrangle map, the nearest mapped spring is shown approximately one-half mile to the south in Section 28 (Figure 1) on parcel 220-082-020, at the head of Painter Creek. This spring is the closest mapped spring to the subject well and is at an elevation greater than 1,240 feet. There does not appear to be any other mapped or unmapped wetlands within 1,000 feet of the subject well.

The client informed us that there are other wells on the subject parcel which are used exclusively for domestic purposes. There is one 140-foot-deep (#1087868) well, one 200-foot-deep well (#1087869), and one 120-foot-deep well (#1087870). These domestic wells were drilled in October 2016 by Bushell Enterprises (C-57 license #403708); the driller did not record the locations on the parcel in the DWR Driller's Report of Well Completion. It seems likely that there are domestic and or irrigation wells on adjacent parcels, however, we could find no other wells in the DWR database within 1,000 feet of the subject well.

The Natural Resources Conservation Service, Web Soil Survey, shows the subject well to be located within the Canoecreek-Sproulish-Redwohly soil complex, which is described as well-drained. The Web Soil Survey Unit description is attached to this report. Mean annual precipitation in the area is listed as 59 to 100 inches per year. Capacity of the most limiting layer to transmit water (Ksat) is described as moderately low to high (0.14 to 2.00 in/hr). If ten percent of precipitation is absorbed by the soils and does not flow across the surface to local watercourses, then approximately 19.7 acre-feet, or 6.4 million gallons, of water per year may be expected to recharge the local aquifer below the 40 acre subject property.

Based on our professional experience, observations, and research, it is our opinion the well at 569 Eubanks Road has a negligible likelihood of being hydrologically connected to nearby surface waters or wells in any manner that might affect adjacent wetlands and or surface waters in the vicinity.

Please contact us if you have questions or concerns regarding our findings and conclusions.

Sincerely,

David N. Lindberg, CEG
Lindberg Geologic Consulting

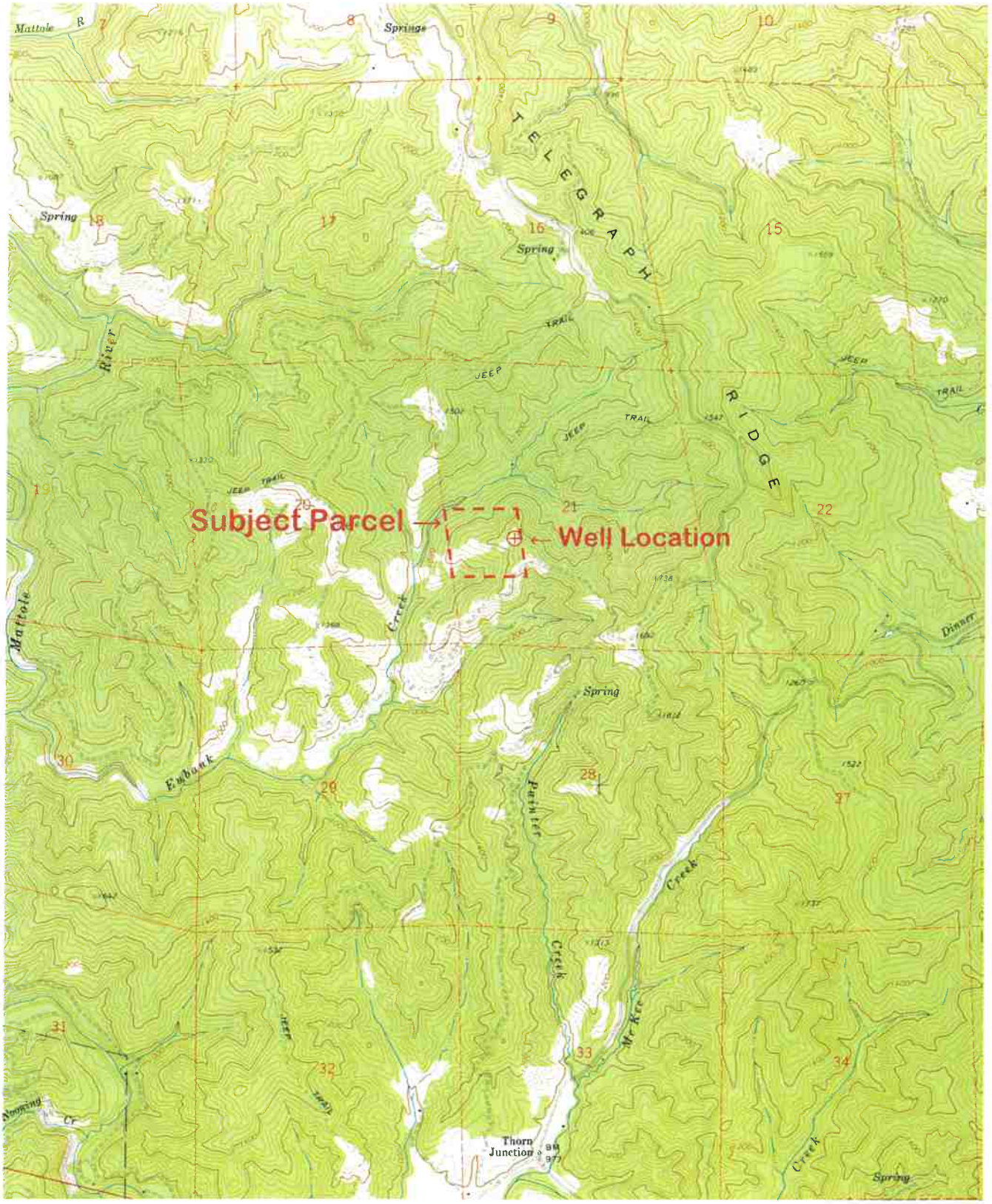
DNL:sll

Attachments:
Figure 1: Topographic Map of Well Location
Figure 2: Humboldt County Assessor's Parcel Map
Figure 3: Satellite Image Site Plan
Figure 4: Geologic Map
Figure 4a: Geologic Map Explanation
Figure 5: Geologic Cross Section

State of California Well Completion Reports:
WCR-2021-0110663 (DWR 188 REV. 12/19/2017), the subject well.
WCR-1087868, a 140-foot domestic well.
WCR-1087869, a 200-foot domestic well.
WCR-1087870, a 120-foot domestic well.

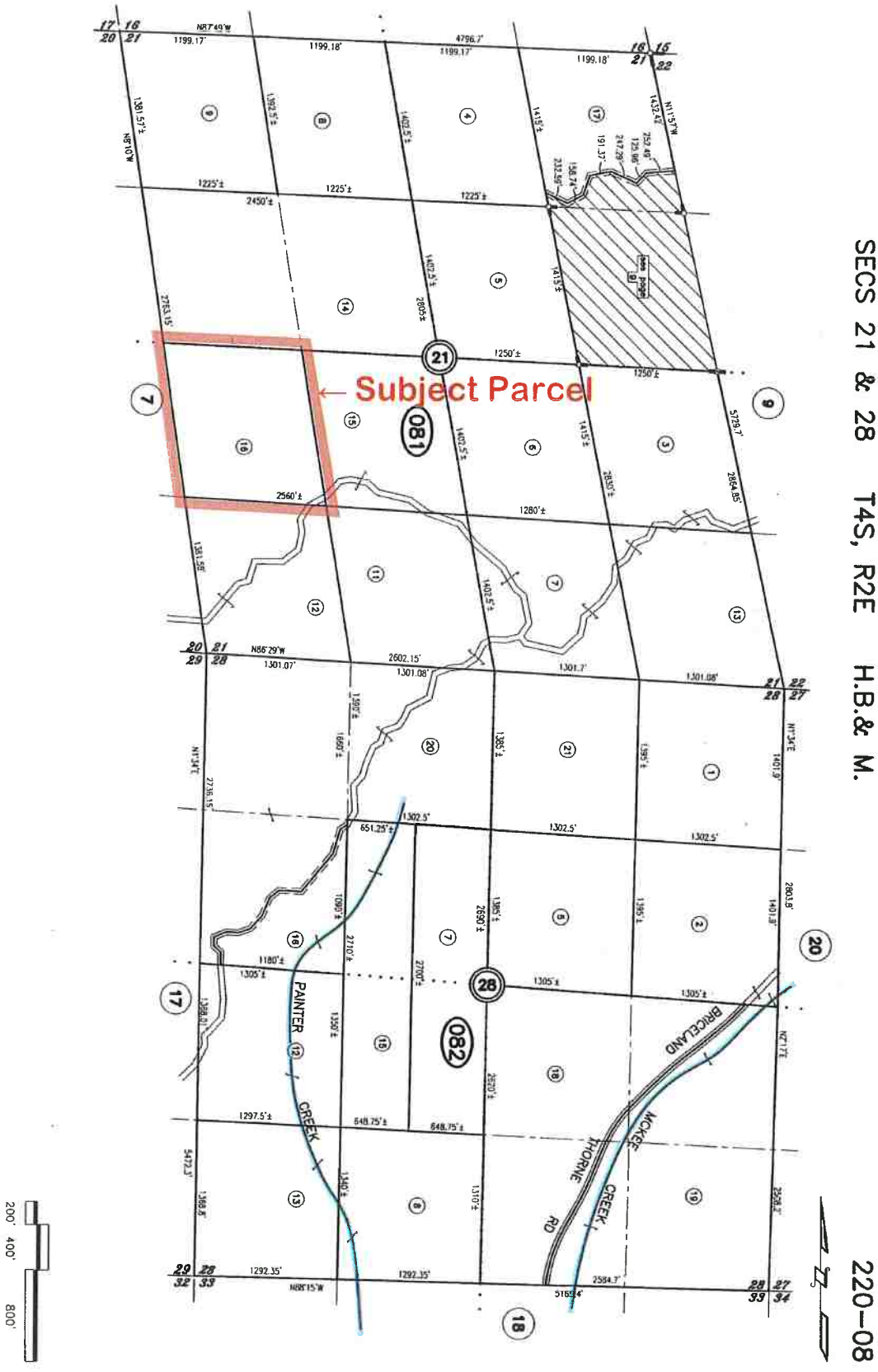
Web Soil Survey, NRCS Unit Description: Canoecreek-Sproulish-Redwohly complex, 50 to 75 percent slopes, warm.

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 1
Post Office Box 306	569 Eubanks Road, Whitethorn, Humboldt County	April 12, 2022
Cutten, CA 95534	APN 220-081-016, Lost Coast Elixirs LLC, Thomas Harwood, Client	Project 0445.00
(707) 442-6000	Topographic Map of the Well Location (all locations approximate)	1" ≅ 2,700'

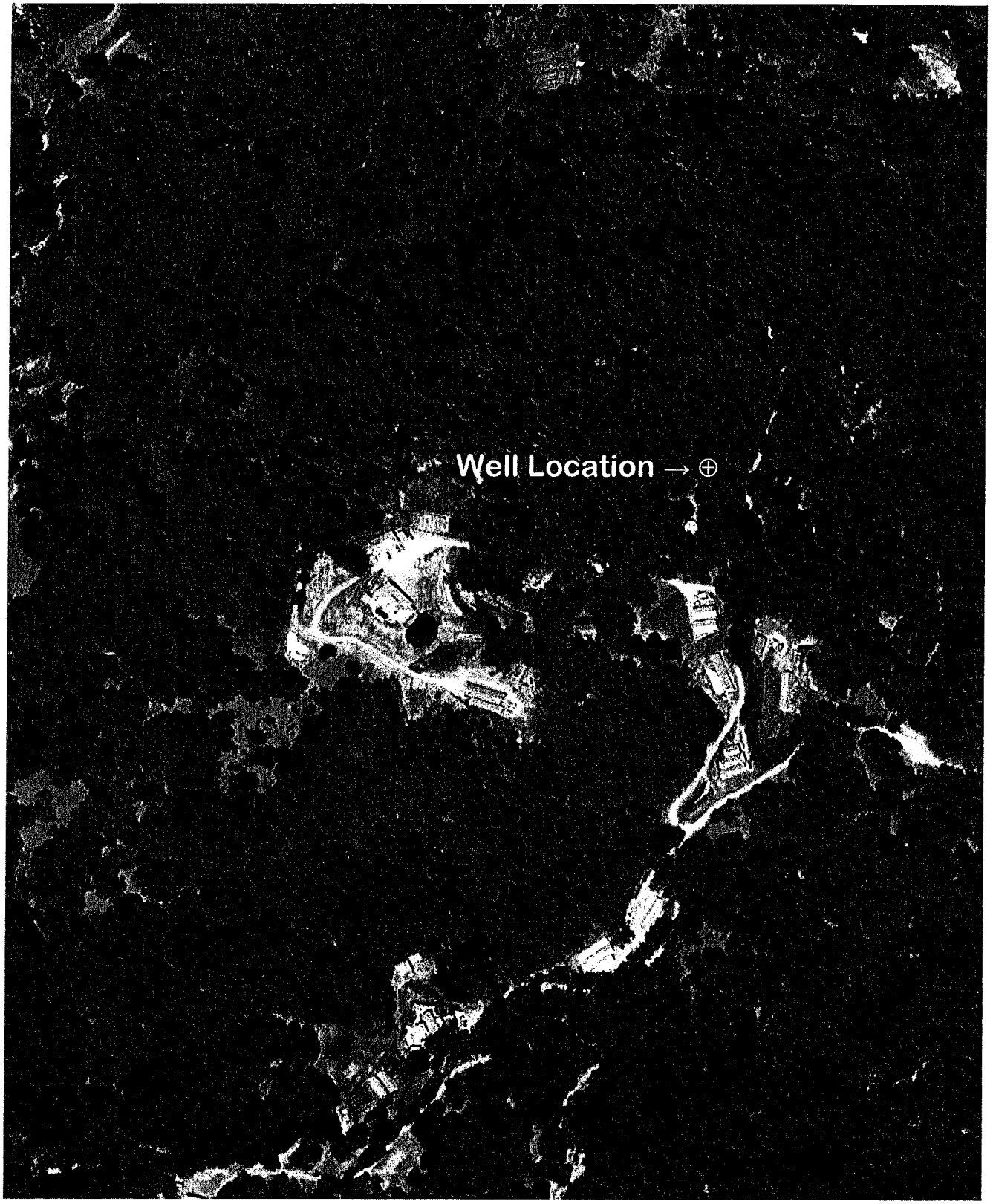


Modified from: USGS "Briceland, Calif." 7.5' Topographic Quadrangle Map, 1969. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 2
Post Office Box 306	569 Eubanks Road, Whitethorn, Humboldt County	April 12, 2022
Cutten, CA 95534	APN 220-081-016, Lost Coast Elixirs LLC, Thomas Harwood, Client	Project 0445.00
(707) 442-6000	Humboldt County Assessor's Parcel Map	Scale as Shown

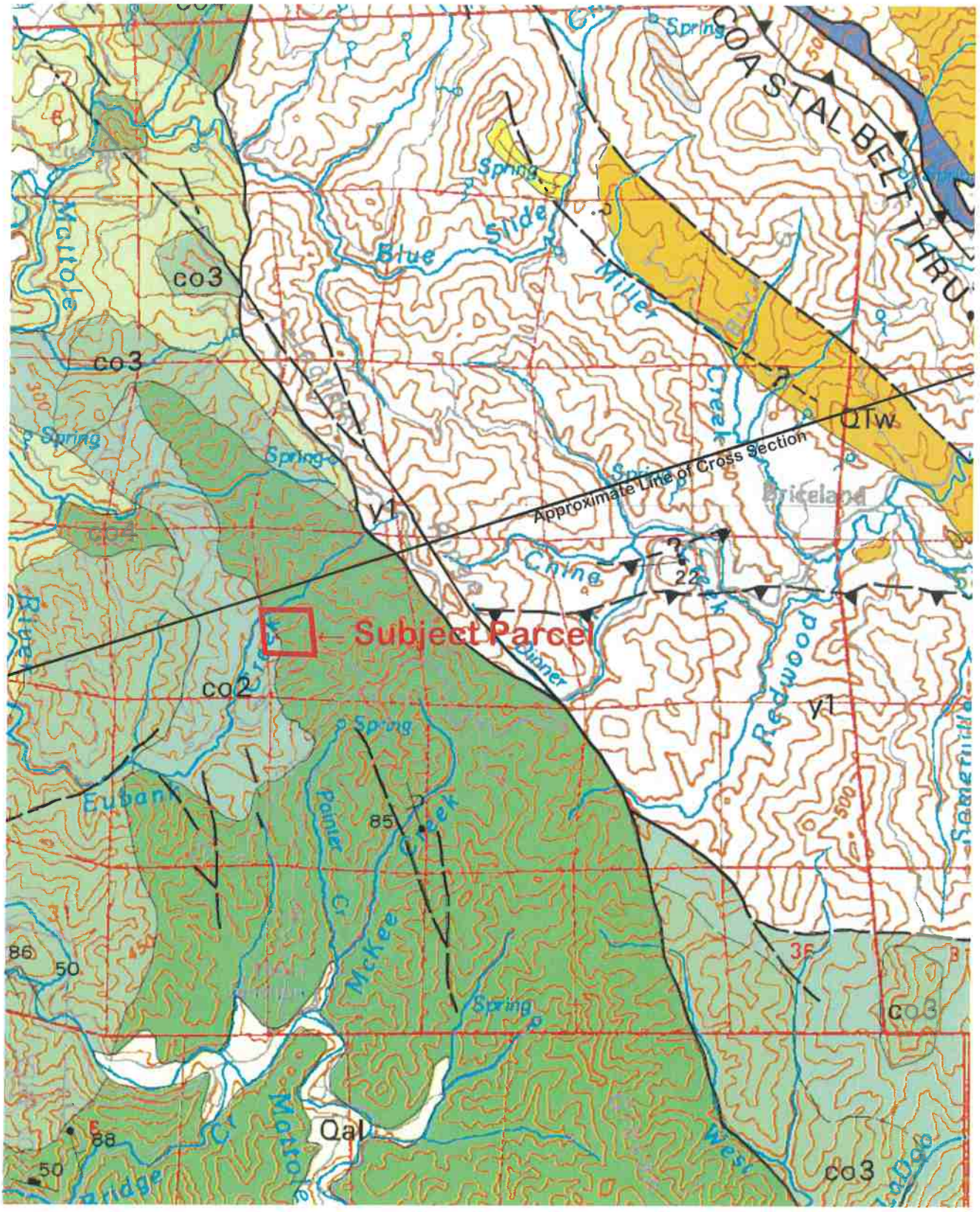


Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 3
Post Office Box 306	569 Eubanks Road, Whitethorn, Humboldt County	April 12, 2022
Cutten, CA 95534	APN 220-081-016, Lost Coast Elixirs LLC, Thomas Harwood, Client	Project 0445.00
(707) 442-6000	Satellite Image Site Plan (all locations approximate)	1" ≅ 370'



Modified from: Google Earth Imagery of April 21, 2019. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 4
Post Office Box 306	569 Eubanks Road, Whitethorn, Humboldt County	April 12, 2022
Cutten, CA 95534	APN 220-081-016, Lost Coast Elixirs LLC, Thomas Harwood, Client	Project 0445.00
(707) 442-6000	Geologic Map (all locations approximate)	1" ≈ 4,550'



Modified from: McLaughlin and Others, 2000. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 4a
P. O. Box 306	569 Eubanks Road, Whitethorn, Humboldt County	April 12, 2022
Cutten, CA 95534	APN 220-081-016, Lost Coast Elixirs LLC, Thomas Harwood, Client	Project 0445.00
(707) 442-6000	Geologic Map Explanation	No Scale

DESCRIPTION OF MAP UNITS

QUATERNARY AND TERTIARY OVERLAP DEPOSITS

- Qal — Alluvial deposits (Holocene and late Pleistocene?)
- Qm — Undeformed marine shoreline and aeolian deposits (Holocene and late Pleistocene)
- Qt — Undifferentiated nonmarine terrace deposits (Holocene and Pleistocene)
- Qls — Landslide deposits (Holocene and Pleistocene)
- QTog — Older alluvium (Pleistocene and [or] Pliocene)
- QTw — Marine and nonmarine overlap deposits (late Pleistocene to middle Miocene)
- Ti — Volcanic rocks of Fickle Hill (Oligocene)

COAST RANGES PROVINCE

FRANCISCAN COMPLEX

– Coastal Belt –

Coastal terrane (Pliocene to Late Cretaceous)

Sedimentary, igneous, and metamorphic rocks of the Coastal terrane (Pliocene to Late Cretaceous):

- co1 — Melange
- co2 — Melange
- co3 — Broken sandstone and argillite
- co4 — Intact sandstone and argillite
- cob — Basaltic Rocks (Late Cretaceous)
- cols — Limestone (Late Cretaceous)
- m — Undivided blueschist (Jurassic?)

King Range terrane (Miocene to Late Cretaceous)

- Krp — Igneous and sedimentary rocks of Point Delgada (Late Cretaceous)
- m — Undivided blueschist blocks (Jurassic?)

Sandstone and argillite of King Peak (middle Miocene to Paleocene[?]):

- krk1 — Melange and (or) folded argillite
- krk2 — Highly folded broken formation
- krk3 — Highly folded, largely unbroken rocks
- krl — Limestone
- krc — Chert
- krb — Basalt

False Cape terrane (Miocene? to Oligocene?)

- fc — Sedimentary rocks of the False Cape terrane (Miocene? to Oligocene?)

Yager terrane (Eocene to Paleocene?)

Sedimentary rocks of the Yager terrane (Eocene to Paleocene?):

- y1 — Sheared and highly folded mudstone
- y2 — Highly folded broken mudstone, sandstone, and conglomeratic sandstone
- y3 — Highly folded, little-broken sandstone, conglomerate, and mudstone
- Ycgl — Conglomerate

– Central belt –

Melange of the Central belt (early Tertiary to Late Cretaceous):

Unnamed Metasandstone and meta-argillite (Late Cretaceous to Late Jurassic):

- cm1 — Melange
- cm2 — Melange
- cb1 — Broken formation
- cb2 — Broken formation
- cwr — White Rock metasandstone of Jayko and others (1989) (Paleogene and [or] Late Cretaceous)
- chr — Harnan Ridge graywacke of Jayko and others (1989) (Cretaceous?)
- cfs — Fort Seward metasandstone (age unknown)
- cls — Limestone (Late to Early Cretaceous)
- cc — Chert (Late Cretaceous to Early Jurassic)
- bs — Basaltic rocks (Cretaceous and Jurassic)
- m — Undivided blueschist blocks (Jurassic?)
- gs — Greenstone
- c — Metachert
- yb — Metasandstone of Yolla Bolly terrane, undivided
- b — Melange block, lithology unknown

– Eastern Belt –

Pickett Peak terrane (Early Cretaceous or older)

Metasedimentary and metavolcanic rocks of the Pickett Peak terrane (Early Cretaceous or older):

- ppsm — South Fork Mountain Schist
- mb — Chinquapin Metabasalt Member (Irwin and others, 1974)
- ppv — Valentine Springs Formation
- mv — Metabasalt and minor metachert

Yolla Bolly terrane (Early Cretaceous to Middle Jurassic?)

Metasedimentary and metaigneous rocks of the Yolla Bolly terrane (Early Cretaceous to Middle Jurassic?):

- ybt — Tallaferro Metamorphic Complex of Suppe and Armstrong (1972) (Early Cretaceous to Middle Jurassic?)
- ybc — Chicago Rock melange of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
- gs — Greenstone
- c — Metachert
- ybh — Metagraywacke of Hammerhorn Ridge (Late Jurassic to Middle Jurassic)
- c — Metachert
- gs — Greenstone
- sp — Serpentinite
- ybd — Devils Hole Ridge broken formation of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
- c — Radiolarian chert
- ybi — Little Indian Valley argillite of McLaughlin and Ohlin (1984) (Early Cretaceous to Late Jurassic)

Yolla Bolly terrane

- yb — Rocks of the Yolla Bolly terrane, undivided

GREAT VALLEY SEQUENCE AND COAST RANGE OPHIOLITE

Elder Creek(?) terrane

- ecms — Mudstone (Early Cretaceous)

Coast Range ophiolite (Middle and Late Jurassic):

- ecg — Layered gabbro
- ecsp — Serpentinite melange

Del Puerto(?) terrane

Rocks of the Del Puerto(?) terrane:

- dpms — Mudstone (Late Jurassic)

Coast Range ophiolite (Middle and Late Jurassic):

- dpt — Tuffaceous chert (Late Jurassic)
- dpb — Basaltic flows and keratophyric tuff (Jurassic?)
- dpd — Diabase (Jurassic?)
- dpsp — Serpentinite melange (Jurassic?)
- sp — Undivided Serpentinized peridotite (Jurassic?)

KLAMATH MOUNTAINS PROVINCE

Undivided Great Valley Sequence:

- Ks — Sedimentary rocks (Lower Cretaceous)

GREAT VALLEY SEQUENCE OVERLAP ASSEMBLAGE

Hayfork terrane

Eastern Hayfork subterrane:

- eh — Melange and broken formation (early? Middle Jurassic)
- ehls — Limestone
- ehsp — Serpentinite

Western Hayfork subterrane:

- whu — Hayfork Bally Meta-andesite of Irwin (1985), undivided (Middle Jurassic)
- whwg — Wildwood (Chanchelulla Peak of Wright and Fahan, 1988) pluton (Middle Jurassic)
- whwp — Clinopyroxenite
- whgj — Diorite and gabbro plutons (Middle? Jurassic)

Rattlesnake Creek terrane

- rcm — Melange (Jurassic and older)
- rcls — Limestone
- rcc — Radiolarian chert
- rcls — Volcanic Rocks (Jurassic or Triassic)
- rcic — Intrusive complex (Early Jurassic or Late Triassic)
- rcp — Plutonic rocks (Early Jurassic or Late Triassic)
- rcum — Ultramafic rocks (age uncertain)
- rcpd — Blocky peridotite

Western Klamath terrane

Smith River subterrane:

- srs — Galice? formation (Late Jurassic)
- srv — Pyroclastic andesite
- srgb — Glen Creek gabbro-ultramafic complex of Irwin and others (1974)
- srpd — Serpentinized peridotite

MAP SYMBOLS

- Contact
- Fault
- Thrust fault
- Trace of the San Andreas fault associated with 1906 earthquake rupture

Strike and dip of bedding:

- Inclined
- Vertical
- Horizontal
- Overturned
- Approximate
- Joint
- Strike and dip of cleavage

Shear foliation:

- Inclined
- Vertical

Folds:

- Synclinal or synformal axis
- Anticlinal or antiformal axis
- Overturned syncline
- Landslide (qls)

Melange Blocks:

- Serpentinite
- Chert
- Blueschist
- Greenstone
- Fossil locality and number

GEOLOGY OF THE CAPE MENDOCINO, EUREKA, GARBERVILLE, AND SOUTHWESTERN PART OF THE HAYFORK 30 X 60 MINUTE QUADRANGLES AND ADJACENT OFFSHORE AREA, NORTHERN CALIFORNIA (McLaughlin et al., 2000)

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 5
Post Office Box 306	569 Eubanks Road, Whitethorn, Humboldt County	April 12, 2022
Cutten, CA 95534	APN 220-081-016, Lost Coast Elixirs LLC, Thomas Harwood, Client	Project 0445.00
(707) 442-6000	Geologic Cross Section (all locations approximate)	Not to Scale

Modified from: McLaughlin and Others (2000)

State of California

Well Completion Report

Form DWR 188 Submitted 9/13/2021

WCR2021-011658

Owner's Well Number 2 | Date Work Began 07/13/2021 | Date Work Ended 07/15/2021

Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program

Secondary Permit Agency | Permit Number 20/21-0663 | Permit Date 02/11/2021

Well Owner (must remain confidential pursuant to Water Code 13752)

Name TOMMY HARWOOD

Mailing Address 569 EUBANKS RD.

City WHITETHORN State CA Zip 95579

Planned Use and Activity

Activity New Well

Planned Use Water Supply Irrigation - Agriculture

Well Location

Address 569 EUBANKS RD

City WHIETETHORN Zip 95579 County Humboldt

Latitude 40 Deg. 5 Min. 49.7209 Sec. N Longitude -123 Deg. 57 Min. 56.165 Sec. W

Dec. Lat. 40.0971447 Dec. Long. -123.9656014

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN

Township 04 S

Range 02 E

Section 21

Baseline Meridian Humboldt

Ground Surface Elevation 1350

Elevation Accuracy 10 Ft

Elevation Determination Method GPS

Borehole Information

Orientation Vertical Specify

Drilling Method Downhole Rotary Hammer Drilling Fluid Air

Total Depth of Boring 260 Feet

Total Depth of Completed Well 260 Feet

Water Level and Yield of Completed Well

Depth to first water 140 (Feet below surface)

Depth to Static Water Level 132 (Feet) Date Measured 07/15/2021

Estimated Yield* 12 (GPM) Test Type Air Lift

Test Length 4 (Hours) Total Drawdown 0 (feet)

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

Geologic Log - Lite

Depth from Surface Feet to Feet		Material Type	Material Color	Material Texture	Material Description
0	5	Soil or Organic	Brown	Organic	TOP SOIL BROWN
5	35	Sand	Brown	Coarse	SANDSTONE BROWN DRY
35	95	Claystone	Blue	Clayey	BLUESHALE STONE
95	155	Clayey Gravel	Blue	Clayey	BLUE SHALE STONE CLAY WITH BASALT
155	260	Rock	Blue	Hard	BASALT WATER BEARING

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	140	Blank	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5			
1	140	240	Screen	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5	Milled Slots	32	.032
1	240	260	Blank	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5			/4" CAP INSTALLED

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	21	Bentonite	Other Bentonite	3/8" CHIPS DUMPED FROM SURFACE WHILE ADDING WATER	18 BAGS
21	260	Filter Pack	Other Gravel Pack	#6 SILICA	3 BAGS

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	260	8.75

Certification Statement

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

Name: VICS WELL DRILLING INC
Person, Firm or Corporation

3807 SIERRA HWY UNIT #6 (Address) | ACTON (City) | CA (State) | 93510 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 09/13/2021 (Date Signed) | 886439 (C-57 License Number)

Attachments

E3902_20210219_083348.pdf - Permit

PLOT PLAN #2 (3).jpg - Other

DRILLERS REPORT.docx - Other

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

ORIGINAL
File with DWR

JUN 0 1 2017

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 1087868

DWR USE ONLY — DO NOT FILL IN
04S/02E+21
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Page ___ of ___
Owner's Well No. 1
Date Work Began Oct 5 2016, Ended Oct 5 2016
Local Permit Agency Humbt
Permit No. 16/17 /0238 Permit Date Sept 29, 16

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0 to 25	Soft Brn Rock
25 to 50	Gry Shale
50 to 80	Hard gry Shale
80 to 85	Shale w/ Quarts /Wtr
85 to 140	Hard gry Shale

TOTAL DEPTH OF BORING 140 (Feet)
TOTAL DEPTH OF COMPLETED WELL 140 (Feet)

WELL LOCATION

Address 569 EUBANKS RD
City BRICELAND rd Ettersburg
County HUMB
APN Book ___ Page ___ Parcel 220 081 016
Township ___ Range ___ Section ___
Lat ___ DEG. ___ MIN. ___ SEC. N
Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

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

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
✓ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 110 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 100 (Ft.) & DATE MEASURED Oct 5th 2016
ESTIMATED YIELD * 10 (GPM) & TEST TYPE Air Lift
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 to 80	9"	✓				F 480	5"	SCH 160	
80 to 140	11		✓			11	11	11	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 to 20		✓		
20 to 140				3/8 Pea

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

NAME Bushnell Enterprises (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
649 Bearcreek RD GARB CA 95542
ADDRESS CITY STATE ZIP
Signed [signature] (C-57 LICENSED WATER WELL CONTRACTOR)
5-24-17 DATE SIGNED
740378 C-57 LICENSE NUMBER

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OSP 03 78836

ORIGINAL
File with DWR JUN 0 1 2017

Page ___ of ___
Owner's Well No. 2
Date Work Began 10-6-16, Ended 10-6-16
Local Permit Agency Humbt
Permit No. 16-17-0327 Permit Date Sept 29th 2016

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 1087869

DWR USE ONLY — DO NOT FILL IN
04S/02E-21
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID ___

DEPTH FROM SURFACE Ft. to Ft.		DESCRIPTION Describe material, grain size, color, etc.
0	20	Soft Brn Rock
20	65	Gry Shale
65	120	Gry Shale
120	160	HRD Blue Sand Stone
160	200	Gry Shale

TOTAL DEPTH OF BORING 200 (Feet)
TOTAL DEPTH OF COMPLETED WELL 198 (Feet)

WELL OWNER

ZIP

WELL LOCATION

Address 569 EUBANKS RD
City ETTERSBURG
County Humbolt
APN Book ___ Page ___ Parcel 220 081 016
Township ___ Range ___ Section ___
Lat ___ DEG. MIN. SEC. N Long ___ DEG. MIN. SEC. W

LOCATION SKETCH

NORTH
WEST EAST
SOUTH

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

ACTIVITY (✓)

___ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)

WATER SUPPLY
✓ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 200 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 190 (Ft.) & DATE MEASURED 10-6-16
ESTIMATED YIELD * 15 (GPM) & TEST TYPE AIR lift
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	160	9"	✓				F480	5"	SCH160	
160	200			✓			— —	5"	" "	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20		✓		
20	200				3/8 Pea

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

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

649 Bearcreek RD Garb CA 95542
ADDRESS CITY STATE ZIP

Signed [signature] 5-24-17 403708
C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 03 78836

ORIGINAL
File with DWR

JUN 0 1 2017

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 1087870

DWR USE ONLY — DO NOT FILL IN
04S/02E-21
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Page ___ of ___
Owner's Well No. 3
Date Work Began 10-7-16 Ended 10-7-16
Local Permit Agency Humbt
Permit No. 16/17-0329 Permit Date Sept 29-16

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0 20	Soft Brn Rock
20 50	Gry Shale
50 80	HRD Gry Shale
80 85	Gry Shale w Quarts
85 120	Gry Shale w Quarts

TOTAL DEPTH OF BORING 120 (Feet)
TOTAL DEPTH OF COMPLETED WELL 120 (Feet)

WELL LOCATION

Address 569 EUBANKS RD
City Ettersburg RD
County HUMBT
APN Book ___ Page ___ Parcel 220-081-016
Township ___ Range ___ Section ___
Lat ___ DEG. ___ MIN. ___ SEC. N
Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

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

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
✓ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 80 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 70 (Ft.) & DATE MEASURED 10-7-16
ESTIMATED YIELD * 20 (GPM) & TEST TYPE AIR LIFT
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 80	9"	✓				F480	5"	.4h/60	
80 120	~		✓			~	~	~	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 20		~		
20 120				3/8 Pea

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

NAME Bushnell Enterprises
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 649 Bearcreek RD CITY Garb STATE Ca ZIP 95542
Signed [signature] (AK LICENSED WATER WELL CONTRACTOR) DATE SIGNED 5-24-17
C-57 LICENSE NUMBER 403708

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OSP 03 78836

Map Unit Description

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 in this report, 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, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components 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. Some minor components, however, have properties and behavior 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*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given 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.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Humboldt County, South Part, California

575—Canoecreek-Sproulish-Redwohly complex, 50 to 75 percent slopes, warm

Map Unit Setting

National map unit symbol: 2ml28
Elevation: 100 to 3,280 feet
Mean annual precipitation: 59 to 100 inches
Mean annual air temperature: 48 to 55 degrees F

Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Canoecreek, warm, and similar soils: 45 percent
Sproulish, warm, and similar soils: 25 percent
Redwohly, warm, and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canoecreek, Warm

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Colluvium and residuum derived from sandstone, mudstone, and conglomerate

Typical profile

Oi - 0 to 4 inches: gravelly slightly decomposed plant material
A - 4 to 13 inches: very gravelly loam
Bw1 - 13 to 30 inches: very gravelly loam
Bw2 - 30 to 47 inches: very gravelly loam
Bw3 - 47 to 61 inches: very gravelly loam
Bw4 - 61 to 71 inches: very gravelly loam

Properties and qualities

Slope: 50 to 75 percent
Surface area covered with cobbles, stones or boulders: 1.0 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 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
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F004BJ102CA - Dry, steep mountain slopes
Hydric soil rating: No

Description of Sproulish, Warm

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 mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 8 inches: gravelly loam
Bt1 - 8 to 16 inches: loam
Bt2 - 16 to 35 inches: loam
Bt3 - 35 to 55 inches: loam
Bt4 - 55 to 79 inches: gravelly loam

Properties and qualities

Slope: 50 to 75 percent
Surface area covered with cobbles, stones or boulders: 0.0 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 to high (0.20 to 2.00 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 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F004BJ102CA - Dry, steep mountain slopes
Hydric soil rating: No

Description of Redwohly, Warm

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

A - 0 to 8 inches: gravelly loam
Bt - 8 to 30 inches: very paragravelly loam
C - 30 to 79 inches: paragravel

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 20 to 39 inches to strongly contrasting textural stratification
Drainage class: Well 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
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F004BJ102CA - Dry, steep mountain slopes
Hydric soil rating: No

Minor Components

Crazycoyote

Percent of map unit: 7 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear
Hydric soil rating: No

Caperidge, warm

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex

Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 10, Sep 6, 2021