

**LINDBERG GEOLOGIC CONSULTING**

**David N. Lindberg, CEG  
Post Office Box 306  
Cuttan California 95534  
(707) 442-6000**

May 3, 2022

Project No: 0448.00

Ms. LaRose Kelly  
Dyerville Farms, LLC  
1271 Evergreen Road, Unit 621  
Redway, California 95560

Subject: Hydrologic Isolation of Existing Well from Surface Waters  
28525 Dyerville Loop Road, Myers Flat, APN: 216-144-017, WCR2020-007610

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 both the Eel River and the South Fork Eel River (Figure 1). A California-Certified Engineering Geologist visited this site on March 18, 2022 to observe the subject well and local site conditions. Based on our professional experience, our 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. We understand that you plan to use water from this well 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 Dyerville Farms can supply that information.

This well was drilled by Fisch Well Drilling Inc. of Hydesville, California, in June, 2020, under county permit #19/20-0813. Fisch Well Drilling is a licensed well-drilling contractor (C-57 #683865). Fisch Well Drilling submitted the well completion report (DWR 188) on June 16, 2020 (attached). Fisch Well Drilling estimated the yield of this well at 80 gallons per minute on June 16, 2020. Based on a four-hour air lift pump test, the total drawdown was reported to be five feet. The well location is shown approximately on the attached figures.

Borehole diameter as reported by the driller is 10-inches. Total drilled depth is 320 feet. A bentonite surface sanitary seal was installed from grade to 20 feet below the ground surface (bgs). From the surface to the total depth, the well was constructed of 6-inch diameter, low carbon steel pipe. From 20 feet bgs to the total completed total depth of 160 feet bgs, the annulus was backfilled with 3/8-inch pea gravel. The well is cased and sealed through any potential shallow subsurface aquifers and is screened (0.05" milled slots) from 160 to 300 feet. Depth to first water was reported as 168 feet below grade, and depth to static water in the completed and developed well was reported to be 157 feet bgs when the driller conducted the pump test on June 16, 2020.

By our estimation, this parcel 216-144-017 (Figure 2) encompasses approximately 200 acres. Based on our on-site GPS measurements, the subject well is located approximately at latitude

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40.12458° north, and longitude 123.69753° west ( $\pm 9'$ ). As reported by the driller, this well is in Section 11, T4S, R4E, HB&M (Figures 1 and 2).

Based on the Humboldt County WebGIS mapping, this well is approximately 1,500 feet from the nearest mapped surface waters, tributaries of Steelhead Creek, and Dean Creek (Figure 1). Based on interpolation from the USGS Fort Seward topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, well elevation is approximately 3,460 feet above sea level. At the nearest point to this well, the elevation of the Steelhead Creek tributary is approximately 3,190 feet. At the nearest point to this well, the elevation of the Dean Creek tributary is approximately 3,410 feet. The elevation of the bottom of the well is approximately 3,320 feet which is between the elevations of the Steelhead Creek and Dean Creek tributaries at their nearest points on the Humboldt County WebGIS map.

Three springs are mapped in the northwest quarter of Section 11 on the USGS Fort Seward topographic quadrangle map (Figure 1). From the well, the nearest mapped spring appears to be at least 3,500 feet northwest, at elevations of approximately 2,800 to 2,900 feet, on parcel 223-101-002. We observed no other springs mapped in what we estimate to be Section 14.

On the geologic map (Figure 4), by McLaughlin and Others (2000), this area is underlain by the early Tertiary to late Cretaceous, rocks of the Central belt of the Franciscan Complex. Rocks at the well site are identified as “gs”, greenstone; “Mafic meta-igneous rocks, metamorphosed to blueschist grade, commonly with megascopic sodic amphibole, inferred to be derived from the western side of Yolla Bolly terrane and translated north within Central belt”. Greenstone is underlain by mélangé of the Central belt of the Franciscan Complex (cm2). Mélangé of the central belt “consists of a matrix of clayey, penetratively sheared argillite and fine-grained sandstone, locally with intercalated green tuff and hard elliptical carbonate concretions armored with scaly black argillite. Includes blocks up to several kilometers across, of diverse lithologies and ages. Age range of the Central belt is based on the paleontologic and isotopic age range of rocks in the mélangé and on inferred range in age of penetrative shearing, boudinage, and related deformation that occurred during mélangé formation. Components of the Central belt mélangé include: cm2 mélangé-subequal amounts of metasandstone and meta-argillite. Exhibits irregular topography that lacks well incised sidehill drainages, but is less lumpy than unit cm1”. Shear foliation in the greenstone is mapped as striking northwest and dipping northeast. West of the subject parcel an “approximately located” fault traverses from south to north.

Materials reported on the geologic log of the driller’s well completion report (attached) include one foot of “top soil” over 32 feet of “brown sandstone & silt”. From the depth of 33 to 105 feet, the driller logged “silty clay brown”. The brown silty clay was in turn underlain by 61 feet (105’ – 166’) of “brown sandstone” which appears to be the first water-bearing unit. From the base of the brown sandstone at 166 feet, to the depth of 201 feet, 35 feet of “quartz, red chert, blue sandstone” was logged. Below 201 feet to 255 feet, the driller logged 54 feet of “blue sandstone, red chert”. From 255 feet to 288 feet the driller reported that the drilled formation consisted of 33

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feet of “quartz, red chert, slate”. From the base of the quartz, red chert, and slate at 288 feet, to the total depth of 320 feet, the driller recorded “blue sandstone”.

We interpret the “silty clay brown” section of this profile from 33 to 105 feet to be an aquitard; a material of low permeability and transmissivity. Materials below 105 feet, the sandstones, quartz, and chert, to be the water-bearing aquifer materials having higher transmissivity and permeability. At the location of the subject well, the elevation of the water-bearing aquifer unit is thus between approximately 3,535 feet and 3,320 feet.

Below the one foot of top soil, the earth materials encountered in the boring are likely the greenstone mapped by McLaughlin and Others (2000). Sheared and folded sandstone materials may be expected to have a moderate to high hydraulic conductivity and constitute a significant aquifer. We interpret the underlying sequence of materials described by the driller (sandstone, quartz and chert), as lithologies within the Central Belt of the Franciscan Complex. The sandstone is expected to have a significantly higher hydraulic conductivity than the silty brown clay section, making the sandstone, in our interpretation, 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 central belt mélange unit cm2 is shown dipping to the northeast and likely bounded by thrust fault planes. On-site, no dip of the rock units could be observed in the greenstone because it was mantled with soil and hillslope colluvium, and mantled by vegetation. We interpret the faults to be hydrologic boundaries of minimal permeability (due to grinding and shearing along the fault planes) which effectively separate portions of the central belt Franciscan units from each other, 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. First water was encountered at 157 feet. This well is sealed through the upper 20 feet of any potential unconfined, near-surface aquifers with which it might communicate hydraulically through the borehole because the bentonite-sealed surface casing isolates the top soil, and brown sandstone & silt materials from the deeper sandstone 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 (~157 - 320 feet, in sandstone), as well as its position relative to the nearest adjacent watercourses in Dean Creek and Steelhead Creek, we conclude that the depth of the surface seal is sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than 1,500 feet on the flanks of Mail Ridge. Thus, the water source from which this well draws appears to be a confined subsurface aquifer not connected to any unconfined, near-surface aquifer(s). This well appears, in our professional opinion, likely to be hydraulically isolated from nearby wells, surface waters, springs or wetlands.

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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 80 gallons per minute (gpm) on June 16, 2020, with just 5 feet of drawdown, after Fisch Drilling’s four-hour air-lift pump test. At a rate of 40 gallons per minute, this well could potentially produce 57,600 gallons per day. As noted on the well completion report, this capacity may not be representative of this well’s long-term yield.

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 tributaries; Dean Creek, a tributary of South Fork Eel River, or Steelhead Creek, a tributary of the mainstem Eel River. Nor does this well appear to be hydrologically connected to the local springs or ephemeral wetlands (if any). 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 watercourses, the potential for hydrologic connectivity between surface waters and groundwater in the deep bedrock aquifer appears low. Further, given the apparently limiting condition of 32 feet of low-transmissivity materials above the water-bearing sandstone units, the water-producing zone is considered hydrologically isolated from, and not demonstrably connected to any other aquifer(s) in the surrounding, slope central belt Franciscan deposits.

On the Fort Seward USGS topographic quadrangle map, as mentioned, the nearest mapped springs are shown to the northwest at an elevation of approximately 2,800 to 2,900 feet, and no closer than approximately 3,500 feet (Figure 1) on parcel 223-101-002. These springs are the nearest mapped springs to the subject well and are at an elevation lower than the bottom of the well (3,320 feet). There do not appear to be any other significant mapped or unmapped natural springs or wetlands within 1,000 feet of this subject well.

We researched the California Department of Water Resources (DWR) database to determine if there were other wells within 1,000 feet of the subject well on our client’s property. There is another well on this subject parcel (WCR2018-010387, attached), however, according to our client, this well is not in use to the fact that the chemical constituents in the water from the well are not suitable for irrigation. In Section 11 (T4S, R4E), we found four other wells in the Department of Water Resources (DWR) database; well completion reports are attached. On APN 216-144-006, an adjacent parcel to the northeast of the subject property, there is an irrigation well (WCR2019-008588) that was drilled in June 2019. Well WCR2019-008588 is more than 2,000 feet from the subject well and is 210 feet deep. The other wells in Section 11 are also more than 2,000 feet from the subject well. On parcel 223-101-004, there is a 200-foot deep domestic well (WCR2016-007753) which was drilled in October 2016. Also, on parcel 223-101-002, well WCR2016-006060 (legacy well #1087924), is more than 3,000 feet from the subject well.

The Natural Resources Conservation Service’s, online Web Soil Survey, shows the subject well to be located within the Burgsblock-Coolyork-Tannin soil complex (#452, Figure 6), which is

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described as well-drained. The Web Soil Survey Unit description is attached to this report. Mean annual precipitation in the area is listed as 49 to 90 inches per year. Capacity of the most limiting layer to transmit water (Ksat) is described as moderately high to high (0.20 to 2.00 in/hr). If ten percent of 49 inches of precipitation is absorbed by the soils and does not flow across the surface to local watercourses, then approximately 81.6 acre-feet, or 26.6 million gallons, of water per year may be expected to recharge the local aquifer below this 200-acre subject property.

On the 28<sup>th</sup> of March, 2022, our governor issued an executive order (N-7-22) relating to the ongoing drought California is experiencing. In his executive order, the governor outlined several measures the state will undertake to avoid and ameliorate the negative impacts of the current drought. Among these measures, it was ordered that counties, cities, and other public agencies have been prohibited from approving permits for new groundwater wells (or alteration of existing wells) in basins *“subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well is proposed”*. Your well at 28525 Dyerville Loop is not within a basin subject to the Act, and there has been no Groundwater Sustainability Agency established with authority over the area where your permitted well is sited.

Further, the Order states that counties, cities, and other public agencies have been prohibited from issuing permits for new groundwater wells (or alteration of existing wells) *“without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure”*. Note that this Order, and that cited in the preceding paragraph, are not applicable to *“wells that provide less than two acre-feet per year of groundwater for individual domestic users, or that will exclusively provide groundwater to public water supply systems.”*

Based on our professional experience, observations, and research, it is our opinion the well at 28525 Dyerville Loop Road has a low likelihood of being hydrologically connected to nearby surface waters or wells in any manner that might affect adjacent wetlands, wells, 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

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**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
- Figure 6: Soil Map of Subject Property

**State of California Well Completion Reports:**

WCR2020-007610 (DWR 188 REV. 12/19/2017), the subject well.

WCR2018-010387, an unused 220-foot irrigation well on the subject parcel.

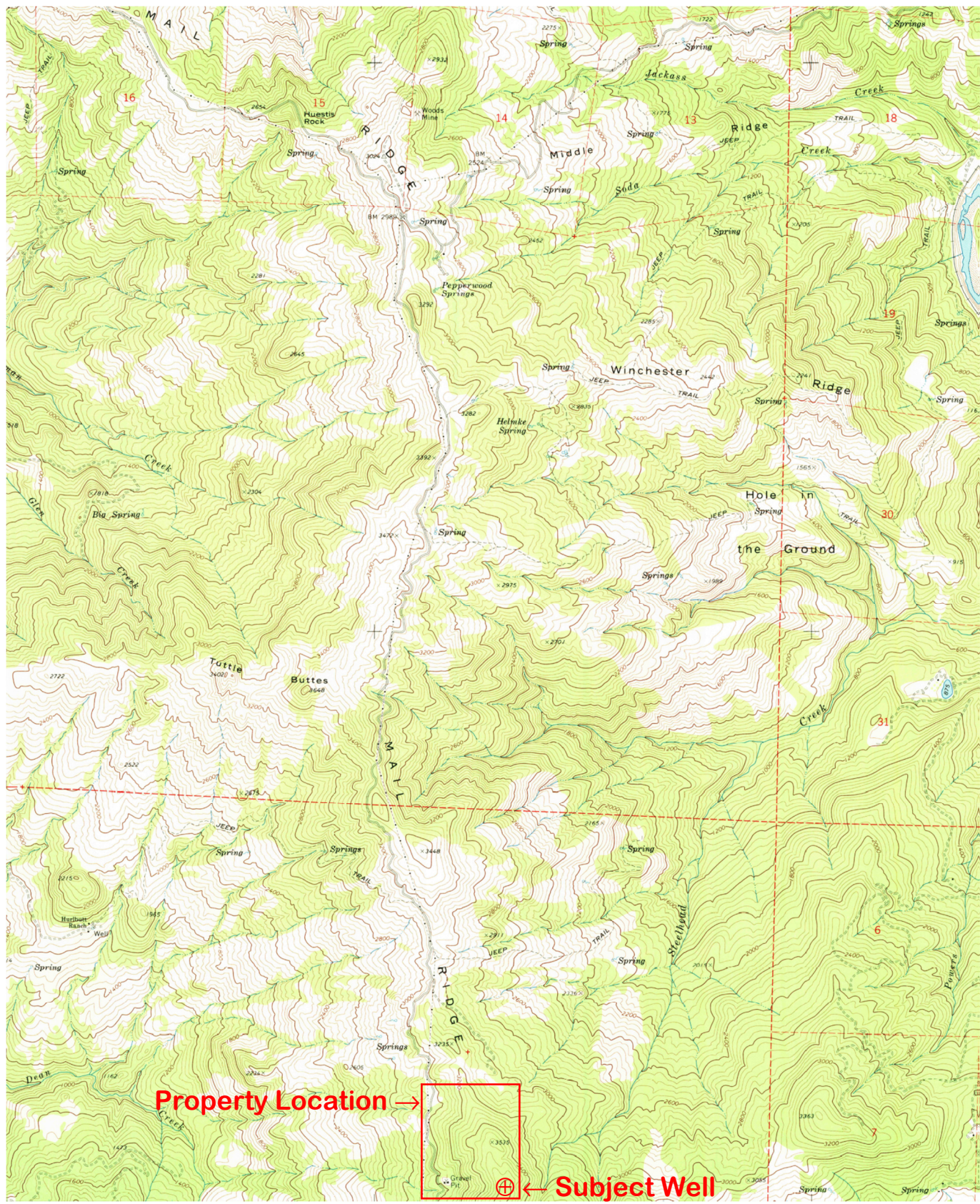
WCR2019-008588, a 210-foot irrigation well.

WCR2016-007753, a 200-foot domestic well.

WCR2016-006060, a 190-foot well use not specified (legacy well #1078924).

Web Soil Survey, NRCS Unit Description: Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes.

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 1
Post Office Box 306	28525 Dyerville Loop Road, Myers Flat, Humboldt County	May 3, 2022
Cutten, CA 95534	APN: 216-144-017, Dyerville Farms LLC, Ms. LaRose Kelly, Client	Project 0448.00
(707) 442-6000	Topographic Map and Well Location (all locations approximate)	1" ≈ 3,500'



Modified from: USGS "Fort Seward, Calif." 7.5' Quadrangle Map (1969). N ≈

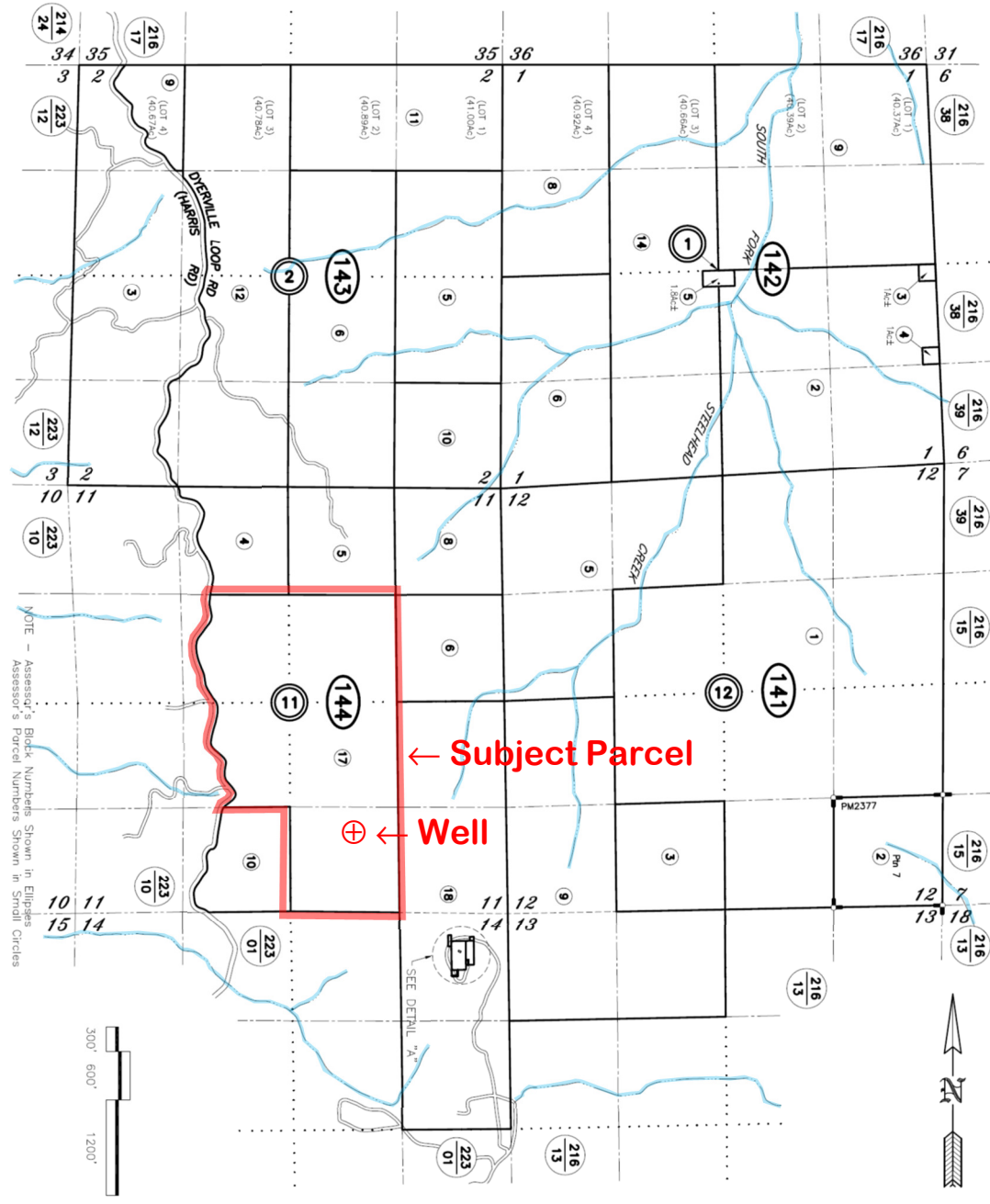
Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 2
Post Office Box 306	28525 Dyerville Loop Road, Myers Flat, Humboldt County	May 3, 2022
Cutten, CA 95534	APN: 216-144-017, Dyerville Farms LLC, Ms. LaRose Kelly, Client	Project 0448.00
(707) 442-6000	Humboldt County Assessor's Parcel Map (all locations approximate)	Scale as Shown

Assessor's Map Bk. 216, Pg. 14  
 County of Humboldt, CA.

SECS 1, 2, 12 & PTN 11, 13 & 14 T4S R4E, H.B.&M.

216-14

NOTE: POSITIONS OF CREEKS AND ROADS  
 ESTIMATED USING GIS SATELLITE  
 IMAGERY ON JAN. 7, 2019



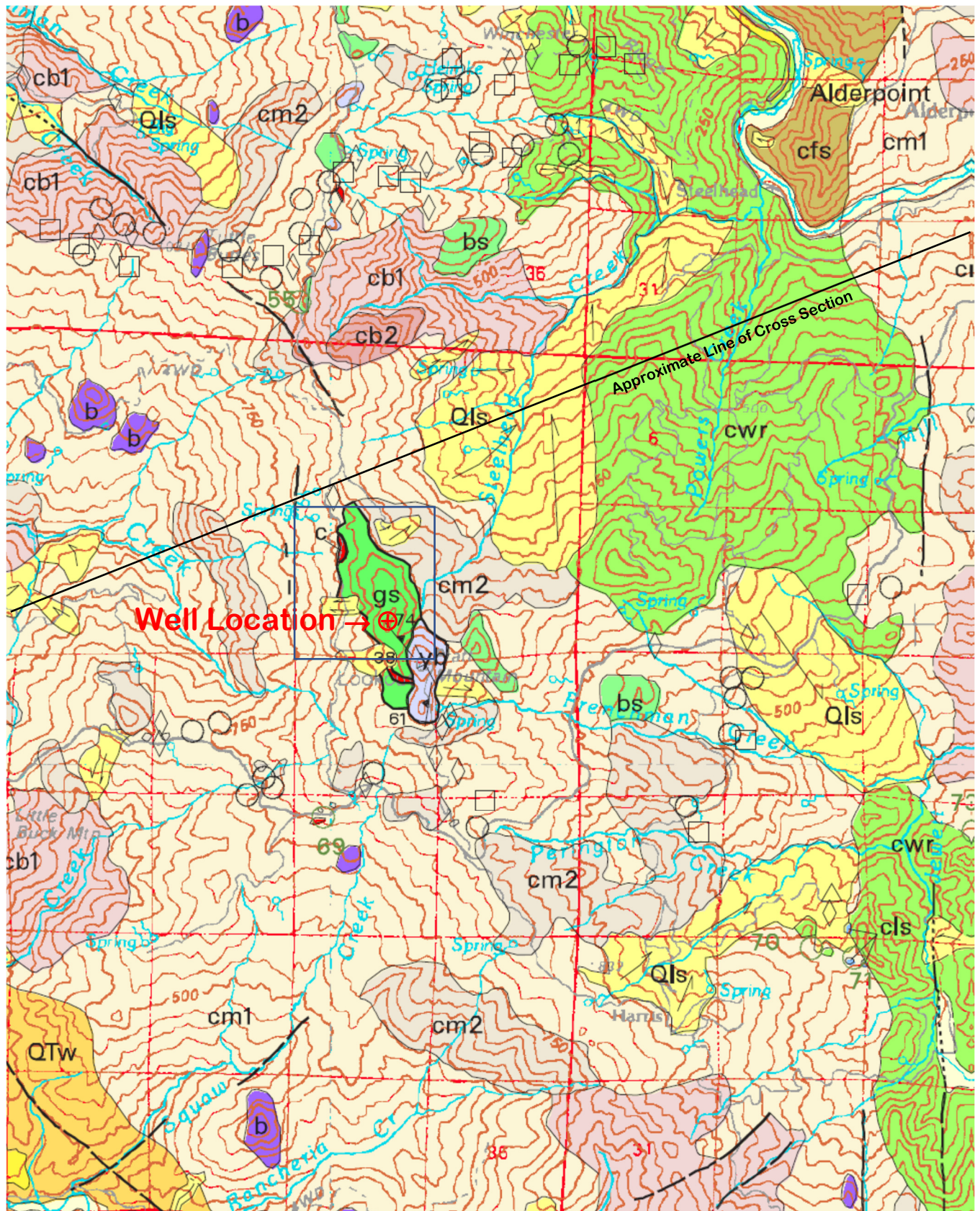
NOTE - Assessor's Block Numbers Shown in Ellipses  
 Assessor's Parcel Numbers Shown in Small Circles



Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 3
Post Office Box 306	28525 Dyerville Loop Road, Myers Flat, Humboldt County	May 3, 2022
Cutten, CA 95534	APN: 216-144-017, Dyerville Farms LLC, Ms. LaRose Kelly, Client	Project 0448.00
(707) 442-6000	Satellite Image (all locations approximate)	1" $\approx$ 650'



Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 4
Post Office Box 306	28525 Dyerville Loop Road, Myers Flat, Humboldt County	May 3, 2022
Cutten, CA 95534	APN: 216-144-017, Dyerville Farms LLC, Ms. LaRose Kelly, Client	Project 0448.00
(707) 442-6000	Geologic Map (all locations approximate)	1" = 3,500'



Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 4a
P. O. Box 306	28525 Dyerville Loop Road, Myers Flat, Humboldt County	May 3, 2022
Cutten, CA 95534	APN: 216-144-017, Dyerville Farms LLC, Ms. LaRose Kelly, Client	Project 0448.00
(707) 442-6000	Geologic Map Explanation	No Scale

### DESCRIPTION OF MAP UNITS

GREAT VALLEY SEQUENCE OVERLAP ASSEMBLAGE

#### 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
- krf** 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** Haman 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** Chingquapin 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** Serpentine

- 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** Serpentine 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 keratophytic tuff (Jurassic?)
- dpc** Diabase (Jurassic?)
- dpsp** Serpentine melange (Jurassic?)
- sp** Undivided Serpentinized peridotite (Jurassic?)

#### KLAMATH MOUNTAINS PROVINCE

- Undivided Great Valley Sequence:
- Ks** Sedimentary rocks (Lower Cretaceous)

#### Hayfork terrane

Eastern Hayfork subterrane:

- eh** Melange and broken formation (early? Middle Jurassic)
- ehls** Limestone
- ehsp** Serpentine

Western Hayfork subterrane:

- whu** Hayfork Bally Meta-andesite of Irwin (1985), undivided (Middle Jurassic)
- whwg** Wildwood (Chanchelulla Peak of Wright and Fahan, 1989) pluton (Middle Jurassic)
- whwp** Clinopyroxenite
- whji** Diorite and gabbro plutons (Middle? Jurassic)

#### Rattlesnake Creek terrane

- rcm** Melange (Jurassic and older)
- rcls** Limestone
- rcc** Radiolarian chert
- rcis** 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

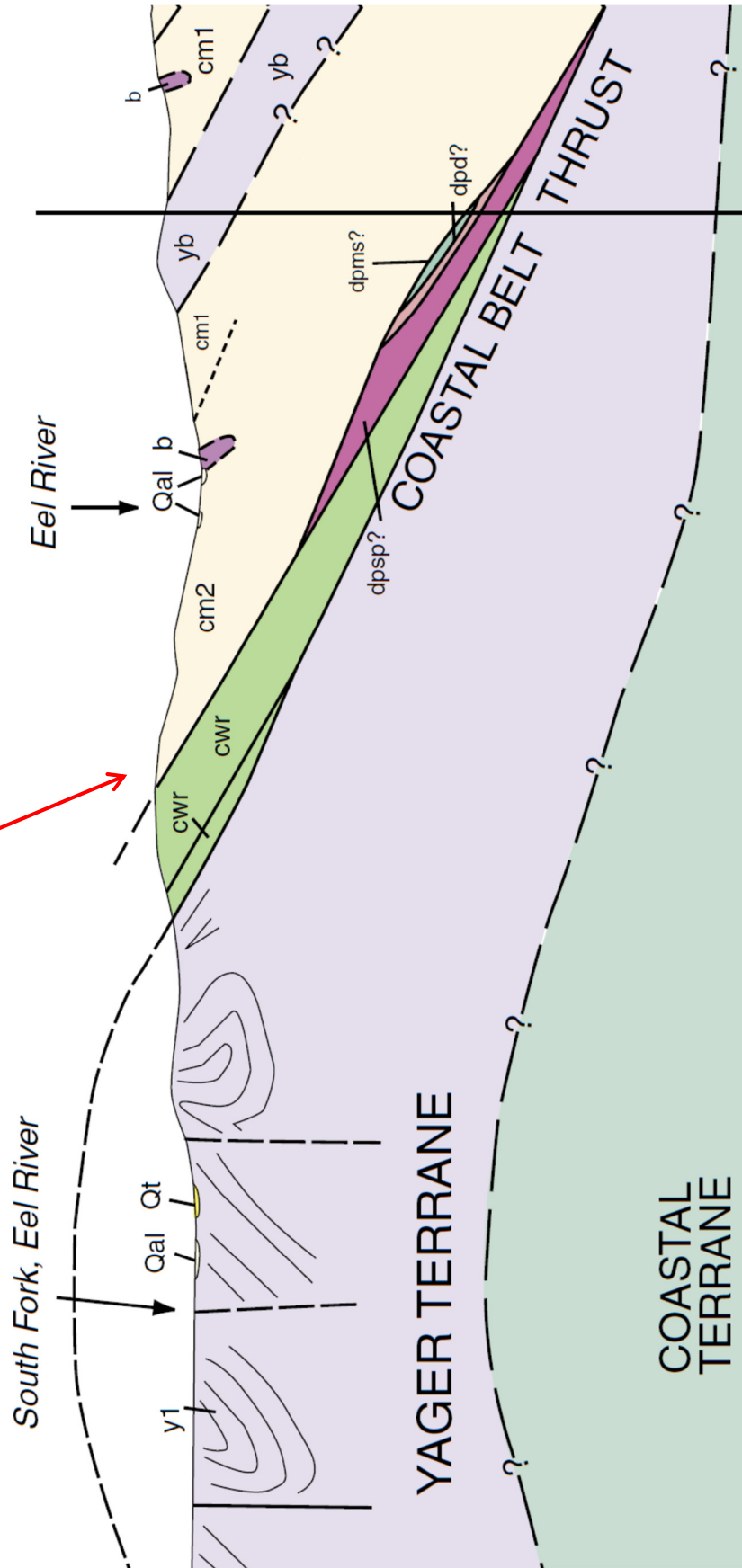
- Contact
- - - - Fault
- ▼▼▼▼ Thrust fault
- Trace of the San Andreas fault associated with 1906 earthquake rupture
- Strike and dip of bedding:
- 10° / 20° Inclined
- Vertical
- ⊕ Horizontal
- 10° / 20° Overturned
- Approximate
- 10° / 20° Joint
- 10° / 20° Strike and dip of cleavage
- Shear foliation:
- 10° / 20° Inclined
- Vertical
- Folds:
- ← Synclinal or synformal axis
- ← Anticlinal or antiformal axis
- Overturned syncline
- Landslide
- Melange Blocks:
- △ Serpentine
- Chert
- ◇ Blueschist
- Greenstone
- <sup>10</sup> Fossil locality and number

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 5
Post Office Box 306	28525 Dyerville Loop Road, Myers Flat, Humboldt County	May 3, 2022
Cutten, CA 95534	APN: 216-144-017, Dyerville Farms LLC, Ms. LaRose Kelly, Client	Project 0448.00
(707) 442-6000	Geologic Cross Section	Not to Scale

COAST RANGES PROVINCE

B

**Subject Well Location**



Modified From: McLaughlin and Others, 2000.

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 6
Post Office Box 306	28525 Dyerville Loop Road, Myers Flat, Humboldt County	May 3, 2022
Cutten, CA 95534	APN: 216-144-017, Dyerville Farms LLC, Ms. LaRose Kelly, Client	Project 0448.00
(707) 442-6000	Satellite Image with USDA Soil Map (all locations approximate)	1" = 650'



State of California  
**Well Completion Report**  
 Form DWR 188 Complete 8/14/2020  
 WCR2020-007610

Owner's Well Number \_\_\_\_\_ Date Work Began 06/01/2020 Date Work Ended 06/16/2020  
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program  
 Secondary Permit Agency \_\_\_\_\_ Permit Number 19/20-0813 Permit Date 05/07/2020

Well Owner (must remain confidential pursuant to Water Code 13752)			
Name	XXXXXXXXXXXXXXXXXXXX		
Mailing Address	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX		
City	State	XX	Zip XXXXX

Planned Use and Activity	
Activity	<u>New Well</u>
Planned Use	<u>Water Supply Irrigation - Agriculture</u>

Well Location					
Address <u>27870 Dyerville Loop RD</u>			APN <u>216-144-017</u>		
City <u>Garberville</u>	Zip <u>95542</u>	County <u>Humboldt</u>	Township <u>04 S</u>		
Latitude <u>40 7 28.0632 N</u>	Longitude <u>-123 41 51.9287 W</u>		Range <u>04 E</u>		
Deg. Min. Sec.	Deg. Min. Sec.		Section <u>11</u>		
Dec. Lat. <u>40.124462</u>		Dec. Long. <u>-123.697758</u>		Baseline Meridian <u>Humboldt</u>	
Vertical Datum _____		Horizontal Datum <u>WGS84</u>		Ground Surface Elevation _____	
Location Accuracy _____		Location Determination Method _____		Elevation Accuracy _____	
				Elevation Determination Method _____	

Borehole Information	
Orientation <u>Vertical</u>	Specify _____
Drilling Method <u>Other - Under Ream Down Hole Hammer</u>	Drilling Fluid <u>Air</u>
Total Depth of Boring <u>320</u>	Feet
Total Depth of Completed Well <u>320</u>	Feet

Water Level and Yield of Completed Well	
Depth to first water <u>168</u>	(Feet below surface)
Depth to Static _____	
Water Level <u>157</u> (Feet)	Date Measured <u>06/16/2020</u>
Estimated Yield* <u>80</u> (GPM)	Test Type <u>Air Lift</u>
Test Length <u>4</u> (Hours)	Total Drawdown <u>152</u> (feet)
*May not be representative of a well's long term yield.	

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	1	top soil
1	33	brown sandstone & silt
33	105	silty clay brown
105	166	brown sandstone
166	201	quartz, red chert, blue sandstone
201	255	blue sandstone, red chert
255	288	quartz, red chert, slate
288	320	blue sandstone

Casings										
Casing #	Depth from Surface		Casing Type	Material	Casings Specifications	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
	Feet to Feet	Feet to Feet								
1	0	160	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	160	300	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.05	
1	300	320	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			

Annular Material						
Depth from Surface		Fill	Fill Type Details		Filter Pack Size	Description
Feet to Feet	Feet to Feet					
0	20	Bentonite	Other Bentonite			Sanitary Seal
20	320	Filter Pack	Other Gravel Pack		3/8 inch	Pea Gravel

**Other Observations:**

Borehole Specifications		
Depth from Surface		Borehole Diameter (inches)
Feet to Feet	Feet to Feet	
0	320	10

Certification Statement				
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief				
Name	FISCH DRILLING			
Person, Firm or Corporation				
3150 JOHNSON ROAD	HYDESVILLE	CA	95547	
Address		City	State	Zip
Signed	<i>electronic signature received</i>	06/16/2020	683865	
C-57 Licensed Water Well Contractor		Date Signed	C-57 License Number	

Attachments
scan.pdf - Location Map

DWR Use Only													
CSG #	State Well Number				Site Code				Local Well Number				
					N								W
Latitude Deg/Min/Sec						Longitude Deg/Min/Sec							
TRS:													
APN:													

State of California  
**Well Completion Report**  
 Form DWR 188 Complete 1/10/2019  
 WCR2018-010387

Owner's Well Number \_\_\_\_\_ Date Work Began 11/07/2018 Date Work Ended 11/13/2018  
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program  
 Secondary Permit Agency \_\_\_\_\_ Permit Number 18/19-0285 Permit Date 10/03/2018

Well Owner (must remain confidential pursuant to Water Code 13752)			
Name	XXXXXXXXXXXXXXXXXXXX		
Mailing Address	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX		
City	State	XX	Zip XXXXX

Planned Use and Activity	
Activity	<u>New Well</u>
Planned Use	<u>Water Supply Irrigation - Agriculture</u>

Well Location					
Address <u>27870 Dyerville Loop RD</u>			APN <u>216-144-017</u>		
City <u>Garberville</u>	Zip <u>95542</u>	County <u>Humboldt</u>	Township <u>04 S</u>		
Latitude <u>40 7 32.3472 N</u>	Longitude <u>-123 41 49.5636 W</u>		Range <u>04 E</u>		
Deg. Min. Sec.	Deg. Min. Sec.	Section <u>11</u>			
Dec. Lat. <u>40.125652</u>			Dec. Long. <u>-123.697101</u>		
Vertical Datum _____		Horizontal Datum <u>WGS84</u>		Baseline Meridian <u>Humboldt</u>	
Location Accuracy _____			Location Determination Method _____		Elevation Accuracy _____
			Elevation Determination Method _____		

Borehole Information	
Orientation <u>Vertical</u>	Specify _____
Drilling Method <u>Direct Rotary</u>	Drilling Fluid <u>Air</u>
Total Depth of Boring <u>220</u>	Feet
Total Depth of Completed Well <u>220</u>	Feet

Water Level and Yield of Completed Well			
Depth to first water	<u>87</u>	(Feet below surface)	
Depth to Static _____			
Water Level	<u>86</u>	(Feet)	Date Measured <u>11/13/2018</u>
Estimated Yield*	<u>30</u>	(GPM)	Test Type <u>Air Lift</u>
Test Length	<u>4</u>	(Hours)	Total Drawdown <u>134</u> (feet)
*May not be representative of a well's long term yield.			

Geologic Log - Free Form		
Depth from Surface	Feet to Feet	Description
0	3	top soil with brown sandstone
3	18	brown sandstone & clay
18	23	blue sandstone
23	47	brown sandstone
47	93	blue fractured sandstone & chert (green)
93	137	green fractured chert
137	161	red fractured chert
161	187	blue fractured sandstone & shale
187	220	shale mulache



Casings										
Casing #	Depth from Surface		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
	Feet to Feet	Feet to Feet								
1	0	80	Blank	PVC	OD: 5.563 in.   SDR: 21   Thickness: 0.265 in.	0.265	5.563			
1	80	220	Screen	PVC	OD: 5.563 in.   SDR: 21   Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

Annular Material					
Depth from Surface		Fill	Fill Type Details	Filter Pack Size	Description
Feet to Feet	Feet to Feet				
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	220	Filter Pack	Other Gravel Pack	3/8 Inch	Pea Gravel

**Other Observations:**

Borehole Specifications		
Depth from Surface		Borehole Diameter (inches)
Feet to Feet	Feet to Feet	
0	220	10

Certification Statement			
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief			
Name	FISCH DRILLING		
	Person, Firm or Corporation		
3150 JOHNSON ROAD		HYDESVILLE	CA 95547
Address		City	State Zip
Signed	<i>electronic signature received</i>	11/15/2018	683865
	C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

Attachments
scan.pdf - Location Map

DWR Use Only			
CSG #	State Well Number	Site Code	Local Well Number
Latitude Deg/Min/Sec		Longitude Deg/Min/Sec	
N		W	
TRS:			
APN:			

State of California  
**Well Completion Report**  
 Form DWR 188 Auto-Completed 8/19/2019  
 WCR2019-008588

Owner's Well Number \_\_\_\_\_ Date Work Began 06/17/2019 Date Work Ended 06/20/2019  
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program  
 Secondary Permit Agency \_\_\_\_\_ Permit Number 18/19-0549 Permit Date 01/15/2019

Well Owner (must remain confidential pursuant to Water Code 13752)			
Name	<u>XXXXXXXXXXXXXXXXXXXX</u>		
Mailing Address	<u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>		
City	State	Zip	<u>XXXXX</u>

Planned Use and Activity	
Activity	<u>New Well</u>
Planned Use	<u>Water Supply Irrigation - Agriculture</u>

Well Location					
Address <u>0 Dyerville Loop RD</u>			APN <u>216-144-006</u>		
City <u>Garberville</u>	Zip <u>95542</u>	County <u>Humboldt</u>	Township <u>04 S</u>		
Latitude <u>40 7 48 N</u>	Longitude <u>-123 41 36.2399 W</u>		Range <u>04 E</u>		
Deg. Min. Sec.	Deg. Min. Sec.		Section <u>11</u>		
Dec. Lat. <u>40.13</u>			Dec. Long. <u>-123.6934</u>		
Vertical Datum _____		Horizontal Datum <u>WGS84</u>		Baseline Meridian <u>Humboldt</u>	
Location Accuracy _____		Location Determination Method _____		Ground Surface Elevation _____	
				Elevation Accuracy _____	
				Elevation Determination Method _____	

Borehole Information	
Orientation <u>Vertical</u>	Specify _____
Drilling Method <u>Direct Rotary</u>	Drilling Fluid <u>Air</u>
Total Depth of Boring <u>210</u>	Feet
Total Depth of Completed Well <u>210</u>	Feet

Water Level and Yield of Completed Well	
Depth to first water <u>91</u>	(Feet below surface)
Depth to Static _____	
Water Level <u>68</u>	(Feet) Date Measured <u>06/20/2019</u>
Estimated Yield* <u>4</u>	(GPM) Test Type <u>Air Lift</u>
Test Length <u>4</u>	(Hours) Total Drawdown <u>119</u> (feet)
*May not be representative of a well's long term yield.	

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	4	top soil
4	36	brown sandstone silt
36	52	shale
52	156	shale sandstone mix
156	188	hard shale
188	210	soft shale

### 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	70	Blank	PVC	OD: 5.563 in.   SDR: 21   Thickness: 0.265 in.	0.265	5.563			
1	70	210	Screen	PVC	OD: 5.563 in.   SDR: 21   Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

### Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	210	Filter Pack	Other Gravel Pack	3/8 Inch	Pea Gravel

#### Other Observations:

### Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	210	10

### Certification Statement

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

Name FISCH DRILLING  
 Person, Firm or Corporation

3150 JOHNSON ROAD      HYDEVILLE      CA      95547  
 Address      City      State      Zip

Signed electronic signature received      06/20/2019      683865  
 C-57 Licensed Water Well Contractor      Date Signed      C-57 License Number

### Attachments

Scan.pdf - Location Map
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### DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

										<b>N</b>
--	--	--	--	--	--	--	--	--	--	----------

Latitude Deg/Min/Sec

										<b>W</b>
--	--	--	--	--	--	--	--	--	--	----------

Longitude Deg/Min/Sec

TRS:

APN:

State of California  
**Well Completion Report**  
 Form DWR 188 Complete 12/20/2016  
 WCR2016-007753

Owner's Well Number 1 Date Work Began 10/13/2016 Date Work Ended 10/21/2016  
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program  
 Secondary Permit Agency \_\_\_\_\_ Permit Number 16/17 123 Permit Date 08/22/2016

Well Owner (must remain confidential pursuant to Water Code 13752)			
Name	<u>XXXXXXXXXXXXXXXXXXXX</u>		
Mailing Address	<u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>		
City	State	Zip	<u>XXXX</u>

Planned Use and Activity	
Activity	<u>New Well</u>
Planned Use	<u>Water Supply Domestic</u>

Well Location						
Address	<u>1400 Ross RD</u>			APN	<u>223-101-004</u>	
City	<u>Garberville</u>	Zip	<u>95560</u>	County	<u>Humboldt</u>	
Latitude	<u>          </u>	N	Longitude	<u>          </u>	W	
	Deg.	Min.	Sec.	Deg.	Min.	Sec.
Dec. Lat.	<u>40.1294866</u>			Dec. Long.	<u>-123.7086637</u>	
Vertical Datum	_____			Horizontal Datum	<u>WGS84</u>	
Location Accuracy	_____			Location Determination Method	_____	
				Township	<u>04 S</u>	
				Range	<u>04 E</u>	
				Section	<u>11</u>	
				Baseline Meridian	<u>Humboldt</u>	
				Ground Surface Elevation	_____	
				Elevation Accuracy	_____	
				Elevation Determination Method	_____	

Borehole Information	
Orientation	<u>Vertical</u> Specify _____
Drilling Method	<u>Direct Rotary</u> Drilling Fluid <u>Air</u>
Total Depth of Boring	<u>200</u> Feet
Total Depth of Completed Well	<u>200</u> Feet

Water Level and Yield of Completed Well	
Depth to first water	<u>50</u> (Feet below surface)
Depth to Static	_____
Water Level	_____ (Feet) Date Measured _____
Estimated Yield*	<u>25</u> (GPM) Test Type <u>Air Lift</u>
Test Length	<u>2</u> (Hours) Total Drawdown _____ (feet)
*May not be representative of a well's long term yield.	

Geologic Log - Free Form		
Depth from Surface	Feet to Feet	Description
0	5	Top Soil
5	25	Sand & Gravel w/Clay
25	75	Brown Serpentine Gravel
75	80	Blue Clay
80	200	Fractured/Broken Franciscan Sandstone

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	21	Blank	Low Carbon Steel	Grade: ASTM A53	0.25	8			
2	0	40	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
2	40	75	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.125	Knife Cut
2	75	95	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
2	95	155	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.125	
2	155	175	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
2	175	200	Screen	Low Carbon Steel	Grade: ASTM A53	0.25	6	Milled Slots	0.125	

Annular Material					
Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	21	Bentonite	Non Hydrated Bentonite		
21	200	Other Fill	See description.		no annular fill

**Other Observations:**

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	21	12
21	200	7.44

Certification Statement			
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief			
Name	WATSON WELL DRILLING		
Person, Firm or Corporation			
500 Summer Street	Eureka	CA	95501
Address	City	State	Zip
Signed	<i>electronic signature received</i>	11/09/2016	1014048
C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number	

DWR Use Only			
CSG #	State Well Number	Site Code	Local Well Number
		N	W
Latitude Deg/Min/Sec		Longitude Deg/Min/Sec	
TRS:			
APN:			

04S/04E-11  
 STATE WELL ID / STATION NO  
 LATITUDE  
 LONGITUDE  
 APN/TRS/OTHER

Page \_\_\_ of \_\_\_  
 Owner's Well No. \_\_\_\_\_  
 Date Work Began \_\_\_\_\_, Ended \_\_\_\_\_  
 Local Permit Agency \_\_\_\_\_  
 Permit No. \_\_\_\_\_ Permit Date \_\_\_\_\_

DEPTH FROM SURFACE		DESCRIPTION
Fl.	to Fl.	
0'	40'	loose Brown Sandstone with sandlike texture
40'	190'	Hard Sandstone with streaks of Quartz
190'	200'	Shale with very little clay

WELL LOCATION  
 Address Duesville Loop Rd 26092  
 City Garberville CA 95542  
 County Humboldt #APR 223-101-82  
 APN Book \_\_\_\_\_ Page \_\_\_\_\_ Parcel \_\_\_\_\_  
 Township 04S Range 04E Section 11  
 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 (Fl.) BELOW SURFACE  
 DEPTH OF STATIC WATER LEVEL 80 (Fl.) & DATE MEASURED \_\_\_\_\_  
 ESTIMATED YIELD 6 (GPM) & TEST TYPE air  
 TEST LENGTH 1 (Hrs) TOTAL DRAWDOWN 60 (Fl.)  
 \* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE-HOLE DIA (Inches)	CASING (S)				
		TYPE ( )	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
20	4	✓	F-5180		160	0.30
100		✓				
170		✓				

DEPTH FROM SURFACE	ANNULAR MATERIAL			
	TYPE	CE-MENT ( )	BEN-TONITE ( )	FILL ( )
0	20		✓	
20	190			3/8 pea Gravel

ATTACHMENTS ( )  
 Geologic Log  
 Well Construction Diagram  
 Geophysical Log(s)  
 Soil/Water Chemical Analyses  
 Other \_\_\_\_\_  
 ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT  
 I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.  
 NAME Bushnell Enter  
 (PERSON, FIRM OR CORPORATION) (TYPED OR PRINTED)  
 ADDRESS 649 Bear Creek Rd Garberville CA 95542  
 CITY STATE ZIP  
 Signed [Signature] DATE SIGNED 403 708  
 C-57 LICENSED WATER WELL CONTRACTOR C-57 LICENSE NUMBER

## Humboldt County, South Part, California

### 452—Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes

#### Map Unit Setting

*National map unit symbol:* hs7g  
*Elevation:* 200 to 3,280 feet  
*Mean annual precipitation:* 49 to 90 inches  
*Mean annual air temperature:* 52 to 59 degrees F  
*Frost-free period:* 240 to 280 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Burgsblock and similar soils:* 35 percent  
*Coolyork and similar soils:* 30 percent  
*Tannin and similar soils:* 20 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Burgsblock

##### Setting

*Landform:* Mountain slopes  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Center third of mountainflank  
*Down-slope shape:* Concave, convex, linear  
*Across-slope shape:* Linear, concave, convex  
*Parent material:* Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

##### Typical profile

*Oi - 0 to 1 inches:* slightly decomposed plant material  
*A - 1 to 4 inches:* gravelly loam  
*Bt1 - 4 to 14 inches:* very gravelly clay loam  
*Bt2 - 14 to 51 inches:* very gravelly clay loam  
*Bt3 - 51 to 79 inches:* very gravelly clay loam

##### Properties and qualities

*Slope:* 30 to 50 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:* Moderate (about 7.1 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* C

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

*Hydric soil rating:* No

#### **Description of Coolyork**

##### **Setting**

*Landform:* Mountain slopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Center third of mountainflank

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Linear, concave, convex

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

##### **Typical profile**

*A1 - 0 to 8 inches:* loam

*A2 - 8 to 14 inches:* loam

*Bt1 - 14 to 23 inches:* clay loam

*Bt2 - 23 to 41 inches:* clay

*Bt3 - 41 to 57 inches:* clay

*Bt4 - 57 to 63 inches:* clay

##### **Properties and qualities**

*Slope:* 30 to 50 percent

*Surface area covered with cobbles, stones or boulders:* 0.0 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 0.20 in/hr)

*Depth to water table:* About 20 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 8.9 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* C/D

*Ecological site:* F005XZ020CA - Very Deep Mesic Mountains 40-60"ppt

*Hydric soil rating:* No



## Description of Tannin

### 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

### Typical profile

*Oi - 0 to 1 inches:* slightly decomposed plant material  
*A - 1 to 7 inches:* loam  
*ABt - 7 to 13 inches:* loam  
*Bt1 - 13 to 26 inches:* sandy clay loam  
*Bt2 - 26 to 38 inches:* sandy clay loam  
*Bt3 - 38 to 79 inches:* sandy clay loam

### Properties and qualities

*Slope:* 30 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 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 9.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* B  
*Ecological site:* F005XZ022CA - Mesic Mountains >60"ppt  
*Hydric soil rating:* No

## Minor Components

### Rockyglen

*Percent of map unit:* 5 percent  
*Landform:* Mountain slopes  
*Landform position (two-dimensional):* Shoulder, backslope,  
footslope  
*Landform position (three-dimensional):* Center third of  
mountainflank  
*Down-slope shape:* Concave, convex, linear  
*Across-slope shape:* Linear, concave, convex  
*Hydric soil rating:* No

### **Wohly**

*Percent of map unit:* 4 percent

*Landform:* Mountain slopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Center third of  
mountainflank

*Down-slope shape:* Convex, linear

*Across-slope shape:* Linear, convex

*Hydric soil rating:* No

### **Chalkmountain**

*Percent of map unit:* 3 percent

*Landform:* Mountain slopes

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Mountainflank

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Linear, concave, convex

*Hydric soil rating:* No

### **Yorknorth**

*Percent of map unit:* 2 percent

*Landform:* Mountain slopes

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, linear

*Hydric soil rating:* No

### **Rock outcrop**

*Percent of map unit:* 1 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