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

December 22, 2022

Project No: 0496.00

Ms. Marion Collamer
Lost Creek Farms, LLC
600 F Street, Ste #3, Box 208
Arcata, California 95521

Subject: Hydrologic Isolation from Surface Waters, Well WCR2009-007349 (e0096711)
Perimeter (Rim) Road, Honeydew, APN: 211-184-006 APPS 10820

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 nearby surface waters, other wells, or wetlands, and if pumping well WCR2009-007349 might significantly affect nearby surface waters. The nearest watercourses in the vicinity of this well are Westlund Creek, a perennial stream, and an ephemeral tributary of perennial stream of Bull Creek (Figure 1).

A California-Certified Engineering Geologist visited this well site on December 9, 2022, to observe the subject well and local site conditions. Based on our observations, research, and our professional experience, it is our opinion the subject well has a low likelihood of being hydrologically connected to nearby surface waters in any manner that could significantly affect adjacent surface waters, springs, wetlands, or other wells in the vicinity. We define the "vicinity" as the area within a 1,000-foot radius of the subject well (Figure 1), an area that encompasses approximately 72 acres. The proposed use of this well is 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 that information is provided elsewhere in the application.

Based on Humboldt County's WebGIS and the Assessor's Parcel Map (Figure 2), parcel 211-184-006 (Figure 2) encompasses approximately 41 acres. Our GPS located the subject well at latitude 40.25344° north, and longitude 124.00011° west (±9'). This well is in Section 31, T2S, R2E, and is 200 feet deep. The wellhead is at an elevation of approximately 2,100 feet (Figure 1) and the elevation of the bottom of the well is therefore 1,900 feet.

The Humboldt County WebGIS shows three watercourses within one mile of the well site. To the north more than 1,450 feet is an ephemeral tributary of Bull Creek. More than 1,200 feet to the southwest is perennial Westlund Creek. To the west more than 1,700 feet is a perennial tributary of Westlund Creek. Based on interpolation from the Weott topographic quadrangle map (1969), (Figure 1), and the Humboldt County WebGIS, the elevation of the subject well is 2,100 feet. The elevation of Westlund Creek, the nearest watercourse, is 1,620 feet. The bottom elevation of well WCR2009-007349 is 1,900 feet, making Westlund Creek 280 feet lower than the total depth of the well.

The location of well WCR2009-007349 is shown approximately on the attached figures, and was drilled by Fisch Drilling, of Hydesville, in June 2009, under Humboldt County well permit #08/09-0639. Fisch Drilling is a licensed well-drilling contractor (C-57 #683865). Fisch Drilling submitted their attached well completion report (DWR 188) on June 27, 2009. The driller estimated a yield of 20 gpm on June 18, 2009, based on a 4-hour air lift pump test. Total drawdown during the pump test was reported as 200 feet (sic).

Total depth of this well is 200 feet. The borehole diameter is 10-inches from the surface to 200-feet. From the surface to 100 feet, a 5-inch diameter blank (unslotted) PVC casing was installed. From 100- to 200-feet, 5-inch diameter, PVC well screen with 0.032 milled slots was installed. Per County requirements, a bentonite surface sanitary seal was installed from the surface to 20 feet. Below the bentonite seal, the driller reported filling the annulus with 3/8-inch pea gravel. The well is cased and sealed through any potential shallow subsurface aquifers in the uppermost 20 feet as required by county regulation. Depth to first water was reported at 110-feet, and depth to static water in the completed developed well was reported to be 100 feet bgs when the driller conducted the pump test on June 18, 2009.

There is only one spring mapped on the USGS topographic maps within one mile of the subject well. That spring is more than 3,200 feet to the west, in Section 36, at an elevation of 1,920 feet. The next closest spring is more than one mile (>5,780 feet) to the northwest in Section 25, at an elevation of approximately 2,360 feet. The next closest springs appear to be more than 2 miles west, on the Mann Ranch in Section 35. Based on the USGS topographic maps, there are no other springs mapped within one mile of the subject well.

This parcel is located within California's Coast Range Geomorphic Province, in the Central Belt of the Franciscan Complex (McLaughlin et at., 2000), a seismically active region in which large earthquakes are expected to occur during the economic life span (70 years) of any developments on the subject property. Geologic mapping by McLaughlin shows that the site is underlain by the Yager Terrane (y1) of the Coastal Belt of the Franciscan Complex, as shown in Figure 4.

According to the NRCS Web Soil Survey, the near-surface soils consist of loam to a depth of 21-inches, gravelly loam to 46-inches, and very gravelly fine sandy loam to 79-inches. Soils are interpreted to be uniformly distributed across that portion of the subject parcel underlain by the Yager Terrane of the Coastal Belt of the Franciscan Complex.

Materials described on the geologic log of the driller's well completion report (attached) include "Fractured Weathered Bedrock" from the ground surface to 68 feet. From 68-feet to 200-feet the driller logged "Fractured Bedrock". First water was encountered at 110 feet and stabilized at 100 feet. At the location of the subject well, the elevation of the first water-bearing aquifer unit is thus at an elevation of approximately 2,000 feet, based on our interpretation of the driller's report.

Earth materials encountered in the borehole are likely Yager Terrane sandstone and argillite of the Coastal Belt Franciscan Complex, as mapped by McLaughlin et al., (2000). Sheared, fractured, and folded metasedimentary rock materials can have variable hydraulic conductivity, but can also constitute significant aquifers. We interpret the "Fractured Bedrock" as described by the driller, to be sandstone of the Coastal Belt of the Franciscan Complex. That section of the profile apparently has favorable hydraulic conductivity, making it in our interpretation, the primary water bearing lithographic unit in the subject well.

A geologic cross section of the area after McLaughlin et al., (2000) shows the structural and stratigraphic relationships between the regional geologic units (Figure 5). The Coastal Belt Yager Terrane is shown dipping east and bounded by thrust fault plane contacts. On-site, no attitude of the rock units could be observed because they are mantled with soil and colluvium and obscured by vegetation. We interpret the faults in the subsurface to be significant hydrogeologic boundaries of low permeability (due to grinding and shearing along the fault planes), effectively separating units of the Coastal Belt Franciscan Complex from each other hydrologically, and thereby limiting groundwater flow between the fault-bound units.

Based on observations, review of pertinent and available information, and our experience, it is our professional opinion that this well has a low potential of having any direct or significant connection to proximal surface waters. First water was reportedly encountered at 110 feet and stabilized to a static water level at 100 feet bgs. This well is sealed with bentonite through the upper 20 feet of any potential unconfined, near-surface aquifers with which it might communicate hydraulically through the borehole.

When considered with the stratigraphy, and the underlying geologic structure, plus the distances (horizontal and vertically) from the nearest surface waters, and the depth of the producing zone of this well (100 to 200 feet), as well as the position of the well relative to the nearest surface waters in the vicinity, we conclude that the depth of the surface seal, is sufficient to preclude the potential for hydraulic connectivity with perennial surface waters, of which there are none closer than 1,000 feet in perennial Westlund Creek at an elevation of 1,620 feet. Thus, the water source from which this well draws appears to be a subsurface aquifer not demonstrably or significantly connected to any surface waters or unconfined, near-surface aquifer(s). This well appears, in our professional opinion, likely to be hydraulically isolated from nearby surface waters, springs, wells, or wetlands.

According to the driller, the estimated yield of this well was 20 gallons per minute (gpm) on June 18, 2009. A nonsensical drawdown of 200-feet was reported after Fisch Drilling's four-hour air-lift pump test. Regardless, at 20 gpm, this well would potentially produce 28,800 gallons per day. As noted in the well completion report, this capacity may not be representative of this well's long-term yield. Additional drawdown and recovery testing would be necessary to estimate a sustainable long-term yield of the site well.

This subject well does not appear to be hydrologically connected to, or capable of influencing surface water flows in the nearest watercourse, perennial Westlund Creek. Nor does this well appear likely to be hydrologically connected to any local springs or ephemeral wetlands. Given the distances involved, and the elevation differences between the subject well, and the nearest surface waters and springs, the potential for significant hydrologic connectivity between surface water and groundwater in the Yager Terrane Coastal Belt Franciscan aquifer(s) appears unlikely.

As discussed, on the USGS topographic quadrangle maps, there are no springs mapped within 1,000 feet of the subject well. There are no significant (mapped) springs or wetlands within one half mile of this subject well.

We have researched the California Department of Water Resources' database to find permitted wells within 1,000 feet of the subject well. Based on the information available at the present time, there are no wells that meet that criterion. The closest well, WCR2018-009210, is on parcel 211-183-008, more than 1,000 feet to the northeast. Well WCR2018-009210 is in Section 30, it is 240 deep, at an elevation of 2,240 feet. Well WCR2018-009210 is on a separate parcel, but one that is under the same ownership and control as the subject well.

As groundwater mimics topography and moves in response to the force of gravity, in general any near surface unconfined aquifer will flow down slope in a direction subparallel to topography. The ground surface slopes primarily to the southwest; thus, the near surface unconfined aquifer flows toward Westlund Creek. At the time of our site visit, there was installed a pump in the subject well.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating through the soil, and the argillite and sandstone bedrock from upslope source areas both proximal and distal to the well site. Ephemeral watercourses and flow channels in the vicinity also contribute recharge when they flow during runoff generating storm events.

The United States Department of Agriculture's (USDA), Natural Resources Conservation Service's (NRCS), online Web Soil Survey, shows the subject well within soils of the Wirefence-Windynip-Devilshole complex, on slopes of 5 to 30 percent, (#646, Figure 7), which the NRCS describes as a well-drained soil. The Web Soil Survey's unit description is attached to this report. Mean annual precipitation is listed by the NRCS as 60 to 100 inches per year. Capacity of the most limiting soil layer to transmit water (Ksat) is described as moderately high to high (0.60 to 2.00 in/hr) with a depth to the water table of greater than 80 inches.

If during the wet season, only ten percent of the "low end" precipitation estimation of 60 inches is absorbed by the soils/bedrock and does not flow across the ground surface and into local watercourses (or be lost to evapotranspiration), then approximately 20.5 acre-feet, or more than 6.6 million gallons of water per year (MGPY), may be expected to recharge the local aquifer below this 41-acre subject property. Given the same amount of precipitation (60") and the same 10 percent partitioned to recharge, then within the 1,000-foot radius vicinity of the subject well,

recharge can be estimated. Recharge within the 72 acres enclosed by a circle having a 1,000-foot radius, would be 36 acre-feet, and more than 11 MGPY. Our estimates are conservative; United States Geological Survey (USGS) researchers estimate that in northwest California, approximately 33 percent of precipitation goes to recharge (Flint, et al., 2103).

On March 28, 2022, Governor Newsom issued an executive order (N-7-22) relating to the ongoing drought in California. In executive order N-7-22, the governor outlined 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*". This well on Perimeter (Rim) Road, is not within a basin subject to the Act, and there has been no Groundwater Sustainability Agency established with authority over the area where this permitted well is sited.

The Governor's order also states that counties, cities, and other public agencies are prohibited from issuing permits for new groundwater wells (or altering 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*". The conditions in the Order 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 observations, research, and experience, it is our professional opinion that the well WCR2009-007349, located Perimeter (Rim) Road, Honeydew, on APN 211-184-006, has a low likelihood of being hydrologically connected to nearby surface waters, springs, or wells in any manner that might have a significant negative impact or effect on such proximal surface waters, springs, or wells.

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

Sincerely,

David N. Lindberg

CERTIFIED ENGINEERING GEOLOGIST
DAVID N. LINDBERG
No. 1895
EXP. 02/29/24
DNL
STATE OF CALIFORNIA

David N. Lindberg, CEG
Lindberg Geologic Consulting

DNL:sll

Attachments:

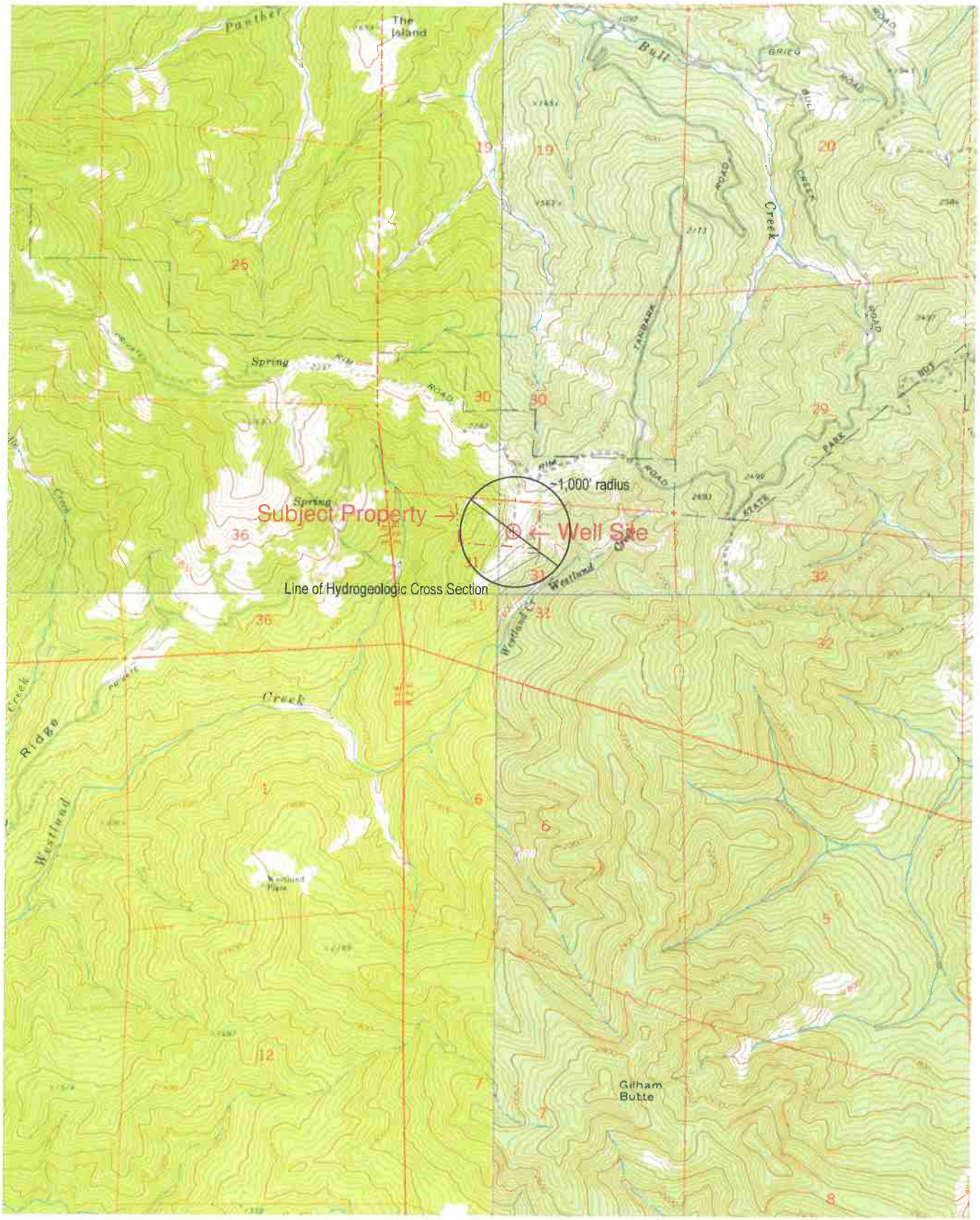
Figure 1:	Topographic Well Location Map
Figure 2:	Humboldt County Assessor's Parcel Map
Figure 3:	Satellite Image of Well location
Figure 4:	Geologic Map
Figure 4a:	Geologic Map Explanation
Figure 5:	Geologic Cross Section
Figure 6:	Hydrogeologic Cross Section
Figure 7:	USDA-NRCS Soils Map

State of California Well Completion Report:
WCR2009-007349 (e0096711), APN: 211-184-006 (Subject Well)

Web Soil Survey, NRCS Map Unit Description:
Wirefence-Windynip-Devilshole complex, #646, 5 to 30 percent slopes.

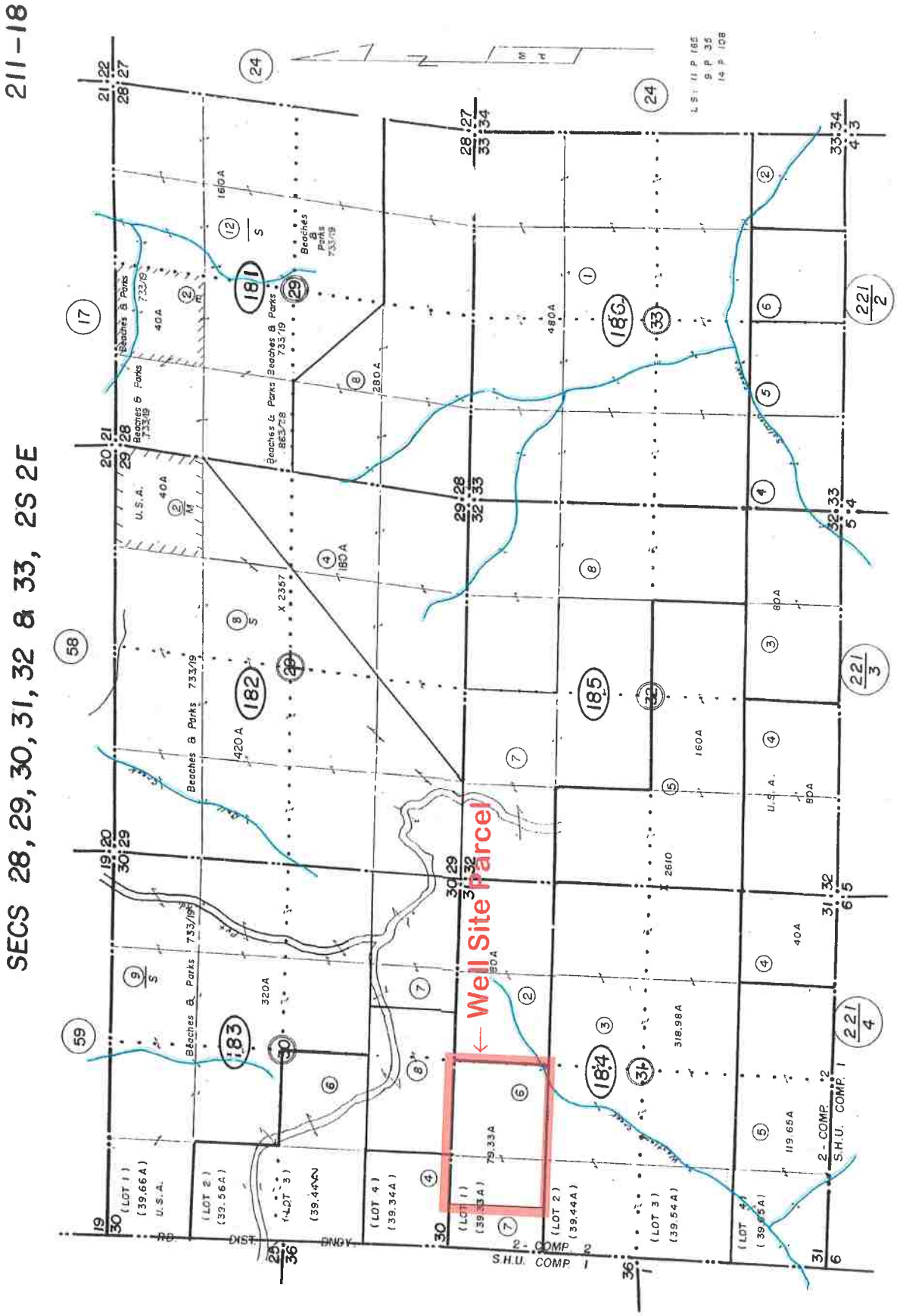
Reference:
Flint, et al.: Fine-scale hydrologic modeling for regional landscape applications: the California Basin Characterization Model development and performance. Ecological Process, 2013, 2:25. (doi:10.1186/2192-1709-2-25)

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 1
Post Office Box 306	Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006	December 22, 2022
Cutten, CA 95534	Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client	Project 0496.00
(707) 442-6000	Topographic Well Location Map (locations approximate)	1" ≈ 2,500'



Modified from: USGS "Bull Creek, Calif." (1969), "Weott, Calif." (1969), "Honeydew, Calif." (1970), and "Ettersburg, Calif." (1969), 7.5' Quadrangle Maps. N ≈

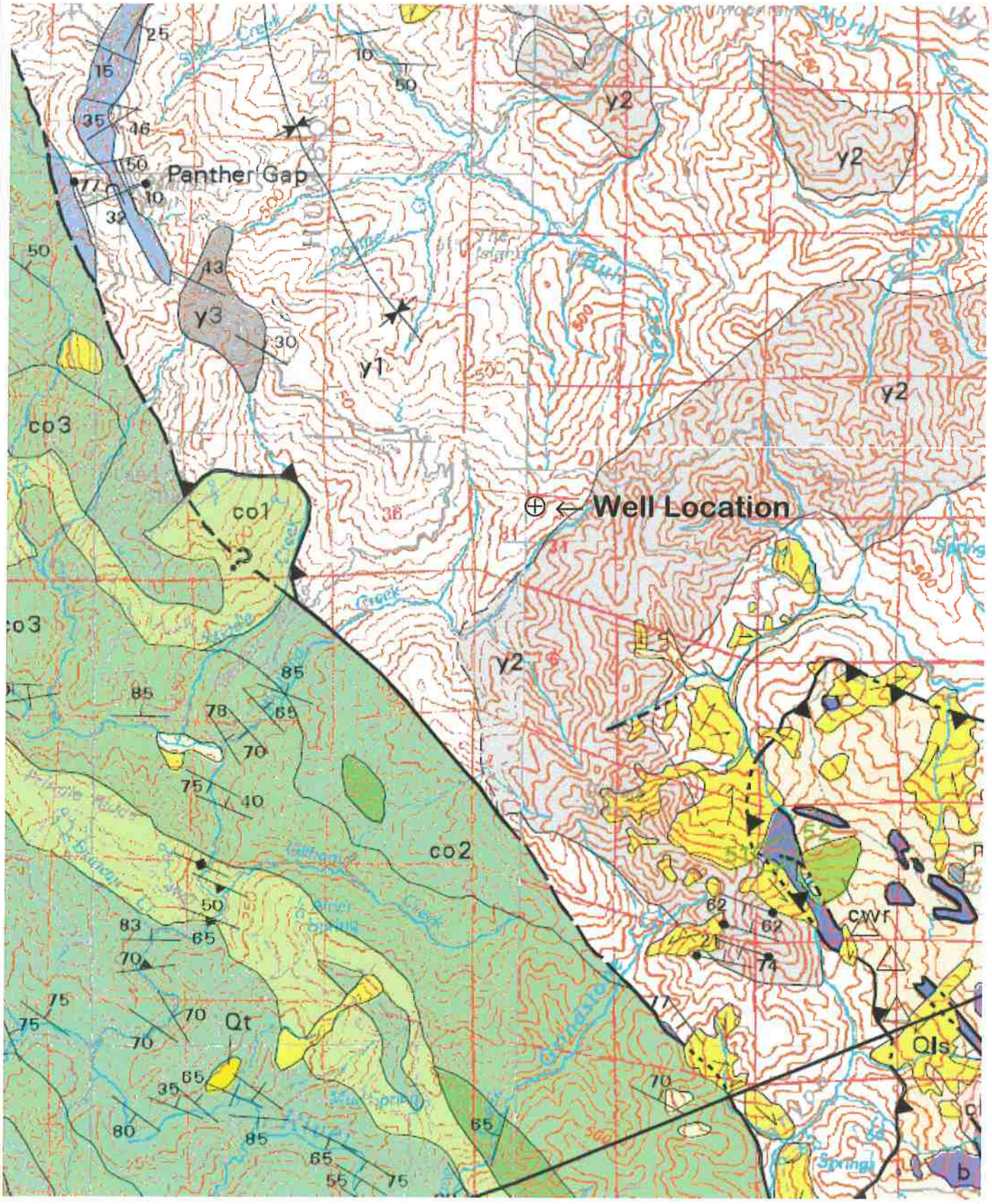
Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 2
Post Office Box 306	Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006	December 22, 2022
Cutten, CA 95534	Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client	Project 0496.00
(707) 442-6000	Humboldt County Assessor's Parcel Map (locations approximate)	1" ≈ 2,100'



Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 3
Post Office Box 306	Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006	December 22, 2022
Cutten, CA 95534	Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client	Project 0496.00
(707) 442-6000	Satellite Image of Well Location (locations approximate)	1" ≈ 600'

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

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4
Post Office Box 306	Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006	December 22, 2022
Cutten, CA 95534	Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client	Project 0496.00
(707) 442-6000	Geologic Map (locations approximate)	1" ≈ 5,000'



Modified from: McLaughlin, et al., (2000) N ≅

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4a
P. O. Box 306	Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006	December 22, 2022
Cutten, CA 95534	Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client	Project 0496.00
(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 aolian 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)
- Tf — 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 — 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 — 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 — Taliaferro 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
- whji — 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:

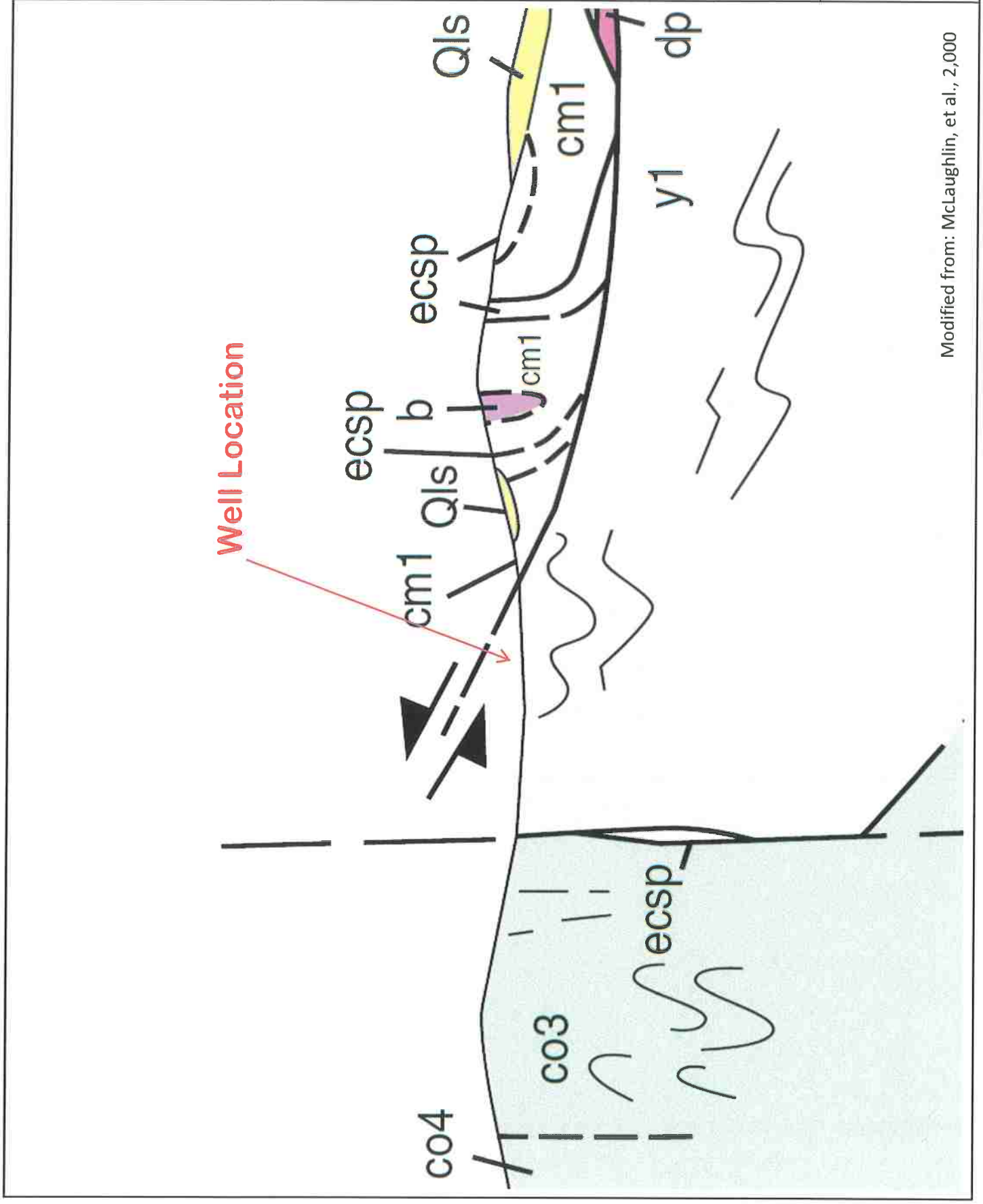
- Synclinal or synformal axis
- Anticlinal or antiformal axis
- Overturned syncline
- Landslide

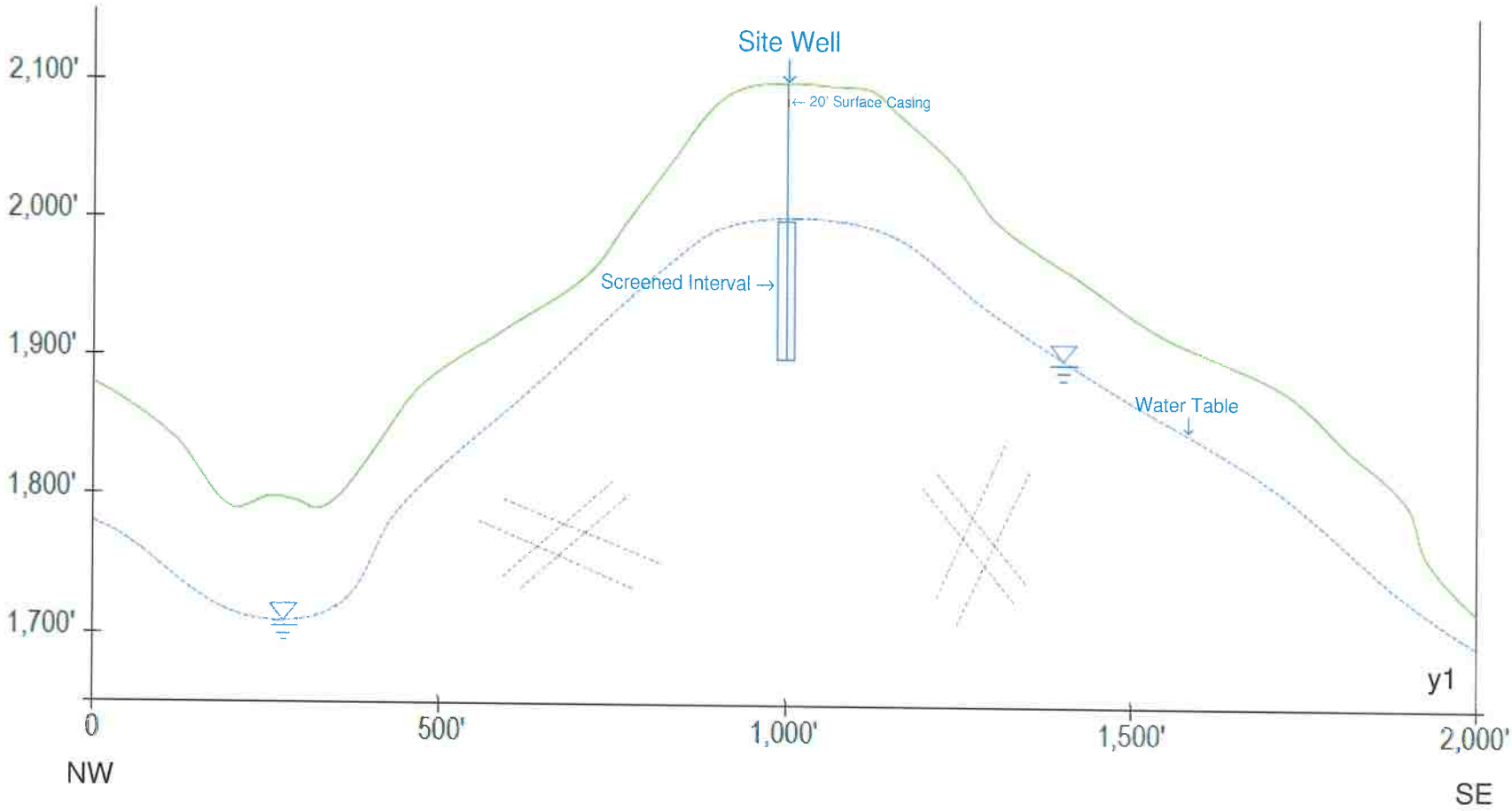
Melange Blocks:

- 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 Well Connectivity Assessment Report	Figure 5
Post Office Box 306	Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006	December 22, 2022
Cutten, CA 95534	Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client	Project 0496.00
(707) 442-6000	Geologic Cross Section (locations approximate)	Not to Scale





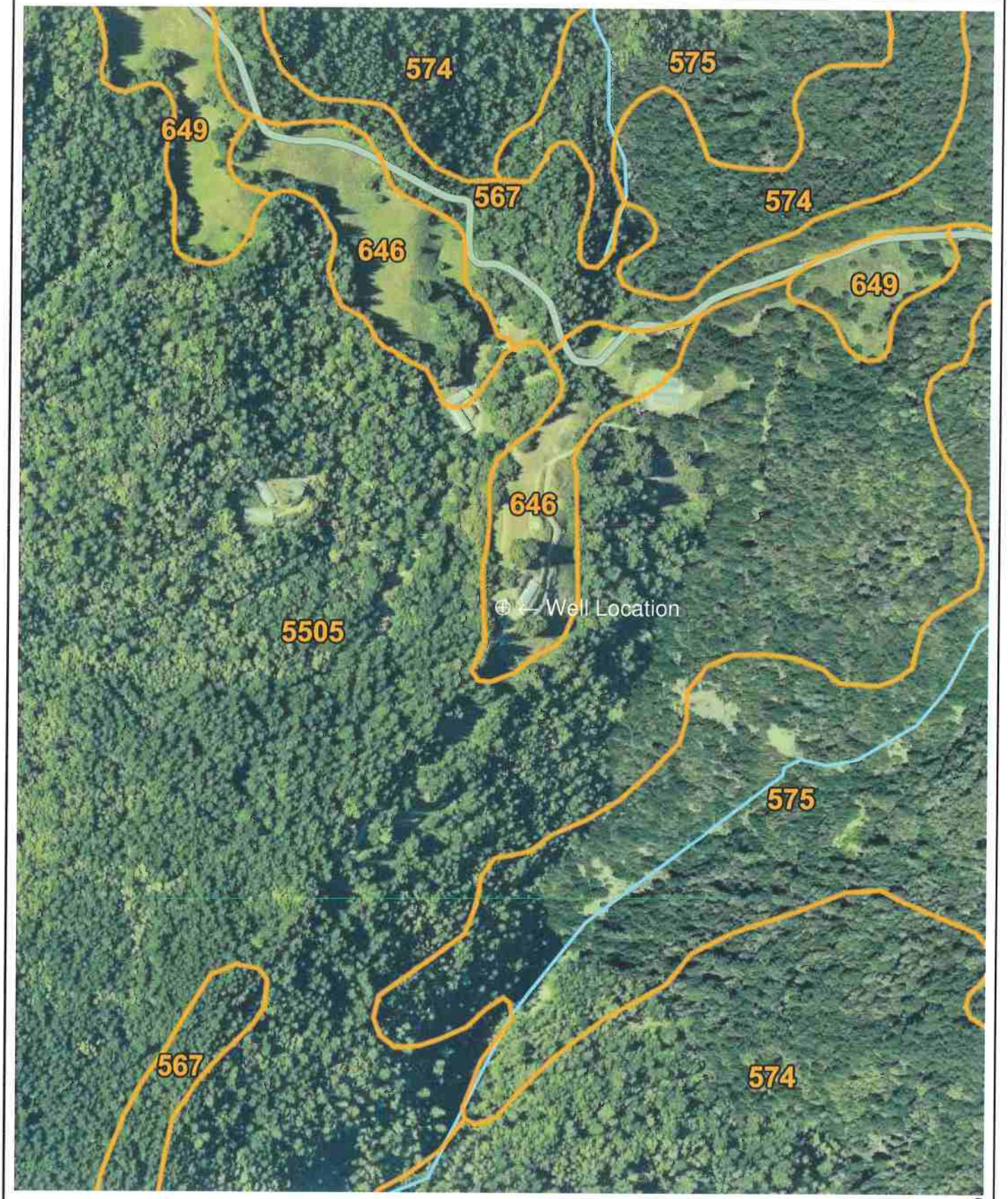
In this vertically exaggerated (~2x) cross section, the view is looking to the northeast toward the Bull Creek divide. Groundwater flow in this cross section is southwesterly, toward from the viewer, or out of the page. Groundwater is presumed to flow from recharge areas in the higher ground to the northeast. This well is sited high on the ridge above Westlund Creek valley. Subgrade is composed of interbedded argillite and sandstone of the Yager Terrane (y1), a component of the Coastal Belt of the Franciscan Complex. Groundwater is envisioned to flow through fractured bedrock. Fractures are interpreted to be the primary permeability, providing preferential flow paths for the local groundwater. The driller noted that first water occurred 110 feet below the surface. Static water occurred 100 feet below the surface. A sanitary surface seal was installed by the driller for the ground surface to the 20-foot depth. This well is cased to 100 feet below the existing ground surface, screened from 100 to 200 feet, where this well draws groundwater. Bedrock subgrade mapping (Figure 4), is from McLaughlin, et al., (2000).

Lindberg Geologic Consulting
Post Office Box 306
Cutten, CA 95534
(707) 442-6000

Engineering-Geologic Well Connectivity Assessment Report
Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006
Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client
Hydrogeologic Cross Section (locations approximate)

Figure 6
December 22, 2022
Project 0496.00
V. E. = 2

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 7
Post Office Box 306	Perimeter (Rim) Road, Panther Gap, Honeydew, APN: 211-184-006	December 22, 2022
Cutten, CA 95534	Well WCR2009-007349 (e0096711), Ms. Marion Collamer, Client	Project 0496.00
(707) 442-6000	USDA-NRCS Soil Map (locations approximate)	Scale Not Determined



Modified from: USGS-NRCS Web Soil Survey, December 21, 2022. N ≈

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to instruction pamphlet

No. e0093819

DWR Use Only – Do Not Fill In

State Well Number / Site Number

N / W

Latitude / Longitude

APN/TRS/Other

Page 1 of 2

Owner's Well Number 1

Date Work Began 06/18/2009 Date Work Ended 6/26/2009

Local Permit Agency Humboldt County E.H.D.

Permit Number 08/09-0639 Permit Date 5/8/09

Geologic Log

Orientation: (●) Vertical ( ) Horizontal ( ) Angle Specify

Drilling Method Air Drilling Drilling Fluid Air

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc.)
0	68	Fractured Weathered Bedrock
68	200	Fractured Bedrock

Total Depth of Boring 200 Feet

Total Depth of Completed Well 200 Feet

Well Owner

Name Greg Ester

Mailing Address 600 F St., Suite 3 #708

City Arcata State CA Zip 95521

Well Location

Address None Assigned

City Honey Dew County Humboldt

Latitude ___ ___ ___ (Deg Min Sec) N Longitude ___ ___ ___ W (Deg Min Sec)

Datum ___ Decimal Lat ___ Decimal Long ___

APN Book 211 Page 184 Parcel 06

Township ___ Range ___ Section ___

Location Sketch

(Sketch must be drawn by hand after form is printed.)

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 and complete.

Activity

(●) New Well

( ) Modification/Repair

( ) Deepen

( ) Other

( ) Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

(●) Water Supply

☑ Domestic ☐ Public

☐ Irrigation ☐ Industrial

( ) Cathodic Protection

( ) Dewatering

( ) Heat Exchange

( ) Injection

( ) Monitoring

( ) Remediation

( ) Sparging

( ) Test Well

( ) Vapor Extraction

( ) Other

Water Level and Yield of Completed Well

Depth to first water 110 (Feet below surface)

Depth to Static Water Level 100 (Feet) Date Measured 06/18/2009

Estimated Yield * 20 (GPM) Test Type Air Lift

Test Length 4.0 (Hours) Total Drawdown 200 (Feet)

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

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (inches)	Type	Material	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if Any (inches)
0	100	10	Blank	PVC Sch. 80	CL200	5		
100	200	10	Screen	PVC Sch. 80	CL200	5	Milled Slots	0.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	20	Bentonite	Sanitary Seal
20	200	Filter Pack	3/8" Pea Gravel

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☑ Other Location Map

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 FISCH DRILLING (Person, Firm or Corporation)

3150 JOHNSON ROAD (Address) HYDESVILLE (City) CA (State) 95547 (Zip)

Signed [signature] (C-57 Licensed Water Well Contractor) 06/27/2009 (Date Signed) 883865 (C-57 License Number)

DWR 188 REV. 1/2008

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Humboldt County, South Part, California

646—Wirefence-Windynip-Devilshole complex, 5 to 30 percent slopes

Map Unit Setting

National map unit symbol: 1lpq7
Elevation: 200 to 3,280 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Wirefence and similar soils: 35 percent
Windynip and similar soils: 30 percent
Devilshole and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wirefence

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium and residuum derived from sandstone

Typical profile

A1 - 0 to 11 inches: loam
A2 - 11 to 21 inches: loam
A3 - 21 to 33 inches: gravelly loam
AB - 33 to 46 inches: gravelly loam
Bw - 46 to 63 inches: very gravelly fine sandy loam
C - 63 to 79 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high 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: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F004BI106CA - High precipitation mountain slopes
Hydric soil rating: No

Description of Windynip

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium and residuum derived from sandstone and mudstone

Typical profile

A1 - 0 to 5 inches: loam
A2 - 5 to 12 inches: clay loam
A3 - 12 to 20 inches: clay loam
AB - 20 to 33 inches: clay loam
Bt1 - 33 to 59 inches: gravelly clay loam
Bt2 - 59 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 5 to 30 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 low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R004BI202CA - Loamy Uplands
Hydric soil rating: No

Description of Devilshole

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Residuum weathered from sandstone and/or mudstone

Typical profile

A - 0 to 4 inches: gravelly loam
ABt - 4 to 16 inches: very gravelly loam
Bt - 16 to 28 inches: very gravelly loam
BCt - 28 to 47 inches: extremely gravelly loam
C - 47 to 61 inches: gravel

Properties and qualities

Slope: 5 to 30 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 39 to 59 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 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R004BI203CA - Loamy-skeletal Uplands
Hydric soil rating: No

Minor Components

Yorknorth, moist

Percent of map unit: 6 percent
Landform: Mountain slopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Crazycoyote

Percent of map unit: 5 percent
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

Hydric soil rating: No

Rainbear

Percent of map unit: 4 percent
Landform: Ridges, mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 12, Sep 2, 2022