LINDBERG GEOLOGIC CONSULTING
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November 30, 2022 Project No: 0487.00

Nocona Mendes
Post Office 430
Whitethorn, California 95589

Subject: Hydrologic Isolation of Existing Well from Surface Waters
845 Steelhead Road, Alderpoint, APN: 216-281-015, WCR2018-007964

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 surface waters and or adjacent wetlands, and if pumping this well might affect nearby surface waters. The nearest tributaries in the vicinity of this well are unnamed ephemeral tributaries of Eel River (Figure 1).

A California-Certified Engineering Geologist visited this site on September 29, 2022, to observe the subject well and local site conditions. Based on our research, observations, and our professional experience, it is our opinion the subject well has a minimal likelihood of being hydrologically connected to nearby surface waters in any manner that could affect adjacent springs, wetlands and or surface waters in the vicinity. We define the "vicinity" as the area within a 1,000-foot radius of the subject well, an area of approximately 72 acres. We understand that the applicant hopes 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 that information is provided elsewhere in the application.

Based on the Humboldt County WebGIS and the Assessor's Parcel Map (Figure 2), parcel 216-281-015 (Figure 2) encompasses approximately 63 acres. Our GPS located the subject well at latitude 40.17177° north, and longitude 123.61528° west (±9'). This well is in Section 28, T3S, R5E, and is 120 feet deep with the wellhead at an elevation of 500 feet (Figure 1).

The Humboldt County WebGIS shows the nearest watercourse is an unnamed ephemeral tributary of the Eel River more than 550 feet east (Figure 1). The next closest watercourse is the Eel River, less than 900 feet to the west. As stated, and based on interpolation from the USGS "Alderpoint, Calif." (1969), topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, the well site elevation is 500 feet. The unnamed ephemeral tributary of the Eel River 550 feet to the east is at elevation 500 feet. The Eel River, less than 900 feet west, is at an elevation of 260 feet. The bottom elevation of the well is approximately 380 feet, making the unnamed perennial tributary of the Eel River 120 feet higher than the total depth elevation of the well. The Eel River is 120 feet lower than the total depth of well 2018-007964.

Well 2018-007964 is shown approximately on the attached figures, and was drilled by Vics Well Drilling, of Acton, CA, in July 2018, under Humboldt County well permit #216-281-015 (sic). Vics Well Drilling is a licensed well-drilling contractor (C-57 #886439). Vics submitted their well completion report (DWR 188) on September 11, 2018 (attached) and estimated the yield of the well to be 20 gpm in July 2018, based on a 4-hour air lift pump test. Total drawdown during the pump test was 0 feet.

Again, total drilled depth of this well is 120 feet. The borehole diameter is 10-inches from grade to 120-feet. From the surface to 80 feet, a 4.5-inch diameter blank (unslotted) PVC casing was installed. From 80-feet to 120-feet, 4.5-inch diameter PVC, slotted (0.032-inch milled slots) well screen was installed. Per regulatory requirements, a bentonite sanitary surface seal was installed from grade to 20 feet. Below the bentonite seal, the annulus was backfilled with five cubic yards of prewashed 3/8-inch pea gravel to total depth. Depth to first water was reported at 85 feet below the surface (bgs), Depth to static water in the completed developed well was also 85 feet bgs when the driller conducted the pump test on July 9, 2018.

Per the WebGIS, the nearest mapped spring is approximately 2,150 feet east of the subject well, in Section 27 at an elevation of approximately 600 feet. More than 7,450 feet northeast, there is another spring mapped in Section 22, at an elevation of approximately 1,160 feet. To the northwest, another spring is mapped in Section 20 of the Fort Seward quadrangle, more than 6,500 feet from well -007964 at an elevation of 820 feet (Figure 1).

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 well site is underlain by Quaternary terrace alluvium (Qt), underlain by Mélange (cm1) of the Central Belt of the Franciscan Complex, as presented in Figure 4.

According to the NRCS Web Soil Survey, the near-surface organic soils are thin; below, mineral soils consist of loam, clay loam gravelly clay loam and sandy clay loam to a depth of approximately 6 feet. Depth to a restrictive layer is greater than 6.5 feet, and depth to the water table is reported by the NRCS as 20 to 39 inches. Soils are interpreted to be uniformly distributed across that portion of the subject parcel underlain by the Quaternary Terrace deposits.

As described by the driller on the geologic log of the well completion report (attached), this well boring encountered 45 feet of "Soil or Organic", a brown, clayey unit as composed of top soil, clay, gravel, and conglomerate. Below the soil or organic, from 45-feet to 85-feet, Vic's drilled a 40-foot section of "Clay", a blue, hard, "very hard blueshale stone dry no water". Underlying the 40-foot clay section to the total depth of 120 feet, 35-feet of "Rock" was drilled. Rock was brown and layered, called; "layered basalt water bearing" by the driller. First and static water were the same in this well; water was at 85 feet in July 2018.

We interpret the brown clayey soil and the hard blue clay from the surface to 85 feet to be aquitards, materials of lower relative permeability and transmissivity. Brown layered rock material below 85 feet is significantly more porous and permeable, and composed the water-bearing aquifer material in this well. At the location of the subject well, the elevation of the water-bearing rock aquifer unit is approximately 415 feet, based on the driller's report.

Below the surface, the earth materials encountered in the boring are mélange of the Central Belt Franciscan Complex, as mapped by McLaughlin et al., (2000). Sheared, fractured, and folded metasedimentary rock materials are hydraulically anisotropic, with directionally variable hydraulic conductivity and can constitute significant aquifers. We interpret the sequence described by the driller as terrace deposits over metamorphic rocks of the central belt mélange (cm1) of the Franciscan Complex. The blue clay section has low hydraulic conductivity and the rock section below it has favorable hydraulic conductivity. The layered brown rock below 85 feet is the primary water bearing unit in this 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 central belt mélange is shown dipping east and bounded by thrust fault plane contacts. On-site, no strike or dip 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 hydrologic boundaries of reduced permeability (due to grinding and shearing along the fault planes), effectively separating units of the Franciscan from each other hydrologically, and limiting groundwater flow between the fault-bound units.

Based on observations, experience, and review of pertinent and available information, it is our professional opinion that this well has a minimal potential of having any direct or significant connection to proximal surface waters (Eel River <900'). First water was encountered at 85 feet. Static water level was likewise 85 feet bgs. This well is sealed through the upper 20 feet of any potential unconfined, near-surface aquifers with which it could potentially communicate hydraulically through the annuls of the borehole.

When considered with the underlying geologic structure and stratigraphy, the distance (horizontal and vertically) to the nearest surface waters, and the depth of the producing zone we conclude that the depth of the surface seal, and the upper 85 feet of the profile, are sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than approximately 900 feet at Eel River which at that point is approximately 120 feet lower than the bottom of the well. Thus, the water source from which this well draws appears to be a confined slightly artesian subsurface aquifer not demonstrably 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 wells, surface waters, springs or wetlands.

The driller estimated the yield of this well as 20 gallons per minute (gpm) on July 9, 2018. Drawdown was reported to be 0 feet after Vic's Well Drilling's four-hour air-lift pump test; the well produced 20 gpm without the water level dropping. 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 Eel River or the ephemeral tributary to the northeast. Nor does this well appear to be hydrologically connected to any local springs or ephemeral wetlands; there appear to be none closer than 2,100 feet. The pond shown on-site in Figure 1, no longer exists; it has been replaced by a smaller pond 250 feet southwest of this well. Given the horizontal distances involved and the elevation differences between the water-producing zone in the subject well and the nearest surface water, the potential for significant hydrologic connectivity between surface waters and groundwater in the brown rock aquifer appears unlikely. Further, given the apparently limiting condition of the thickness of the very hard, dry blue shalestone unit above the water-bearing brown rock unit, they are unlikely to have significant hydraulic connection to unconfined aquifers.

As mentioned, on the Alderpoint, Calif. USGS topographic quadrangle map, there is one spring mapped in Section 27, more than 2,100 feet east of the subject well at elevation 600 feet. The second-closest spring is mapped in the southeast quarter of Section 22 is 7,400 feet from the subject well across Eel River at an elevation of 1,160 feet. The only other spring in the contiguous sections is in Section 20, 6,500 feet northwest of the well and across the Eel River to the northwest. There are no other significant (mapped) springs or wetlands mapped near this subject well.

We researched the DWR (California Department of Water Resources) database to find other permitted wells within 1,000 feet of the subject well. Based on the information available at the present time there are no wells which meet this criterion. The closest well in the DWR database is a well more than 2,500 feet to the east. The "well" information is included here. Well WCR2018-011363 is 400 feet deep, on APN: 216-271-013 and seems to have been a dry hole. It was sealed through the uppermost 20-feet. The town of Alderpoint has a water system for the residents. The water is pumped from a collection gallery in the Eel River bed north of the subject well and distributed through town.

As groundwater mimics topography and responds to the force of gravity, in general the near surface unconfined aquifer will flow down slope in a direction subparallel to topography. Based on topography, no wells or infiltration galleries appear to be located downgradient of the site well. Groundwater flow in the deeper confined subsurface aquifers in the mélange is likely far more complex. The ground surface slopes to the northwest; thus the near surface unconfined aquifer flows to the northwest, toward the river. On September 29, there was a pump in the well.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating through the soil and mélange bedrock from upslope source areas both proximal and distal to the well site. Ephemeral streams in the vicinity of the well 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 Parkland-dry-Garberville, dry complex, on slopes of 2 to 9 percent, (#1005, Figure 7), which the NRCS describes as a moderately well-drained soil. The Web Soil Survey's unit description is attached to this report. Mean annual precipitation is listed by the NRCS as 49 to 90 inches per year. Capacity of the most limiting soil layer to transmit water (Ksat) is described as moderately low to high (0.06 to 2.00 in/hr) with a depth to the water table of greater than 20 to 39 inches.

If during the wet season, only ten percent of the "low end" precipitation estimation of 49 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 25.7 acre-feet, or more than 8.3 million gallons of water per year (MGPY), may be expected to recharge the local aquifers below this 63-acre subject property. Given the same 49 inches of precipitation 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 29.4 acre-feet, and more than 9.5 million gallons. 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). Modeling the 72-acre circle surrounding the well with 33 percent of precipitation to recharge results in 31.6 MGPY to recharge in the vicinity.

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 at 845 Steelhead Road, Alderpoint, 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.

Governor Newsom's order states that counties, cities, and other public agencies are 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 the conditions in the

Order, are not applicable to "*wells that provide less than two acre-feet per year* (650,000+ gallons) *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 on APN 216-281-015, located at 845 Steelhead Road, Alderpoint, has a low likelihood of being hydrologically connected to nearby surface waters or wells in a manner that might significantly have a negative impact or effect on surface waters.

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

Sincerely,

David N. Lindberg, CEG
Lindberg Geologic Consulting

DNL:sll

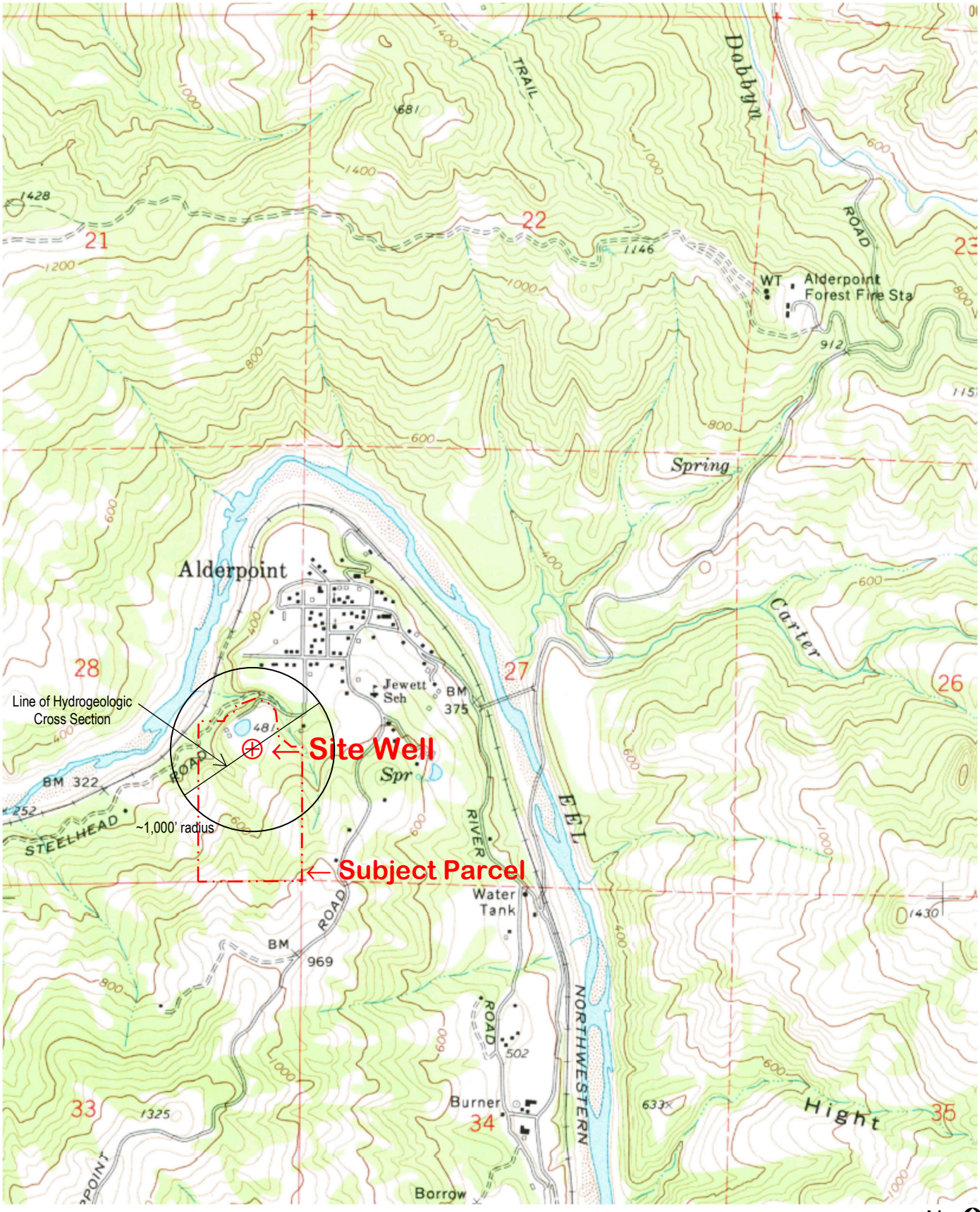
Attachments:
Figure 1: Topographic Well Site Location Map
Figure 2: Humboldt County Assessor's Parcel Map
Figure 3: Satellite Image of Well Location
Figure 4: Geologic Map
Figure 4a: Geologic Map Explanation
Figure 5: Representative Geologic Cross Section
Figure 6: Hydrogeologic Cross Section
Figure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

State of California Well Completion Report:
WCR2018-007964, APN: 216-281-015 (Subject Well)
WCR2018-011363, APN: 216-271-013 (>2,500 feet east)

Web Soil Survey, NRCS Map Unit Description:
Parkland, dry Garberville, dry complex, #1005, 2 to 9 percent slopes.

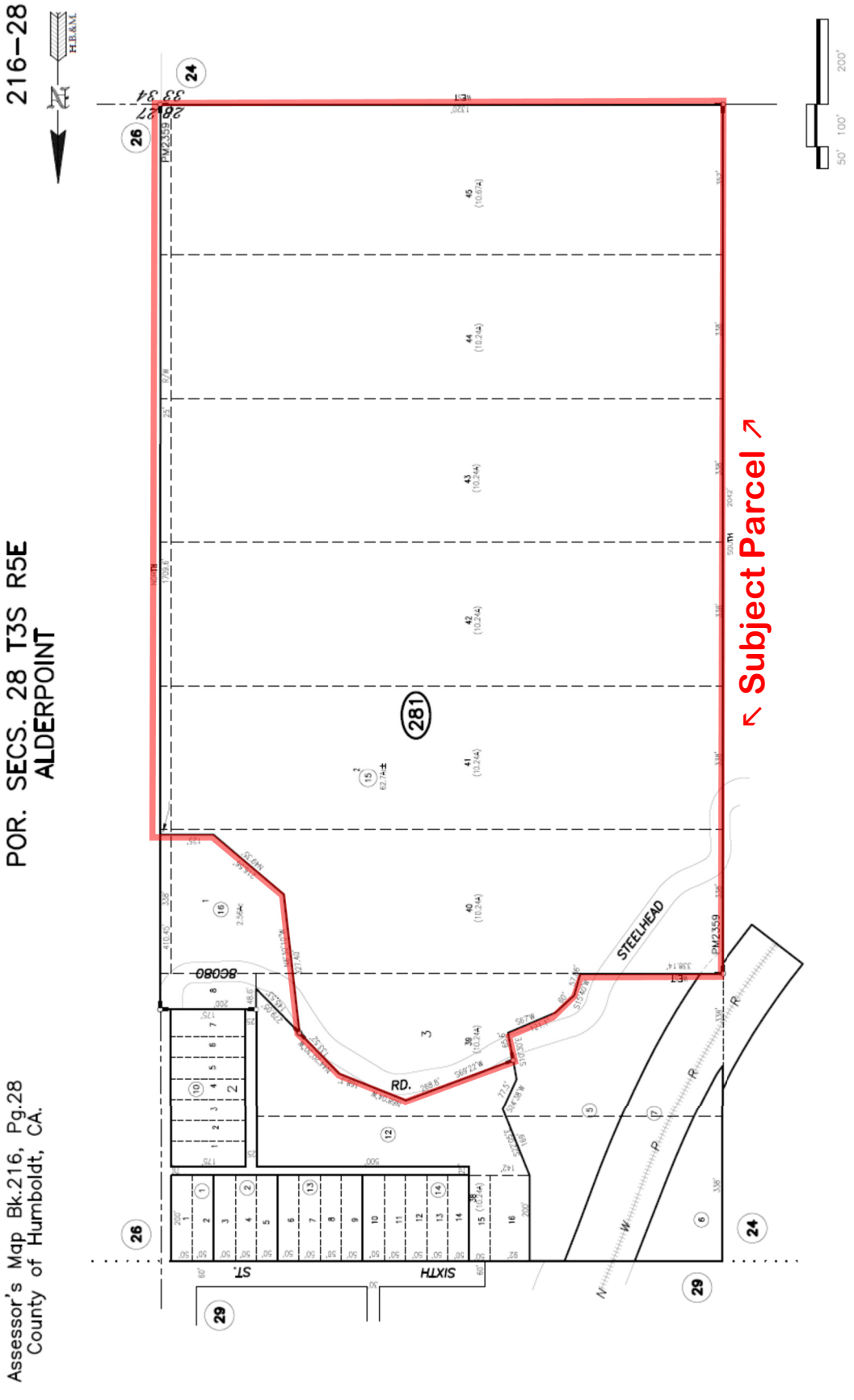
Reference:
Flint et al.: Fine-scale hydrologic modeling for regional landscape applications: the California Basin Characterization Model development and performance. Ecological Process, 2013, 2:25. (doi:10.1186/2192-1709-2-25)

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 1
Post Office Box 306	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(707) 442-6000	Topographic Well Site Location Map (locations approximate)	1" ≈ 1,650'



Modified from: USGS "Alderpoint, Calif." 7.5' Quadrangle Map. (1969) N ≅

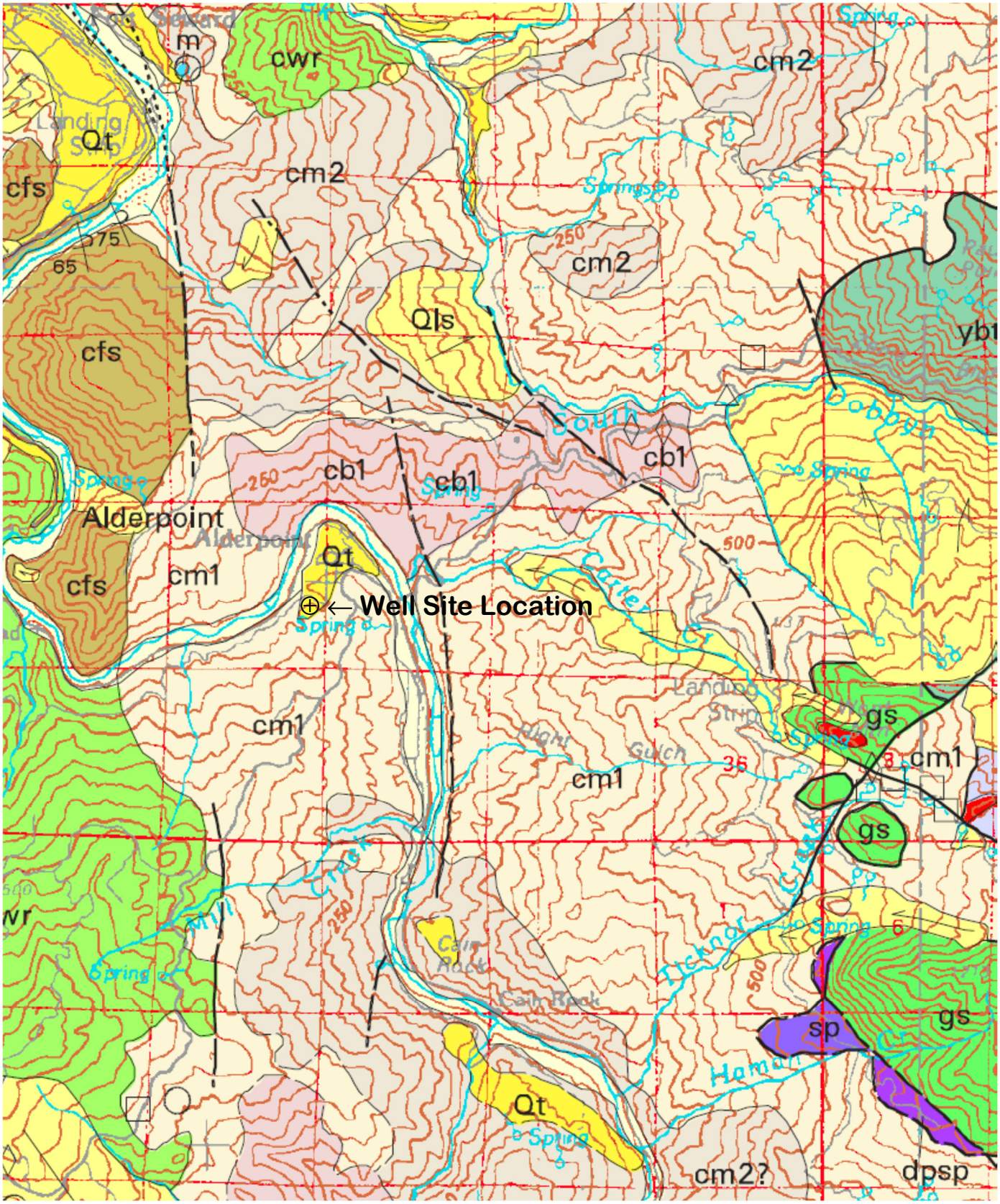
Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 2
Post Office Box 306	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(707) 442-6000	Humboldt County Assessor's Parcel Map (locations approximate)	Scale as Shown



Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 3
Post Office Box 306	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(707) 442-6000	Satellite Image of Well Location (locations approximate)	1" ≈ 750'

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	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(707) 442-6000	Geologic Map (locations approximate)	1" ≈ 4400'



Modified from: McLaughlin and Others, 2000. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4a
P. O. Box 306	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(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)
- 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 — 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
- 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:

- Inclined (10/20)
- Vertical
- Horizontal
- Overturned (10/20)
- Approximate (20)
- Joint (10)
- Strike and dip of cleavage (10)

Shear foliation:

- Inclined (10)
- Vertical

Folds:

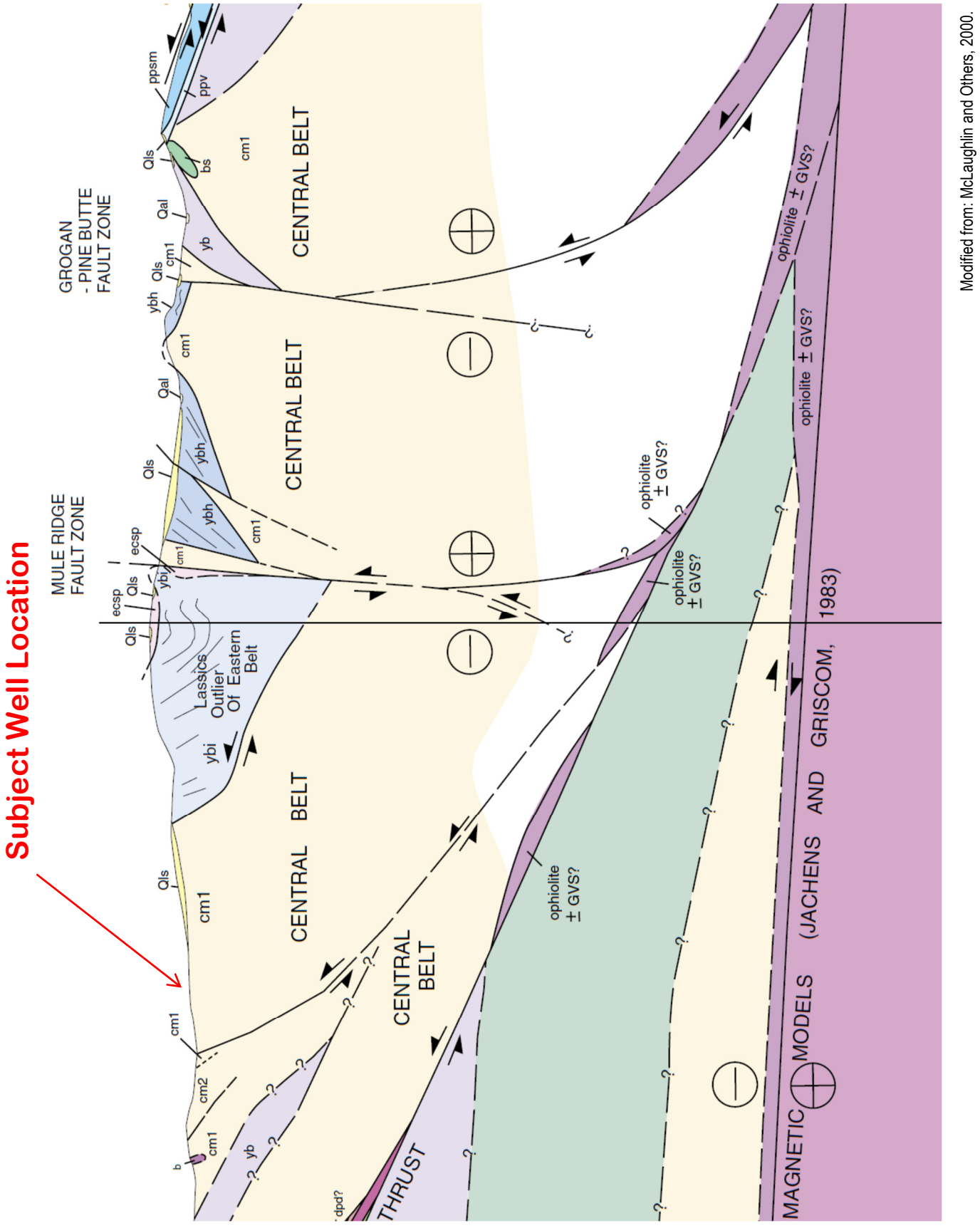
- Synclinal or synformal axis
- Anticlinal or antiformal axis
- Overturned syncline
- Landslide (Qls)

Melange Blocks:

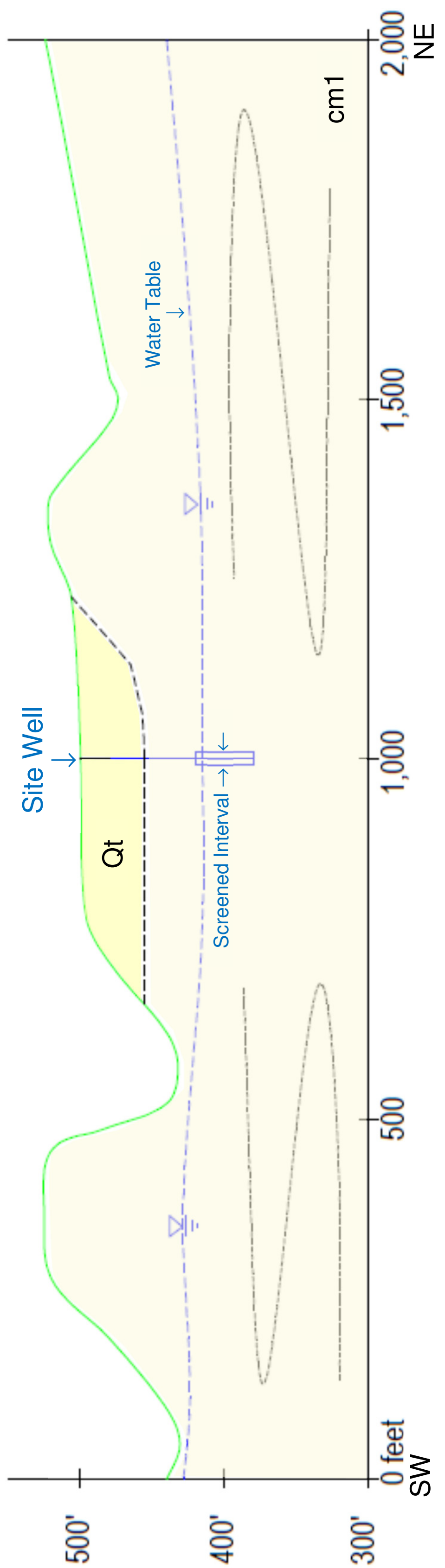
- Serpentinite
- Chert
- Blueschist
- Greenstone
- Fossil locality and number (10)

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	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(707) 442-6000	Representative Geologic Cross Section (locations approximate)	No to Scale



Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 6
Post Office Box 306	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(707) 442-6000	Hydrogeologic Cross Section (locations approximate)	V.E. = 2X



In this vertically exaggerated (~2x) cross section, the view is looking to the northwest toward Eel River. Groundwater flow in this cross section is northwesterly, away from the viewer, or out of the page. Groundwater is presumed to flow from recharge areas in the higher ground to the southeast. This well is sited on an ancient Eel River terrace composed of sand and gravel deposits (Qt) laid down by an ancestral Eel River. Bedrock subgrade was mapped by McLaughlin, et al., (2000), as Mélange of the Central Belt of the Franciscan Complex (cm1). The Central Belt Mélange is one of several component lithologies of the Central Belt Franciscan Complex. Groundwater is envisioned to flow through fractured metasandstone in the Mélange. Fractures in the metasandstone, plus sandstone's inherent porosity, are interpreted to be the primary permeability, providing preferential flow paths for the local groundwater. The driller noted first water at 85 feet below the surface, and static water was at the same depth. This well is screened from 80 feet through the total depth of 120 feet.

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 7
Post Office Box 306	845 Steelhead Road, Alderpoint, California, APN 216-281-015	November 30, 2022
Cutten, CA 95534	Well WCR2018-007964, Mr. Nocona Mendes, Client	Project 0487.00
(707) 442-6000	USDA-NRCS Soil Map (locations approximate)	Scale Not Determined

Modified from: USGS-NRCS Web Soil Survey, November 29, 2022 N ≈

State of California

Well Completion Report

Form DWR 188 Auto-Completed 11/12/2018

WCR2018-007964

Owner's Well Number 1 | Date Work Began 07/05/2018 | Date Work Ended 07/09/2018

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

Secondary Permit Agency | Permit Number 216-281-015 | Permit Date 06/05/2018

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

Name XXXXXXXXXXXXXXXXXXX

Mailing Address XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City XXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well

Planned Use Water Supply Irrigation - Agriculture

Well Location

Address 845 STEELHEAD RD

City ALDERPOINT Zip 95511 County Humboldt

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

Dec. Lat. 40.1717580 Dec. Long. -123.6152520

Vertical Datum Horizontal Datum WGS84

Location Accuracy 10 Ft Location Determination Method GPS

APN 216-281-015

Township 03 S

Range 05 E

Section 28

Baseline Meridian Humboldt

Ground Surface Elevation 494

Elevation Accuracy 10 Ft

Elevation Determination Method GPS

Borehole Information

Orientation Vertical Specify

Drilling Method Downhole Hammer Drilling Fluid Air

Total Depth of Boring 120 Feet

Total Depth of Completed Well 120 Feet

Water Level and Yield of Completed Well

Depth to first water 85 (Feet below surface)

Depth to Static Water Level 85 (Feet) Date Measured 07/09/2018

Estimated Yield* 20 (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	45	Soil or Organic	Brown	Clayey	TOP SOIL CLAY AND GRAVEL COMGLOMERATE
45	85	Clay	Blue	Hard	VERY HARD BLUESHALE STONE DRY NO WATER
85	120	Rock	Brown	Layered	LAYERED 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	80	Blank	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5			BLANK
1	80	120	Screen	PVC	OD: 4.500 in. | Thickness: 0.337 in.	0.337	4.5	Milled Slots	32	.032 SLOT W/ CAP INSTALLED

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	24	Bentonite	Non Hydrated Bentonite		3/8\" BENTONITE CHIPS ADDDED WITH WATER CEMENT CAP
24	120	Filter Pack	Other Gravel Pack	3/8" PEA GRAVEL	5 YRDS 3/8\" PRE WASHED PEA GRAVEL

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	120	10

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) | 09/11/2018 (Date Signed) | 886439 (C-57 License Number)

Attachments

DRILLERS REPORT.docx - Other

PLOT PLAN #2.jpg - Location Map

PLOT PLAN #1.jpg - Location Map

NOCONA ALDERPOINT WELL.pdf - Permit

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — **Latitude Deg/Min/Sec**

W — **Longitude Deg/Min/Sec**

TRS:

APN:

State of California

Well Completion Report

Form DWR 188 Auto-Completed 2/11/2019

WCR2018-011363

Owner's Well Number: Well #1 | Date Work Began: 12/07/2018 | Date Work Ended: 12/10/2018

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

Secondary Permit Agency: | Permit Number: 17/18-1729 | Permit Date: 11/30/2018

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

Name: XXXXXXXXXXXXXXXXXXX

Mailing Address: XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City: XXXXXXXXXXXXXXXXXXX | State: XX | Zip: XXXXX

Planned Use and Activity

Activity: New Well

Planned Use: Water Supply Domestic

Well Location

Address: 142 River RD

City: Alderpoint | Zip: 95511 | County: Humboldt

Latitude: 40 Deg. 10 Min. 16.32 Sec. N | Longitude: -123 Deg. 36 Min. 22.68 Sec. W

Dec. Lat.: 40.1712 | Dec. Long.: -123.6063

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: | Location Determination Method:

APN: 216-271-013

Township: 03 S

Range: 05 E

Section: 27

Baseline Meridian: Humboldt

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Downhole Hammer | Drilling Fluid: Air

Total Depth of Boring: 400 Feet

Total Depth of Completed Well: 20 Feet

Water Level and Yield of Completed Well

Depth to first water: 0 (Feet below surface)

Depth to Static Water Level: 0 (Feet) | Date Measured: 12/10/2018

Estimated Yield*: 0 (GPM) | Test Type: Air Lift

Test Length: 6 (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	10	Tan Shale / Clay
10	15	Grey Sandstone / Shale
15	30	Brown Shale
30	400	Grey Granite / 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	20	Blank	Low Carbon Steel	N/A	0.188	8.625			*

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Non Hydrated Bentonite		3/8 hole plug
20	400	Other Fill	See description.		No annular fill

Other Observations:
Dry Hole

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	13
20	400	7.875

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 INC
Person, Firm or Corporation

500 SUMMER STREET | EUREKA | CA | 95501
Address | City | State | Zip

Signed: *electronic signature received* | 12/13/2018 | 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:

Humboldt County, South Part, California

1005—Parkland, dry-Garberville, dry complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2pt33
Elevation: 200 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 61 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Parkland, dry, and similar soils: 50 percent
Garberville, dry, and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Parkland, Dry

Setting

Landform: Alluvial fans, stream terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Alluvium derived from sedimentary rock

Typical profile

Ap1 - 0 to 3 inches: loam
Ap2 - 3 to 10 inches: loam
Bt1 - 10 to 21 inches: clay loam
Bt2 - 21 to 43 inches: clay loam
Bt3 - 43 to 59 inches: gravelly sandy clay loam
Bt4 - 59 to 71 inches: sandy clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 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: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F005XZ003CA - Terraces
Hydric soil rating: No

Description of Garberville, Dry

Setting

Landform: Alluvial fans, stream terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

Ap1 - 0 to 6 inches: loam
Ap2 - 6 to 11 inches: gravelly loam
ABt - 11 to 19 inches: gravelly clay loam
Bt1 - 19 to 35 inches: gravelly clay loam
Bt2 - 35 to 43 inches: gravelly sandy clay loam
Bt3 - 43 to 55 inches: gravelly sandy loam
BC - 55 to 71 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
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 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F005XZ003CA - Terraces
Hydric soil rating: No

Minor Components

Coolyork

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, concave, convex
Hydric soil rating: No

Burgsblock

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: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Tannin

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
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