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

July 25, 2024 Project No: 0481.01

Mr. Erik Sordal
2248 Run Down Acres Lane
Bridgeville, California 95526

Subject: Engineering Geologic Assessment of Proposed New Groundwater Well
China Mine Road, Eureka, APN: 210-072-009

To Whom It May Concern:

As requested, Lindberg Geologic Consulting has assessed a proposed new groundwater well on the above-referenced parcel to estimate its potential for hydrologic connectivity with any adjacent surface waters, springs, wetlands, or wells, and to provide our professional opinion regarding the proposed well's potential to significantly impact surface waters, springs, wetlands, or other nearby wells. The new well will provide an economical and reliable water supply for agricultural use. A California-Certified Engineering Geologist visited the site of the proposed new well on July 15, 2024, to observe local site conditions.

The new well site is approximately 2,580 feet above sea level (Figure 1). Fisch Drilling (August 3, 2023) proposed a 210-foot deep well completed with ~8-inch PVC casing and well screen. Based on our review of other water supply wells in the section, we expect that the new well will be completed below a depth of 100 feet. This well is not in a location where it could impair the public rights to navigation, fisheries, or water related activities or access. Based on our research, observations, and our professional experience, it is our opinion that the proposed new well has a low likelihood of being hydrologically connected to nearby surface waters, springs, wetlands, or wells in a manner that could adversely affect such features in the vicinity. For this assessment, we define the "vicinity" as the area within a 1,000-foot radius of the new well. A radius of 1,000 feet encompasses a circle with an area of approximately 72 acres (Figure 1).

On February 13, 2023, Governor Newsom signed Executive Order N-3-23 which, in part, extended a previous executive order (N-7-22) relating to the ongoing drought in California which the Governor had issued on March 28, 2022 (and other prior orders). In executive order N-7-22, the governor outlined measures the state will undertake to avoid and ameliorate negative drought impacts. Among these measures, it was ordered that counties, cities, and other public agencies be 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 to be located*". This proposed new well on assessor's parcel 210-072-009, in Larabee Valley near Bridgeville, is not in any basin subject to the Act. This proposed new well is not in any named groundwater basin so there has been no agency established with authority over the groundwater basin.

The Governor's order 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*". Apart from China Mine Road, there is no public or private infrastructure within 1,000 feet of this proposed well site. Highway 36 is more than 3,400 feet north of the proposed well location, so the potential to impact infrastructure through subsidence is less than significant. 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 Humboldt County's WebGIS and the Assessor's Parcel Map (Figure 2), parcel 210-072-009 encompasses approximately 260 acres. Our GPS placed the location of the proposed new well at latitude 40.42109° north, and longitude 123.68325 west (±9'). This new well site is in Section 25, Township 1 North, Range 4 East. The owner has not provided an estimate of the volume of water to be extracted. Minimal water would be needed for irrigation between November and May.

The nearest surface waters are more than 525 feet south southeast of the proposed well site in Mule Creek, a perennial tributary of Butte Creek. No other surface waters appear to be within 1,000 feet, based on the Larabee Valley (1977) topographic map (Figure 1). Mule Creek discharges to Butte Creek approximately 2,700 feet east of this proposed well site. On the Larabee Valley topographic map, there are no springs mapped within 1,000 feet of this proposed new well. On the Humboldt County WebGIS site, the only wetlands noted are within the local watercourses. It appears unlikely that drawing water from an aquifer at depth will have any significant impact on water resources.

We researched the California Department of Water Resources' well location database to find permitted water supply (not monitoring) wells within 1,000 feet of the subject well. Based on the information available at the present time, there is only one well which meets this criterion. The closest well in the DWR database is WCR2018-000568. Well -000568 is more than 625 feet west-southwest of the proposed new well.

The nearest well to this proposed new well is located on parcel 210-071-007 (Figure 2), at 1771 China Mine Road, and is 180 feet deep and approximately 8 inches in diameter. Well -000568 is screened from 80 to 140 feet and from 160 to 180 feet. Yield, based on a four-hour pump test, was estimated by the driller to be 60 gallons per minute (gpm). The total drawdown of well -000568 after the four-hour pump test was apparently not recorded by the driller.

In the DWR database, we could find only one other water supply well in parcel 210-072-009, that was well WCR2017-001570 (WCR attached). Beyond the assessor's parcel number, the precise location of well -001570 was not recorded on the driller's report; we speculate that well -001570 could be located at a former (?) cannabis cultivation site more than 1,200 feet north-northeast of the proposed new well site.

This parcel is in California's Coast Range Geomorphic Province, underlain at depth by rocks of the Franciscan Complex (McLaughlin et at., 2000). The Coast Range Geomorphic Province is a seismically active region in which large earthquakes will be expected to occur during the economic life span (70 years) of any developments on the subject property. Geologic mapping by McLaughlin (Figure 4) shows that the site is underlain by Broken Formation (cb1) of the early Tertiary to Late Cretaceous Mélange of the Central Belt of the Franciscan Complex.

According to the USDA-NRCS Web Soil Survey, the proposed well site is underlain by soils of the Pasturerock-Coyoterock-Maneze complex #4426 (Figure 6). These near-surface soils consist of gravelly loam to a depth of 10 inches, and loam to 24 inches. From 24 inches to 35 inches, the soil is classified as clay loam, and below 35 inches, soils are reported by the USDA-NRCS to consist of gravelly clay loam to a depth of 71 inches. We interpret this soil profile to be uniformly distributed across that portion of the subject parcel underlain by the Broken Formation (cb1) on slopes of 15 to 50 percent. The unit description of the Pasturerock-Coyoterock-Maneze complex is attached.

Below the surface, as described by McLaughlin et al., (2000), the earth materials encountered in the nearby borings are cb1, "Broken Formation" (early Tertiary to Late Cretaceous). McLaughlin (2,000) described cb1 as "bedded to massive, locally folded, rarely conglomeratic metasandstone and meta-argillite, with only minor amounts of highly sheared rocks. Broken Formation exhibits sharp-crested topography with regular, well incised sidehill drainages".

Earth materials vary, as shown on the geologic log of the driller's well completion report for the nearest well (WCR2018-000568, attached). In well -000568, no significant clay aquitard materials were encountered; sandstone was reported from the ground surface to 180 feet below the ground surface (bgs), the total depth drilled. From grade to 50 feet, the driller reported tan/brown sandstone. Below 50 feet, materials reported were blue sandstone to 120 feet, and blue sandstone with shale to 180 feet. Well -000568 was completed in zones of blue sandstone. The driller reported that first water was encountered at 50 feet bgs. At the location of this proposed new well, the first water-bearing aquifer unit is expected to be at a similar depth as in the nearest well. Drawdown and recovery testing is recommended and will be necessary to reliably estimate the sustainable long-term yield of this proposed new well.

Sandstone typically has good hydraulic conductivity and can constitute a significant aquifer. If fractured, hydraulic conductivity and aquifer capacity are greater. Based on the driller's descriptions we interpret the blue sands to be part of a saturated aquifer. In our interpretation sandstone will be the primary water bearing rock unit(s) in this proposed new well.

A geologic cross section (Figure 5) shows the stratigraphy of the underlying Franciscan Complex. Two mélange units (cm1 and cm2) and Broken Formation (cb1) underlie the subject parcel. Approximately three miles northeast of the new well site, cb1 dips 47 degrees to the northeast and strikes northwest (Figure 4). On-site, no bedding attitude could be determined because bedrock is mantled with soil and colluvium and obscured by vegetation.

Groundwater mimics topography and responds to the force of gravity, near surface unconfined aquifers generally flow down slope in a direction subparallel to topography. The ground surface at the proposed new well site slopes generally to the south, so the unconfined aquifer likely behaves similarly. The aquifer this well will target appears to be a confined aquifer not demonstrably connected to unconfined aquifer(s) or surface waters. The proposed new well appears likely to be hydraulically isolated from nearby surface waters, springs, wetlands, and wells because of horizontal distances and elevation differences.

When considered with the stratigraphy, and the underlying geologic structure, plus the distances (horizontal and vertically) separating the nearest surface waters from the proposed new well, and considering the likely depth of the water-producing zone of the new well (>70 feet), we conclude that a 20-foot surface seal will be adequate to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than 525 feet to the south in Mule Creek (Figure 1).

At the proposed location of this new well, it does not appear likely that it will be hydrologically connected to, or capable of influencing surface water flows in Mule Creek, or the more-distant Butte Creek. With a 20-foot surface seal, and a production zone below 50 feet, this proposed new well appears unlikely to be hydrologically connected to surface waters, springs, wetlands, or other wells. Given the horizontal distances involved, the elevation differences between the production zones in the nearest well, and the nearest surface waters, the potential for significant hydrologic connectivity between surface water and groundwater in the cb1 aquifer(s) appears low.

The United States Department of Agriculture's (USDA), Natural Resources Conservation Service's (NRCS), online Web Soil Survey, shows the proposed well within soils of the Pasturerock-Coyoterock-Manese complex, 15 to 50 percent slopes, (#4426, Figure 6), which the NRCS describes as a well-drained soil. The Web Soil Survey's unit description is attached. Mean annual precipitation is listed by the NRCS as 56 to 80 inches per year. The capacity of the most limiting soil layer to transmit water (Ksat) is described as moderately high (0.20 to 0.60 in/hr) with a depth to the water table greater than 80 inches.

Conservatively, if during the wet season only ten percent of the "low end" precipitation estimation of 56 inches (5.6 inches) is absorbed by the soils/bedrock as recharge and does not run off or be lost to evapotranspiration, then approximately 121 acre-feet, or more than 39.5 million gallons of water per year (MGPY), may be expected to recharge the local aquifers below the approximately 260 acres of parcel 210-072-009.

Given the same amount of precipitation (56") and the same 10 percent partitioned to recharge, then within the 72 acres enclosed by the circle having a 1,000-foot radius, recharge would be 33.6 acre-feet, and more than 10.9 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). If 33 percent of 56 inches of precipitation recharges groundwater within a 1,000 radius, then more than 110 acre-feet (>36 MGPY) recharge

groundwater at the subject property each season. We speculate that our client expects to pump less than 110 acre-feet per year, and only between May and October. Ephemeral watercourses near the subject well will likely contribute to recharge when they flow during runoff-generating winter storm events but not be impacted by pumping during the dry season.

In our professional opinion, it appears that the aquifer tapped by the new well will receive recharge from precipitation infiltrating down through the alluvial soils and broken formation sandstone bedrock. Recharge also comes from precipitation onto cb1 bedrock areas upslope of the proposed new well site. This proposed new well is not in a location which could impair the public rights to navigation, fisheries, water related activities, or access. Based on our observations, research, and professional experience, it is our opinion that the new well proposed at China Mine Road, in Larabee Valley near Bridgeville, on APN 210-072-009, has a low likelihood of being hydrologically connected to nearby surface waters, springs, wetlands, or wells in a manner that might significantly have a negative impact or effect on such surface waters, springs, wetlands, or wells. As there is no public or private infrastructure within 1,000 feet of this proposed well site, the potential to impact infrastructure through subsidence is not significant.

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 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: Generalized Geologic Cross Section
Figure 6: USDA-NRCS Soil Map

State of California Well Completion Reports attached:
WCR2017-001570, APN: 210-071-007
WCR2018-000568, APN: 210-071-007

Web Soil Survey, NRCS Map Unit Description attached:

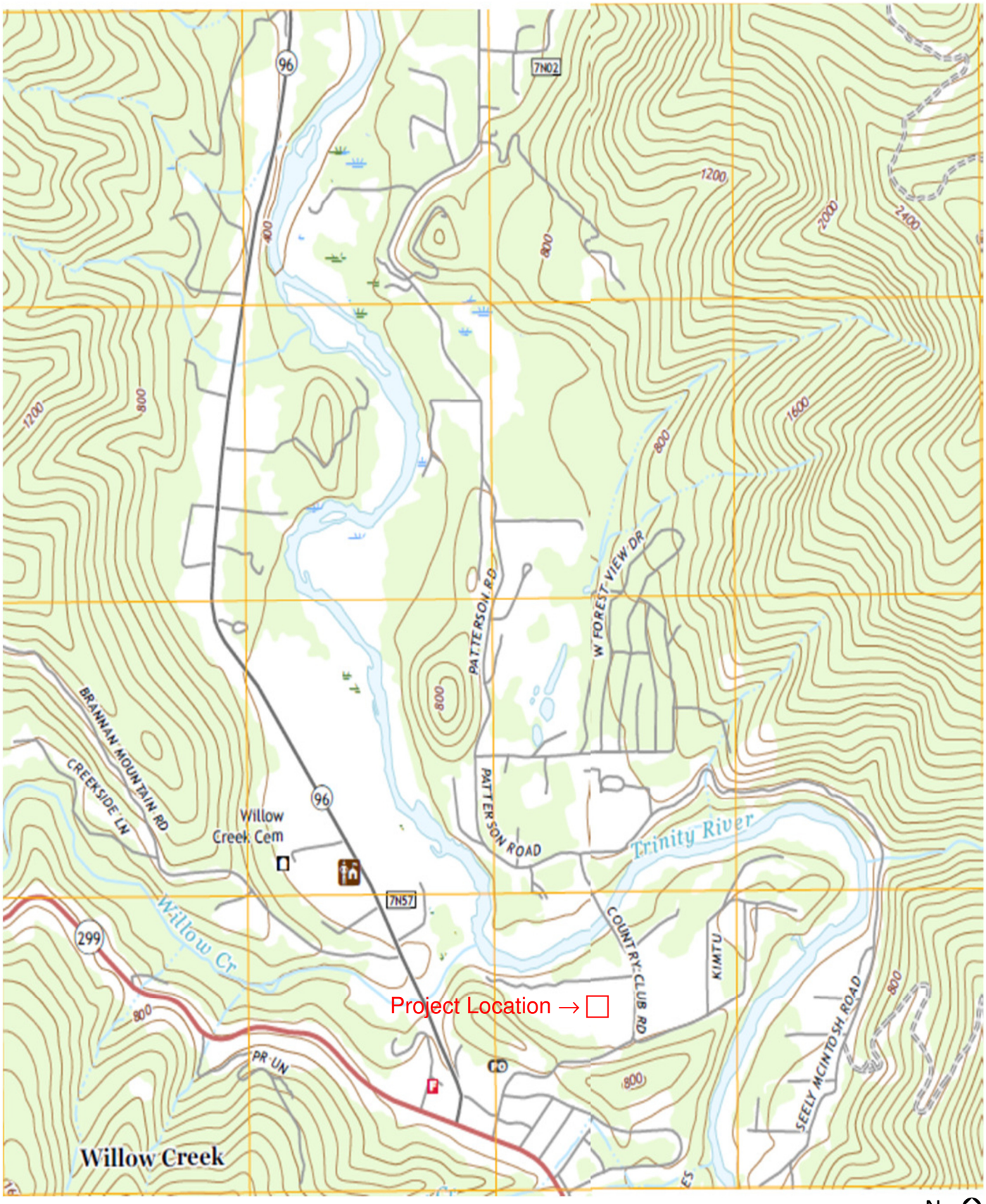
Pasturerock-Coyoterock-Maneze complex, #4426, 15 to 50 percent slopes.

References Cited:

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)

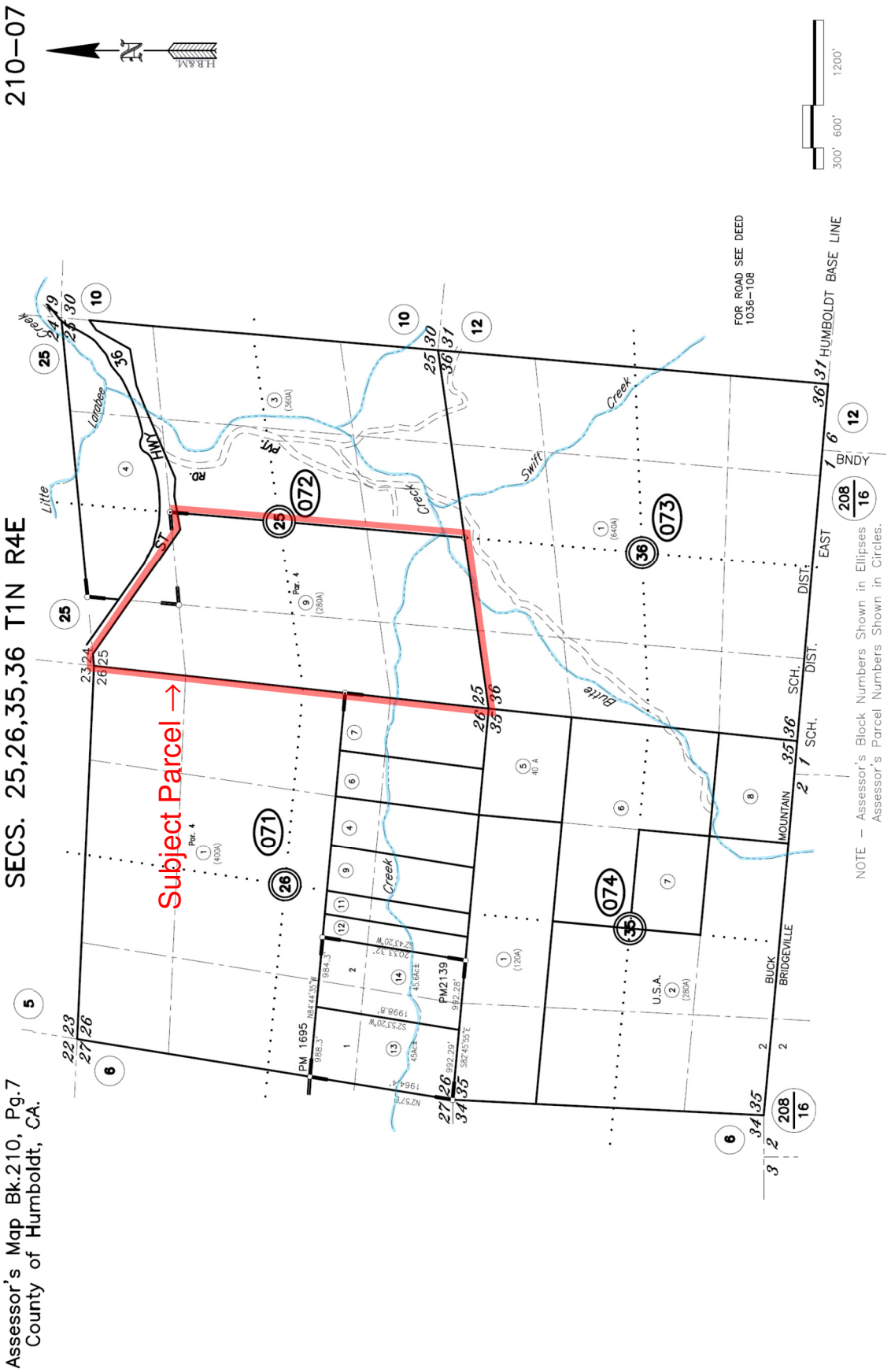
McLaughlin, R. J., S. D. Ellen, M. C. Blake Jr., A. S. Jayko, W. P. Irwin, K. R. Aalto, G. A. Carver, and S. H. Clarke, Jr., 2000, Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of the Hayfork 30 x 60 Minute Quadrangles and Adjacent Offshore Area, Northern California.

Lindberg Geologic Consulting	Engineering-Geologic R-2 Soils Exploration Report	Figure 1
Post Office Box 306	131 Flower-McNeil Road, Willow Creek	July 22, 2024
Cutten, CA 95534	Northpoint Consulting Group, Client, APN: 522-201-001	Project 0539.00
(707) 442-6000	Topographic Project Location Map (all locations approximate)	1 inch ≈ 1,400 feet



Modified from: USGS "Willow Creek (2021), and Salyer (2022), Topographic maps. N ≈

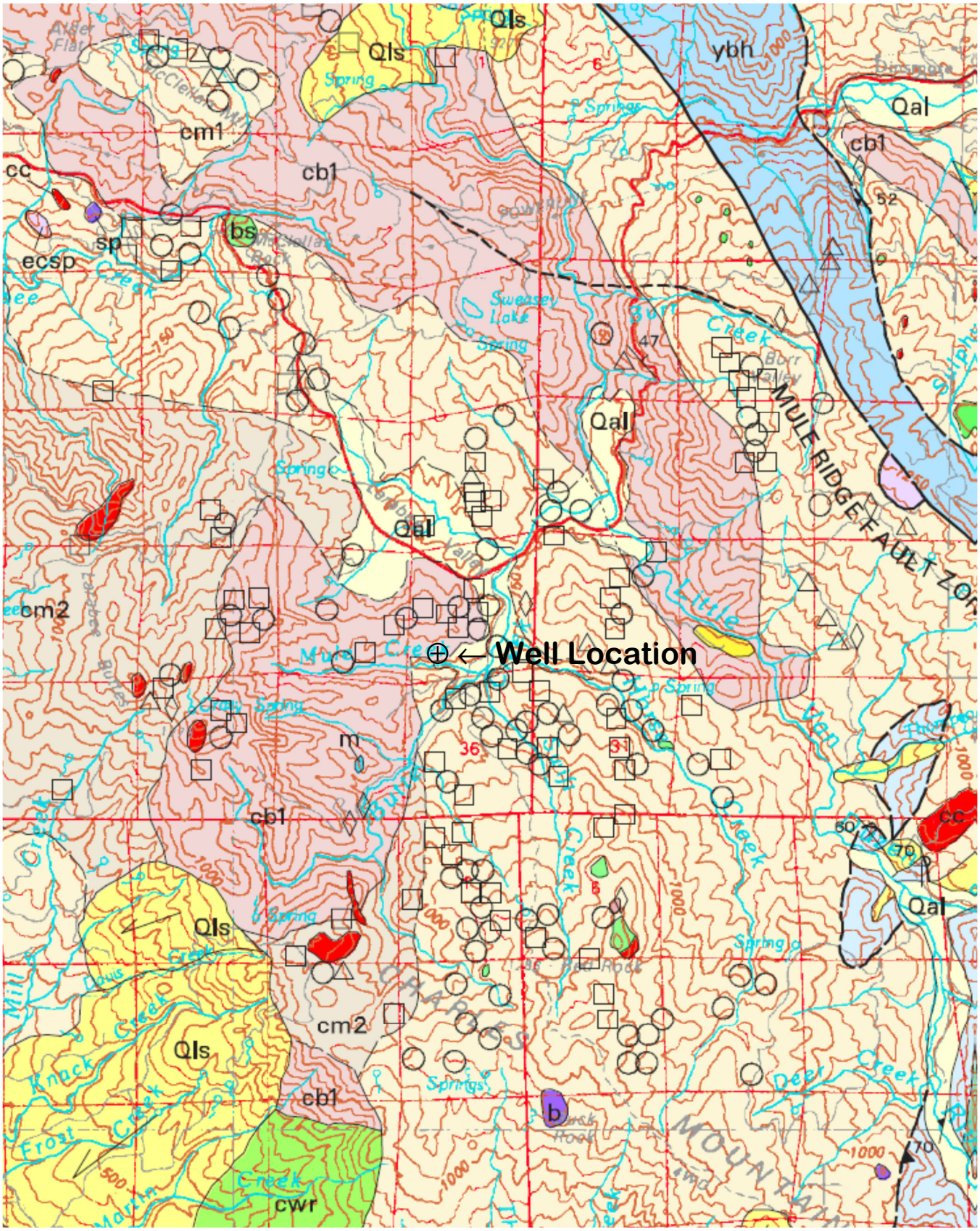
Lindberg Geologic Consulting	Engineering-Geologic Proposed New Well Connectivity Assessment	Figure 2
Post Office Box 306	2248 Run Down Acres Lane, Bridgeville, California	July 25, 2024
Cutten, CA 95534	APN 210-072-009, Mr. Erik Sordal, Client	Project 0481.01
(707) 442-6000	Humboldt County Assessor's Parcel Map (all locations approximate)	Scale as Shown



Lindberg Geologic Consulting	Engineering-Geologic Proposed New Well Connectivity Assessment	Figure 3
Post Office Box 306	2248 Run Down Acres Lane, Bridgeville, California	July 25, 2024
Cutten, CA 95534	APN 210-072-009, Mr. Erik Sordal, Client	Project 0481.01
(707) 442-6000	Satellite Image of Proposed Well Location (all locations approximate)	1 inch ≈ 140 feet

Modified from: Google Earth Imagery of October 5, 2019. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Proposed New Well Connectivity Assessment	Figure 4
Post Office Box 306	2248 Run Down Acres Lane, Bridgeville, California	July 25, 2024
Cutten, CA 95534	APN 210-072-009, Mr. Erik Sordal, Client	Project 0481.01
(707) 442-6000	Geologic Map (locations approximate)	1" ≈ 4,750'



Modified from: McLaughlin, et al., (2,000). N ≈

Lindberg Geologic Consulting	Engineering-Geologic Proposed New Well Connectivity Assessment	Figure 4a
P. O. Box 306	2248 Run Down Acres Lane, Bridgeville, California	July 25, 2024
Cutten, CA 95534	APN 210-072-009, Mr. Erik Sordal, Client	Project 0481.01
(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
- Vertical
- Horizontal
- Overturned
- Approximate
- Joint
- Strike and dip of cleavage

Shear foliation:

- Inclined
- Vertical

Folds:

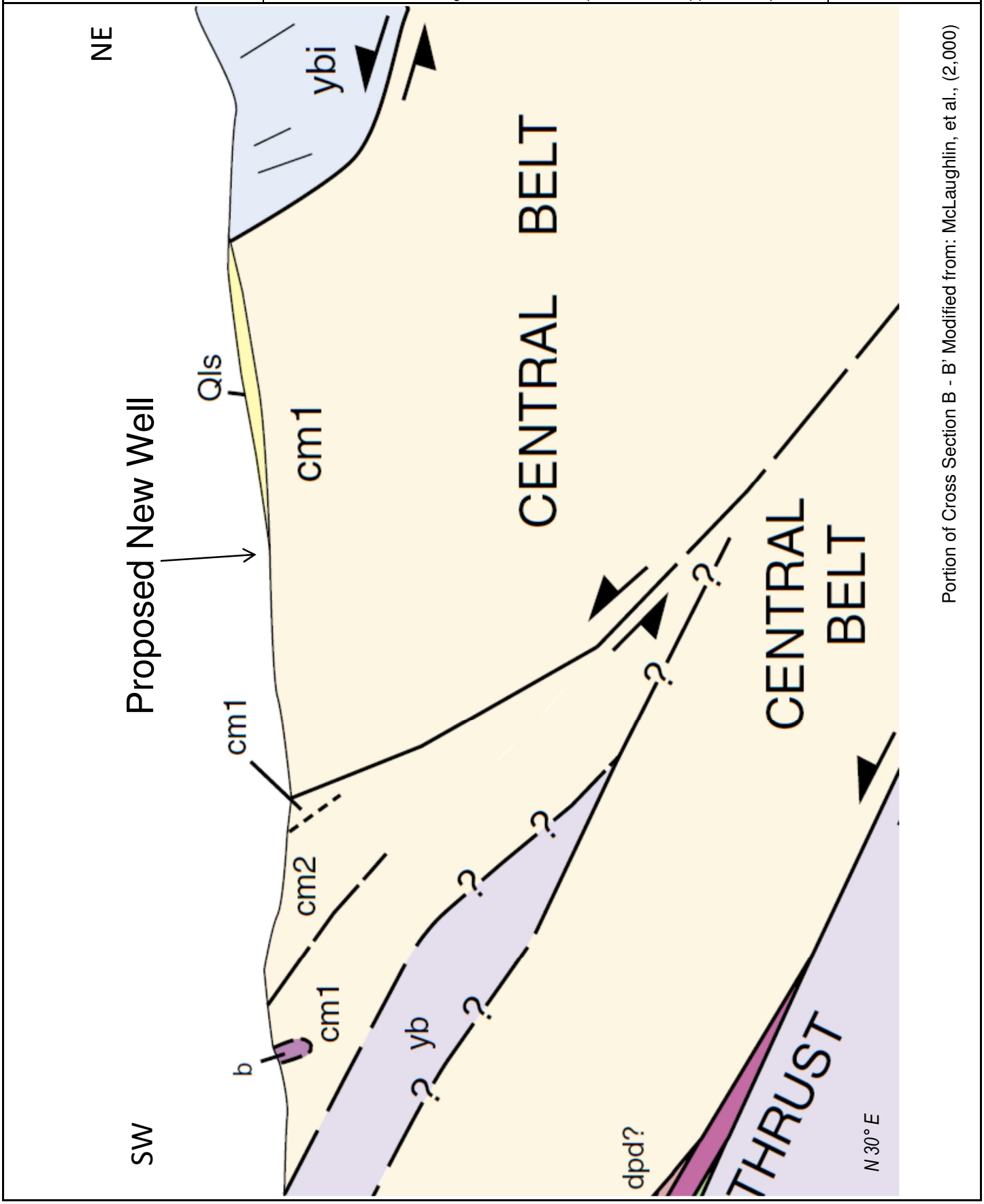
- Synclinal or synformal axis
- Anticlinal or antiformal axis
- Overturned syncline
- Landslide

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 Proposed New Well Connectivity Assessment	Figure 5
Post Office Box 306	2248 Run Down Acres Lane, Bridgeville, California	July 25, 2024
Cutten, CA 95534	APN 210-072-009, Mr. Erik Sordal, Client	Project 0481.01
(707) 442-6000	Generalized Geologic Cross Section (all locations approximate)	~7.5 mi. SW → NE



Lindberg Geologic Consulting	Engineering-Geologic Proposed New Well Connectivity Assessment	Figure 6
Post Office Box 306	2248 Run Down Acres Lane, Bridgeville, California	July 25, 2024
Cutten, CA 95534	APN 210-072-009, Mr. Erik Sordal, Client	Project 0481.01
(707) 442-6000	USDA-NRCS Soil Map (all locations approximate)	Not to Scale

Modified from: Google Earth Imagery of May 9, 2016. N ≈

State of California

Well Completion Report

WCR Form - DWR 188 Complete 07/25/2017

WCR2017-001570

Owner's Well Number 1 Date Work Began 06/02/2017 Date Work Ended 06/02/2017

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

Secondary Permit Agency Permit Number 16/17-0426 Permit Date 10/31/2016

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 0 Mile Marker 34.08 Hwy36

City Bridgeville Zip 95526 County Humboldt

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

Dec. Lat. Dec. Long.

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 210-072-009

Township 01 N

Range 04 E

Section 25

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 290 Feet

Total Depth of Completed Well 280 Feet

Water Level and Yield of Completed Wall

Depth to first water 40 (Feet below surface)

Depth to Static Water Level 89 (Feet) Date Measured 06/05/2017

Estimated Yield* 50 (GPM) Test Type Air Lift

Test Length 4 (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	1	Topsoil
1	23	Brown Clay
23	60	Brown Shale
60	170	Blue Sandstone
170	210	Blue Sandstone with Black Shale
210	280	Blue Sandstone
280	290	Broken Blue Sandstone

Casings

Casing #	Depth from Surface Feet to	Feet	Casing Type	Material	Casings Specifications	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			
2	0	160	Blank	PVC	N/A	0.291	4.95			
2	160	240	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.035	
2	240	260	Blank	PVC	N/A	0.291	4.95			
2	260	280	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.035	

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	290	Other Fill	See description.		No Annular Fill

Other Observations:

Borehole Specifications

Depth from Surface Feet to	Feet	Borehole Diameter (inches)
0	20	13
20	290	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 (Address) | Eureka (City) | CA (State) | 95501 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 06/08/2017 (Date Signed) | 1014048 (C-57 License Number)

Attachments

WellReport_05222017_1_20170725_140643.pdf - WCR Final

DWR Use Only

Site Number / State Well Number

Latitude Deg/Min/Sec N

Longitude Deg/Min/Sec W

TRS:

APN:

State of California

Well Completion Report

Form DWR 188 Complete 3/9/2018

WCR2018-000568

Owner's Well Number 1 | Date Work Began 01/15/2018 | Date Work Ended 01/17/2018

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

Secondary Permit Agency | Permit Number 16/17-0244 | Permit Date 09/22/2016

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 1771 China Mine RD

City Bridgeville Zip 95526 County Humboldt

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

Dec. Lat. 40.4306 Dec. Long. -123.6854

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 210-071-007

Township 01 N

Range 04 E

Section 26

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 180 Feet

Total Depth of Completed Well 180 Feet

Water Level and Yield of Completed Well

Depth to first water 50 (Feet below surface)

Depth to Static Water Level 70 (Feet) Date Measured 01/17/2018

Estimated Yield* 60 (GPM) Test Type Air Lift

Test Length 4 (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	50	Tan/Brown Sandstone
50	120	Blue Sandstone
120	180	Blue Sandstone with 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	20	Blank	Low Carbon Steel	N/A	0.188	8.625			*
2	0	80	Blank	PVC	N/A	0.291	4.95			*
2	80	140	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.25	
2	140	160	Blank	PVC	N/A	0.291	4.95			*
2	160	180	Screen	PVC	N/A	0.291	4.95	Milled Slots	0.25	*

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	180	Other Fill	See description.		No Annular Fill

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	13
20	180	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 (Address) | Eureka (City) | CA (State) | 95501 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 01/22/2018 (Date Signed) | 1014048 (C-57 License Number)

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — **Latitude Deg/Min/Sec**

W — **Longitude Deg/Min/Sec**

TRS:

APN:

Humboldt County, Central Part, California

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

Map Unit Setting

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

Map Unit Composition

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

Description of Pasturerock, Dry

Setting

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

Typical profile

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

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

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

Description of Coyoterock, Dry

Setting

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

Typical profile

A - 0 to 14 inches: loam
ABt - 14 to 24 inches: loam
Bt1 - 24 to 31 inches: clay
Bt2 - 31 to 37 inches: clay
Cg - 37 to 71 inches: clay

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 28 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

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

Description of Maneze, Dry

Setting

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

Typical profile

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

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 39 to 63 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

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

Minor Components

Rock outcrop

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

Airstrip, dry

Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R004BX101CA - Upper prairie, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Prairie (RNPP001CA)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Humboldt County, Central Part, California
Survey Area Data: Version 10, Aug 28, 2023