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October 24, 2022 Project No: 0478.00

Mr. Josh Young
Earthgreen, LLC
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Blocksburg, California 95534

Subject: Hydrologic Isolation of Existing Well from Surface Waters, WCR2017-001935
36492 Alderpoint Road, Blocksburg, California, APN: 217-032-013

To Whom It May Concern:

As requested, Lindberg Geologic Consulting has assessed an existing permitted well on the above-referenced parcel to estimate its potential for hydrologic connectivity with any adjacent wetlands and or surface waters, and if pumping this well might affect nearby surface waters. The nearest tributaries in the vicinity of this well are Martin Creek, and an unnamed ephemeral tributary of Larabee Creek (Figure 1). On the parcel, there is one domestic well more than 650 feet southeast, and a rain catchment pond more than 895 feet west-southwest of the subject well.

A California-Certified Engineering Geologist visited this site on June 3, 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 low likelihood of being hydrologically connected to nearby surface waters in any manner that could affect adjacent wells, 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 a variety of crops. 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 217-032-013 (Figure 2) encompasses approximately 180 acres. Our GPS located the subject well at latitude 40.37014° north, and longitude 123.71482° west (±9'). This well is in Section 15, T1S, R4E, and is 140 feet deep with the wellhead at an elevation of 1,760 feet (Figure 1).

The Humboldt County WebGIS shows Martin Creek more than 1,000 feet to the north of the subject wellsite. The next closest watercourse is an unnamed ephemeral stream of Larabee Creek which is more than 2,200 feet southwest of the well (Figure 1). As stated, based on interpolation from the USGS "Blocksburg, Calif." (1969), topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, the wellhead elevation is 1,760 feet. The elevation of Martin Creek to the north is approximately 1,520 feet and the elevation of the un-named perennial watercourse to the southwest is approximately 1,560 feet, and the total depth elevation is 1,620 feet, making the nearest watercourses 100 feet, and 60 feet, lower than the bottom of well 2017-001935.

Well location is shown approximately on the attached figures, and was drilled by Fisch Drilling, of Hydesville, in June 2017, under Humboldt County well permit #15/16-0596. Fisch Drilling is a licensed well-drilling contractor (C-57 #683865). Fisch Drilling submitted their well completion report (DWR 188) on June 29, 2017 (attached). The driller's estimated yield was 40 gpm in June 2017, based on their 4-hour air lift pump test. Total drawdown during the pump test was 79 feet.

Again, total drilled depth of this well is 140 feet. The borehole diameter is 10-inches from grade to 140-feet. From the surface to 40 feet, a 5.563-inch diameter blank (unslotted) PVC casing was installed. From 40- to 140-feet, 5.563-inch diameter PVC, slotted (0.032-inch milled slots) well screen, was installed. Per County requirements, a bentonite sanitary surface seal was installed from the surface to 20 feet. Below the bentonite seal, the annulus was backfilled with 3/8-inch pea gravel to the total depth. The well is sealed through potential shallow subsurface aquifers in the uppermost 20 feet, as required by regulation. Depth to first water was reported at 61 feet below the surface (bgs), and depth to static water in the completed developed well was 52 feet bgs for the pump test on June 27, 2017, with 9 feet of hydraulic head, the aquifer is slightly artesian.

Per the WebGIS, the nearest mapped spring is more than 6,200 feet southeast at an elevation of 1600 feet in Section 23. Another spring is mapped 8,500 feet east in Section 13 at an estimated elevation of over 3,300 feet. More than 2.25 miles southwest of the subject well, there is another spring mapped in Section 29, at an elevation of approximately 1,630 feet, (Figure 1). Given the distances, the intervening creek valleys and sidehill ridges, and the different elevations, it is not likely that these springs could communicate hydrologically with 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 Quaternary landslide deposits (Qal), presumably derived from the mélange (cm1) of the Central Belt of the Franciscan Complex, as shown in Figure 4.

According to the NRCS Web Soil Survey, the near-surface soils are fine sandy loam, and loam. Soils are interpreted to be uniformly distributed across that portion of the subject parcel underlain by the Quaternary landslide deposits. Materials reported on the geologic log of the driller's well completion report include 4-feet of "top soil" above 12-feet (4-feet to 16-feet) of "brown sandstone". Beneath the brown sandstone lies 5-feet of "shale" (16- to 21-feet). Below the shale the driller reported "blue sandstone hard shale" the first water bearing unit in the well (21- to 140-feet). First water was encountered in this unit at 61 feet bgs.

We interpret the shale section of the profile in this well, from 16- to 21-feet, to be an aquitard, a material of low permeability and transmissivity. Blue sandstone and hard shale material below 21 feet are expected to have higher permeability and transmissivity; this was the first water-bearing aquifer material encountered in this well. From 21 feet to 140 feet, we interpret the blue sandstone

and hard shale unit to be water producing aquifer in this well. Sandstone typically has higher transmissivity and permeability than shale. At the location of the subject well, the elevation of the first water-bearing aquifer unit is thus between approximately 1,739 feet and 1,620 feet, based on the reported lithologies and the screened interval in the driller's report.

Below the surface, the earth materials encountered in the boring are Quaternary landslide (Qls) deposits derived from the mélange of the Central Belt Franciscan Complex (cm1), as mapped by McLaughlin et al. (2000). Landslide materials derived from fractured and folded metasedimentary rock materials can have highly variable hydraulic conductivity, but can also, under the right conditions, constitute significant aquifers. We interpret the sequence described by the driller, as lithologies within the central belt mélange (cm1) of the Franciscan Complex. The blue sandstone hard shale section of this profile apparently has higher transmissivity and permeability, and favorable hydraulic conductivity, making the blue sandstone hard shale, in our interpretation, 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 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.

A hydrogeologic cross section is attached as Figure 6. The hydrogeologic cross section line is approximately north south and is vertically exaggerated two times. In the cross section, the view looks east, upslope toward Charles Mountain. Groundwater flow in this hydrogeologic cross section is toward the viewer, or out of the page. Groundwater is presumed to flow from recharge areas in the higher ground of Charles Mountain to the east-northeast, to the west-southwest toward Larabee Creek. McLaughlin et al. (2000) mapped subgrade as composed of Quaternary Landslide deposits (Qls), White Rock metasandstone (cwr), and Mélange (cm1) of the Central Belt of the Franciscan Complex. Mélange and White Rock metasandstone are two of several components of the Central Belt Franciscan Complex. Groundwater is envisioned as flowing through permeable zones in landslide deposits above the landslide slip plane. Fractured and disrupted cm1 mélange, and or cwr metasandstone are interpreted to provide preferential flow paths for groundwater.

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 reported at 61 feet; groundwater rose to a static level at 52 feet bgs indicating 9 feet of hydraulic head in the formation. This well is sealed through the upper 20 feet where 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 (~21 to 140 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, combined with the five feet of shale, are sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than 1,025 feet in Martin Creek (elevation ~1,550) which at that point is lower than the total depth of the well at 1,620 feet. 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.

According to the driller, the estimated the yield of this well was 40 gallons per minute (gpm) on June 27, 2017. Total drawdown was reported to be 79 feet after Fisch Drilling's four-hour air-lift pump test. At 40 gpm, this well would potentially produce 57,600 gallons per day. As noted on the well completion report, this capacity may not be representative of this well's long-term yield. 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 likely to be hydrologically connected to, or capable of influencing surface water flows in Martin Creek or the un-named ephemeral tributary of Larabee Creek. Nor does this well appear to be hydrologically connected to any local springs or ephemeral wetlands of which there are none within 1,000 feet. Given the horizontal distances involved, and the elevation differences between the water-producing zone in the subject well, and the surface waters of the nearest watercourses, springs, and ponds, the potential for significant hydrologic connectivity between surface waters and groundwater in the blue sandstone hard shale aquifer appears unlikely. Further, given the apparently limiting condition of the low-transmissivity shale units above the water-bearing unit, and the artesian pressure in the aquifer, it is unlikely to have significantly hydraulically connections to shallow unconfined aquifers.

As discussed, on the Blocksburg topographic quadrangle map, there are no springs mapped within 1,000 feet of the well site. No springs are mapped in the sections adjacent to Section 15 where the subject well is located. Beyond our client's rainwater catchment pond, 895 feet west southwest of the well on the subject parcel (APN 217-032-013) there are no wetlands mapped within 1,000 feet of 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 is one well which meets this criterion, well number WCR2017-001937. Well -001937 is a 5.563-inch, 5 gpm well, 280 feet in depth. It is screened from 80 to 280 feet and encountered first water at 102 feet. Static water level was 75 feet bgs on June 27, 2017. Well -001937 is more than 650 feet southeast of the subject well and is the domestic water source for the residence on the parcel. Being located southeast, well -001937 is across gradient and encountered

somewhat similar, though not identical stratigraphy. The subject well (WCR2017-001935), and well -001937, are on the same parcel and under the same ownership and control.

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 and the presumed flow of groundwater, well -001935 is likely to be situated across gradient from -001937. Groundwater flow in the deeper confined subsurface aquifers in the mélange is likely more complex. The ground surface slopes generally to the southwest; thus the near surface unconfined aquifer flows to the southwest, toward Larabee Creek. At the time of our visit the subject well had a pump installed.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating through the soil and Qls bedrock from upslope source areas both proximal and distal to the well site. Ephemeral streams in the vicinity of the well are also likely to 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 Dryfield-Yorknorth-Witherell complex, on slopes of 5 to 30 percent, (#667, 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 49 to 90 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 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 73.5 acre-feet, or nearly 24 million gallons of water per year (MGPY), may be expected to recharge the local aquifers below this 180-acre subject property. Given the same amount of precipitation (49-inches) and the same 10 percent partitioned to recharge, then within a 1,000-foot radius 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 more than 28.5 acre-feet, and more than 9.3 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 36492 Alderpoint Road, Blocksburg, 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 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 217-032-013, located at 36492 Alderpoint Road, has a low likelihood of being hydrologically connected to nearby surface waters or neighboring wells in any manner that might significantly have a negative impact or effect on proximal wetlands, wells, and or 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:

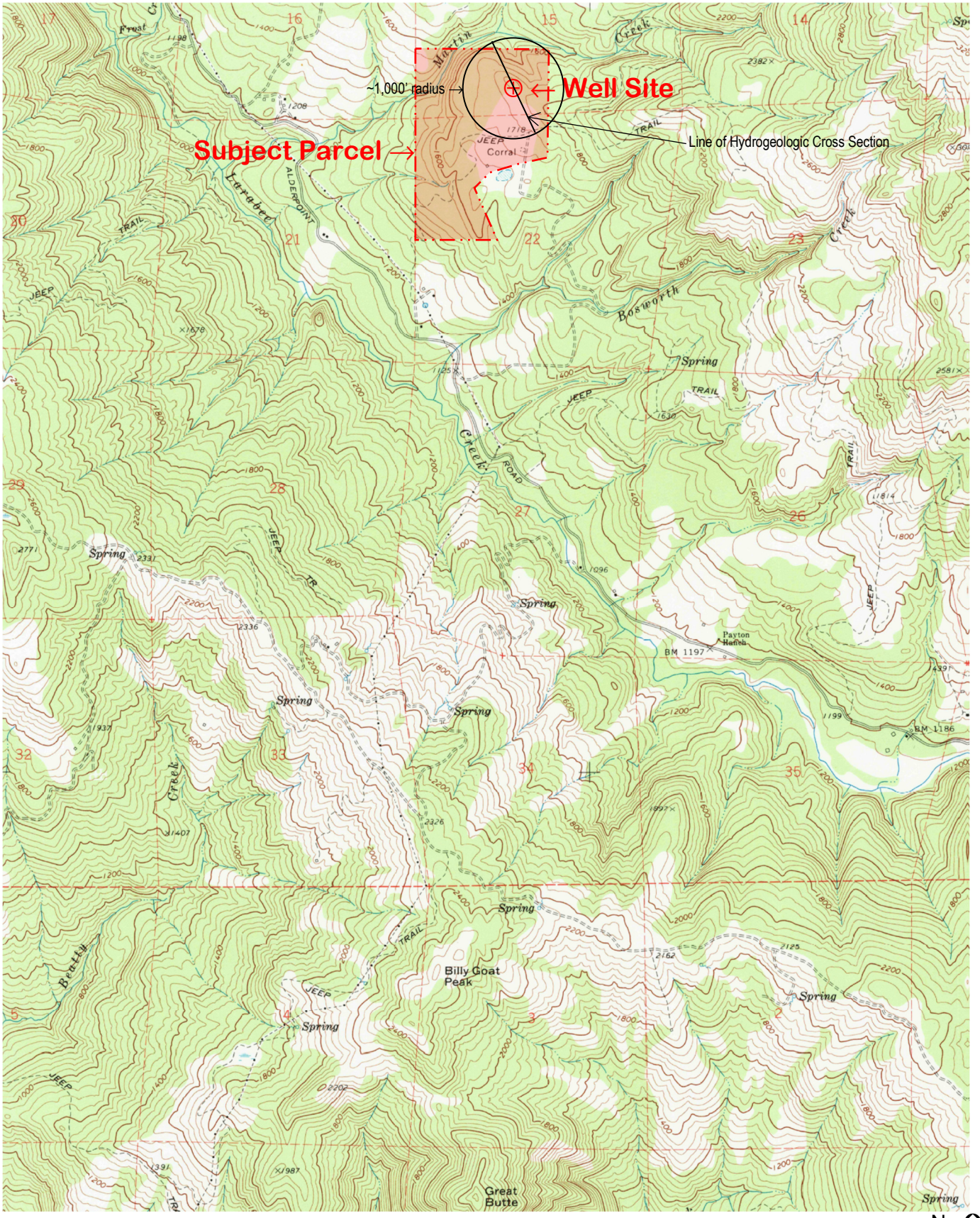
Figure 1: Topographic Well Location Map
Figure 2: Humboldt County Assessor's Parcel Map
Figure 3: Satellite Image of Well location
Figure 4: Geologic Map
Figure 4a: Geologic Map Explanation
Figure 5: Generalized Geologic Cross Section
Figure 6: Hydrogeologic Cross Section
Figure 7: USDA-NRCS Soils Map

State of California Well Completion Report:
WCR2017-001935, APN: 217-032-013 (Subject Well)
WCR2017-001937, APN: 217-032-013 (>650 feet to southeast)

Web Soil Survey, NRCS Map Unit Description:
Dryfield-Yorknorth-Witherell complex, #667, 5 to 30 percent slopes.

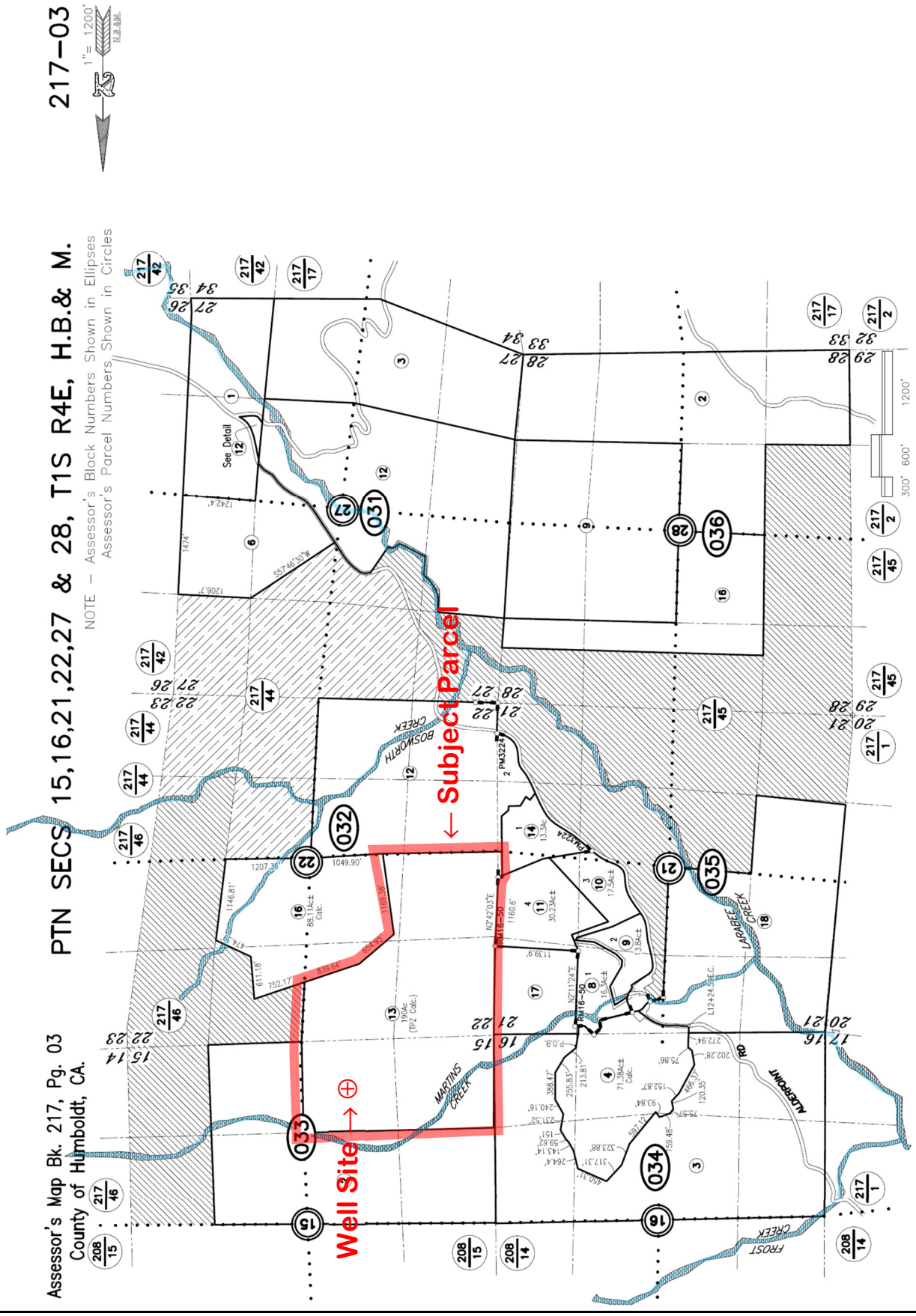
Reference:
Flint et al.: Fine-scale hydrologic modeling for regional landscape applications: the California Basin Characterization Model development and performance. Ecological Process, 2013, 2:25. (doi:10.1186/2192-1709-2-25)

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 1
Post Office Box 306	36492 Alderpoint Road, Humboldt County, California, DWR2017-001935	October 24, 2022
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(707) 442-6000	Topographic Well Location Map (locations approximate)	1" ≈ 2,700'

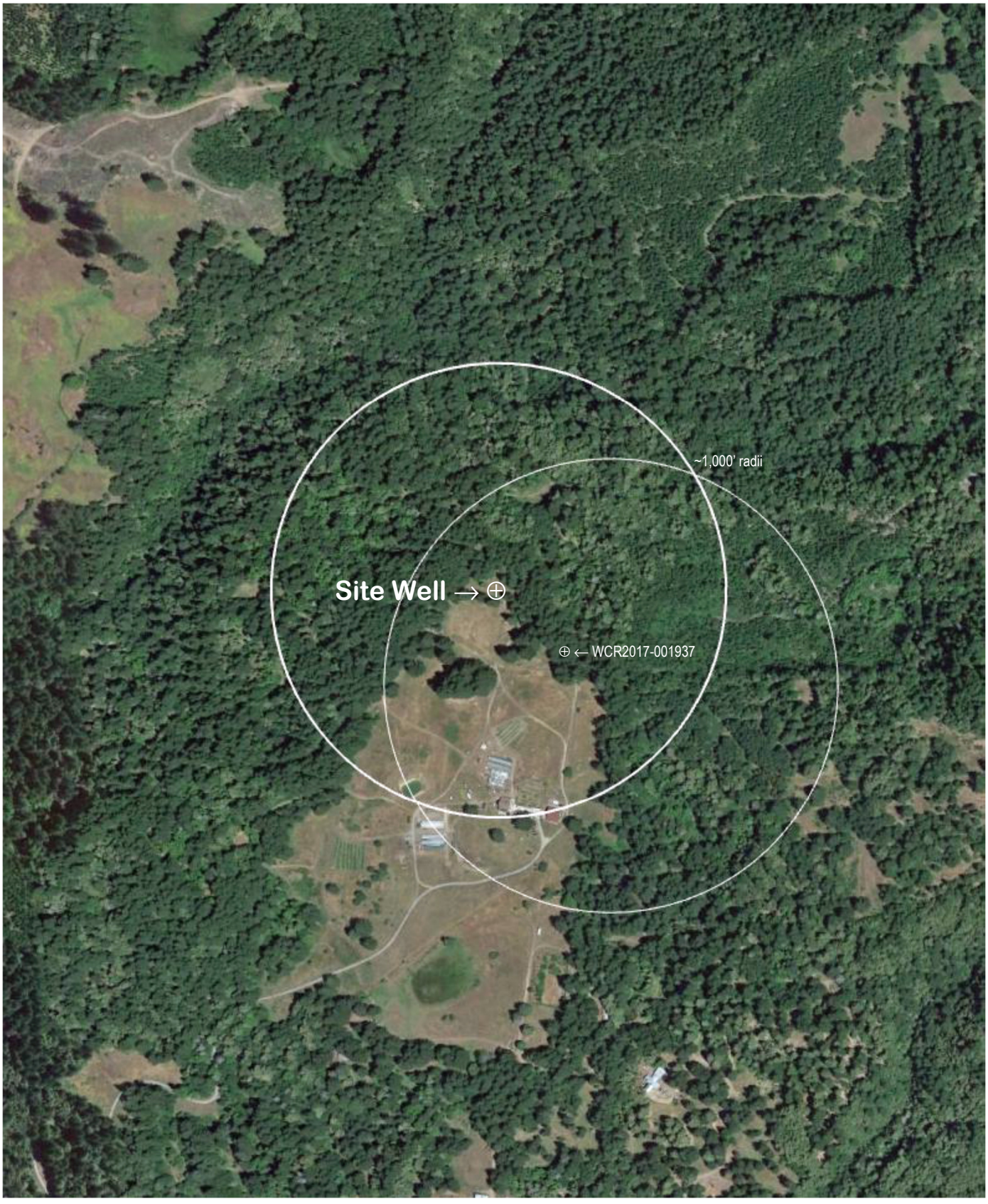


Modified from: USGS "Blocksburg, Calif.", 7.5' Quadrangle Map (1969). N ≅

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 2
Post Office Box 306	36492 Alderpoint Road, Humboldt County, California, DWR2017-001935	October 24, 2022
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(707) 442-6000	Humboldt County Assessor's Parcel Map (locations approximate)	Scale as Shown

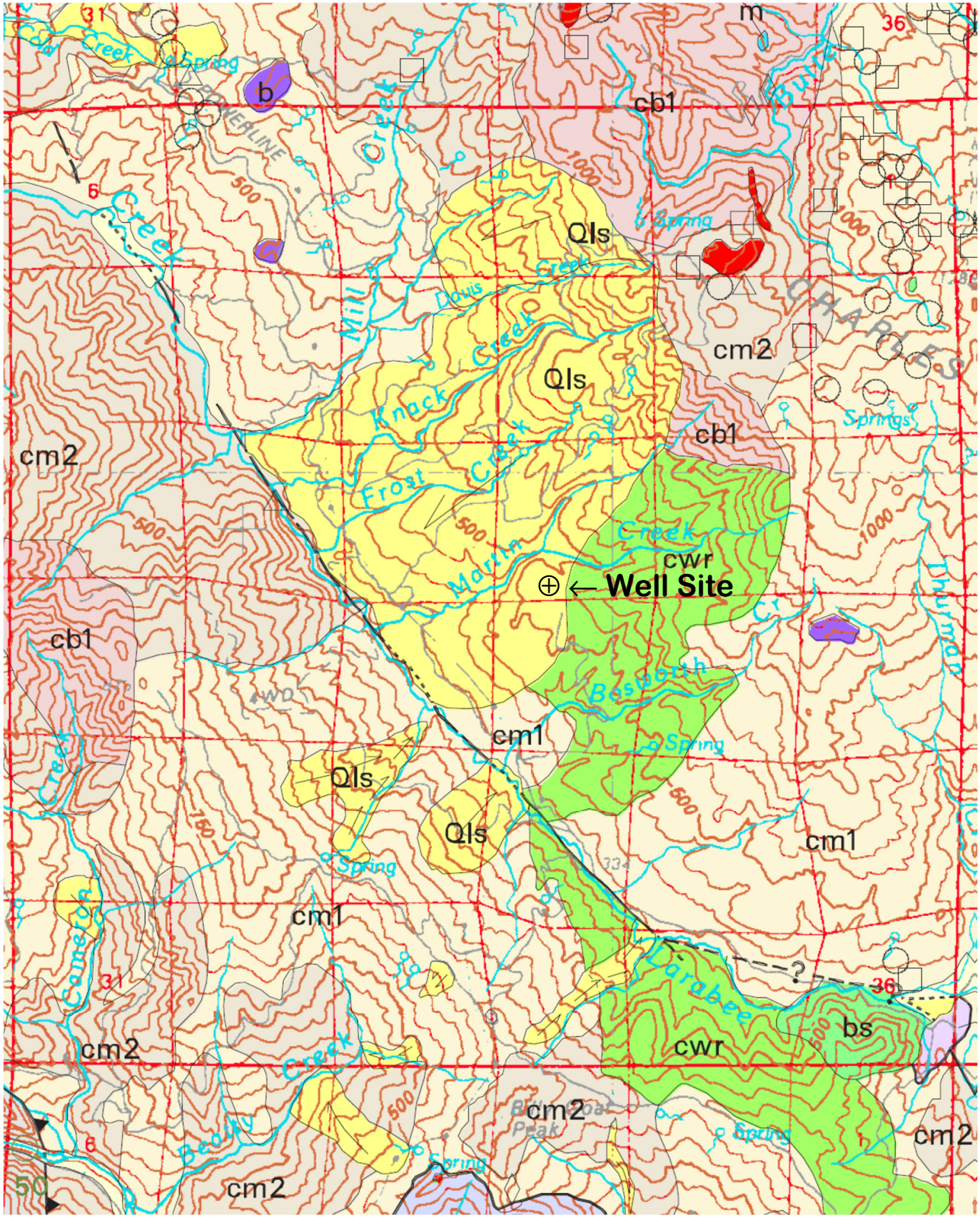


Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 1
Post Office Box 306	36492 Alderpoint Road, Humboldt County, California, DWR2017-001935	October 24, 2022
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(707) 442-6000	Topographic Well Location Map (locations approximate)	1" ≈ 600'



Modified from: Google Earth Imagery of July 17, 2022. N ≈

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4
Post Office Box 306	36492 Alderpoint Road, Humboldt County, California, DWR2017-001935	October 24, 2022
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(707) 442-6000	Geologic Map (locations approximate)	1" ≈ 4,500'



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

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 4a
P. O. Box 306	36492 Alderpoint Road, Humboldt County, California, DWR2017-001935	October 24, 2022
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(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
- Vertical
- Horizontal
- Overturned
- Approximate
- Joint
- Strike and dip of cleavage

Shear foliation:

- Inclined
- Vertical

Folds:

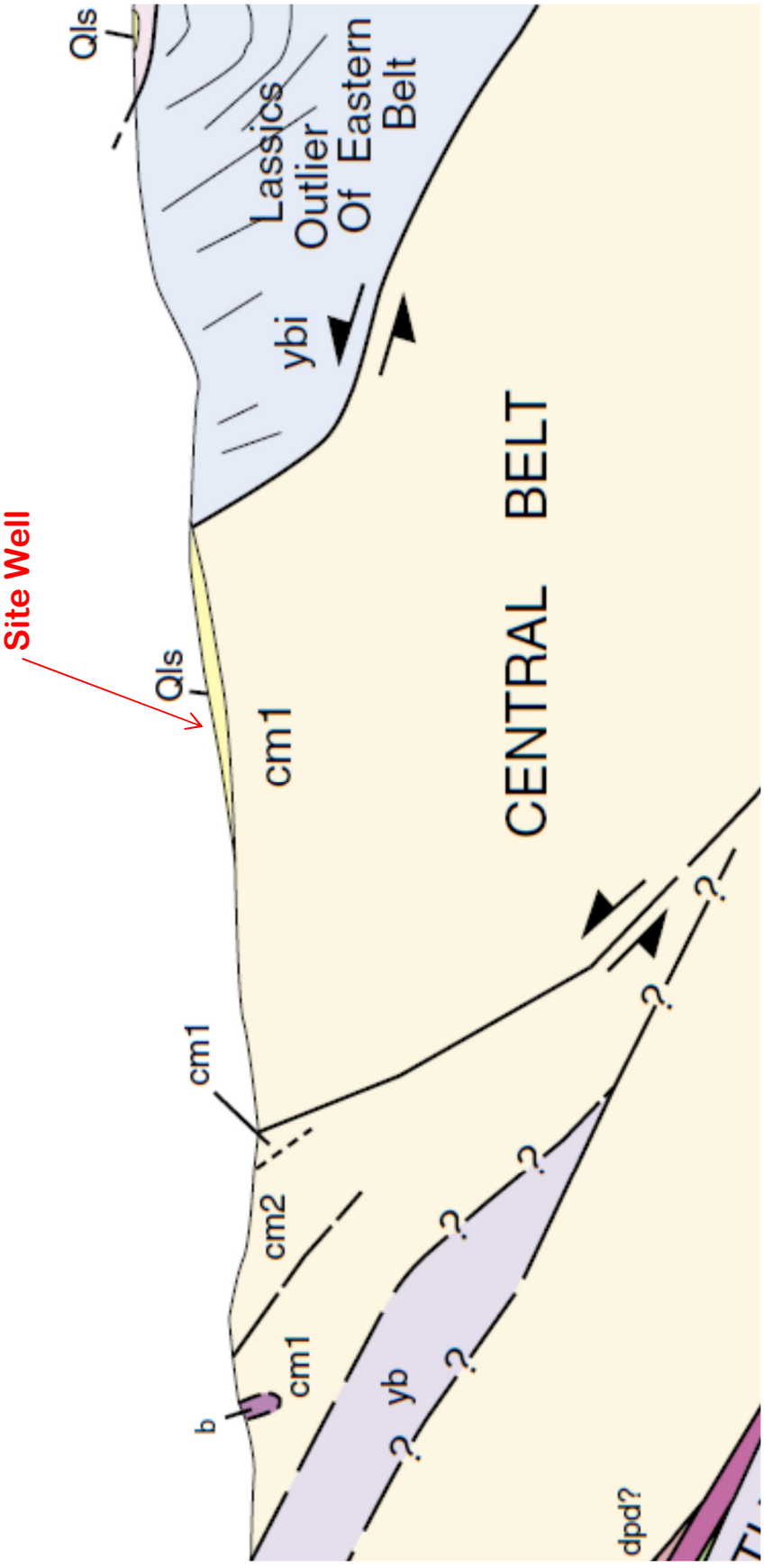
- Synclinal or synformal axis
- Anticlinal or antiformal axis
- Overturned syncline
- Landslide (Qls)

Melange Blocks:

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

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

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 5
Post Office Box 306	36492 Alderpoint Road, Humboldt County, California, DWR2017-001935	October 24, 2022
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(707) 442-6000	Generalized Geologic Cross Section (locations approximate)	Scale Not Specified



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

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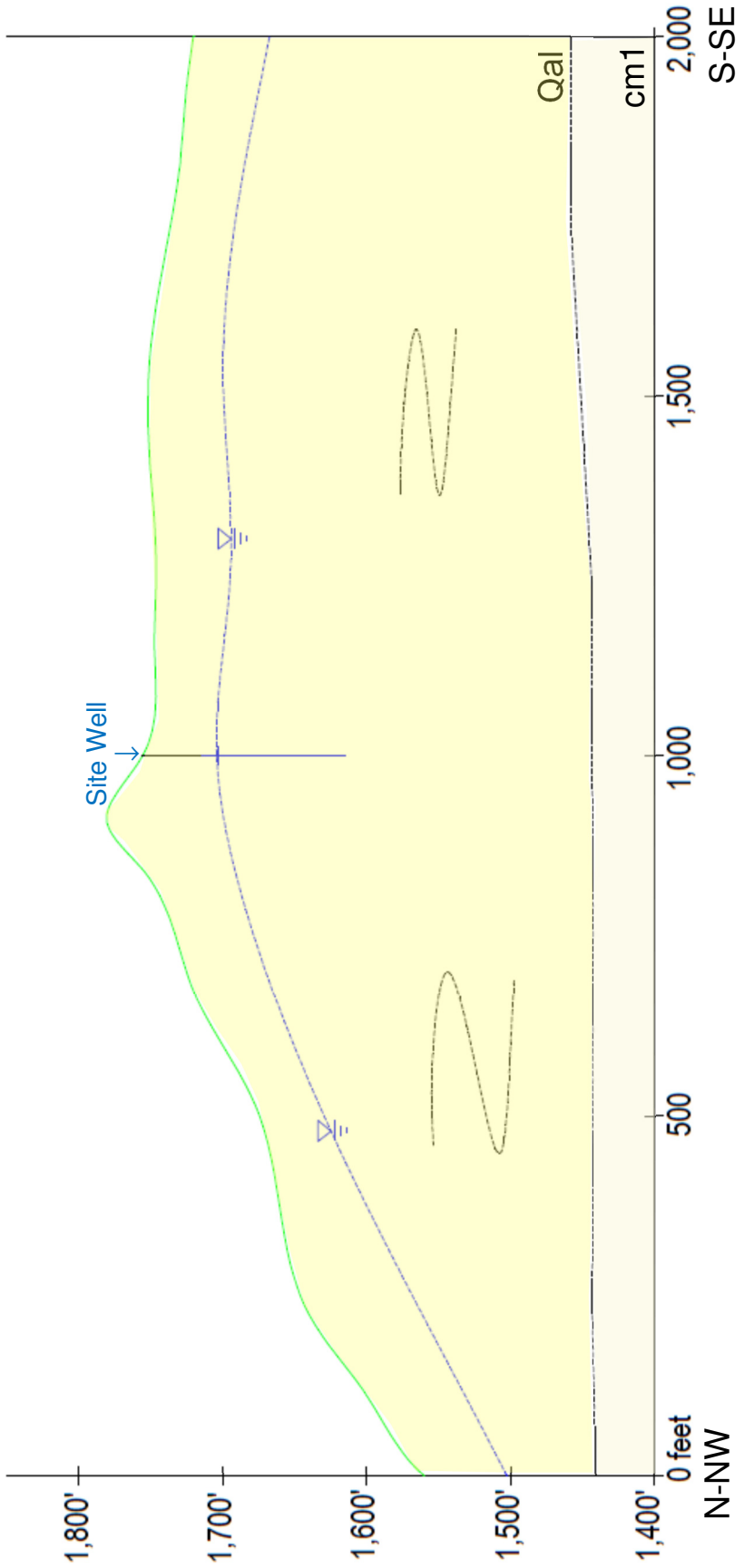
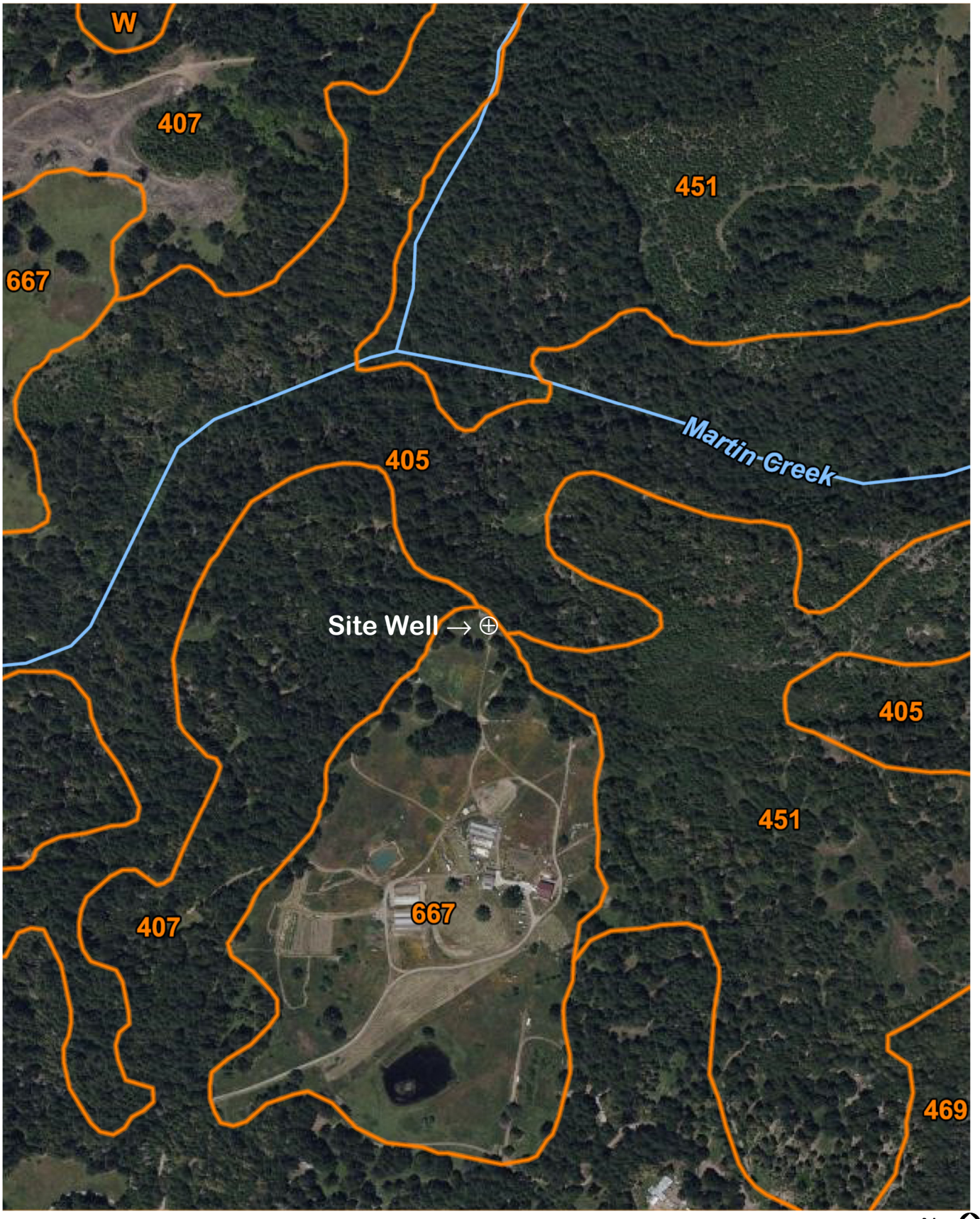
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(707) 442-6000	Hydrogeologic Cross Section (locations approximate)	V. E. ≈ 2x



In this vertically exaggerated (~2x) cross section, the view is looking east and upslope toward Charles Mountain. Groundwater flow in this cross section is toward the viewer, or out of the page. Groundwater is presumed to flow from recharge areas in the higher ground to the east-northeast, to the west-southwest toward Larabee Creek. McLaughlin et al. (2000) mapped subgrade as composed of Quaternary Landslide deposits (Qls), White Rock metasandstone (cwr), and Mélange (cm1) of the Central Belt of the Franciscan Complex. Mélange and White Rock metasandstone are two of several components of the Central Belt Franciscan Complex. Groundwater is envisioned as flowing through permeable zones in landslide deposits above the landslide slip plane. Fractured and disrupted cwr and cm1 are interpreted to be providing preferential flow paths for groundwater in this area.

Lindberg Geologic Consulting	Engineering-Geologic Well Connectivity Assessment Report	Figure 7
Post Office Box 306	36492 Alderpoint Road, Humboldt County, California, DWR2017-001935	October 24, 2022
Cutten, CA 95534	APN: 217-032-013, Earthgreen LLC, Mr. Josh Young, Client	Project 0478.00
(707) 442-6000	USDA-NRCS Soils Map (locations approximate)	Scale Not Determined



Modified from: USGS-NRCS Web Soil Survey, October 23, 2022 N ≈

State of California

Well Completion Report

WCR Form - DWR 188 Complete 06/30/2017

WCR2017-001935

Owner's Well Number 1 | Date Work Began 06/22/2017 | Date Work Ended 06/27/2017

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

Secondary Permit Agency | Permit Number 15/16-0596 | Permit Date 04/11/2016

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 Irrigation - Agriculture

Well Location

Address 36492 ALDERPOINT RD

City Blocksburg Zip 95514 County Humboldt

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

Dec. Lat. 40.3704100 Dec. Long. -123.7149800

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 217-032-013

Township 01 S

Range 04 E

Section 15

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Direct Rotary Drilling Fluid Air

Total Depth of Boring 140 Feet

Total Depth of Completed Well 140 Feet

Water Level and Yield of Completed Wall

Depth to first water 61 (Feet below surface)

Depth to Static Water Level 52 (Feet) Date Measured 06/27/2017

Estimated Yield* 40 (GPM) Test Type Air Lift

Test Length 4 (Hours) Total Drawdown 79 (Feet)

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

Geologic Log - Free Form

Depth from Surface Feet to	Feet	Description
0	4	TOP SOIL
4	16	BROWN SANDSTONE
16	21	SHALE
21	140	BLUE SANDSTONE HARD SHALE

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	40	Blank	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563			
1	40	140	Screen	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

Annular Material

Depth from Surface Feet	to Feet	Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	140	Filter Pack	Other Gravel Pack	3/8 Inch	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to	Feet	Borehole Diameter (inches)
0	140	10

Certification Statement

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

Name: FISCH DRILLING (Person, Firm or Corporation)

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

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 06/29/2017 (Date Signed) | 683865 (C-57 License Number)

Attachments

WellReport_05222017_1_20170630_073834.pdf - WCR Final

WCR2017-001935 location map.pdf - Location Map

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

WCR Form - DWR 188 Complete 06/30/2017

WCR2017-001937

Owner's Well Number 2 | Date Work Began 06/21/2017 | Date Work Ended 06/27/2017

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

Secondary Permit Agency | Permit Number 15/16-0595 | Permit Date 04/11/2016

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 Irrigation - Agriculture

Well Location

Address 26492 ALDERPOINT RD

City Blocksburg Zip 95514 County Humboldt

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

Dec. Lat. 40.3689900 Dec. Long. -123.7130400

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 217-032-013

Township 01 S

Range 04 E

Section 15

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Direct Rotary Drilling Fluid Air

Total Depth of Boring 280 Feet

Total Depth of Completed Well 280 Feet

Water Level and Yield of Completed Wall

Depth to first water 102 (Feet below surface)

Depth to Static Water Level 75 (Feet) Date Measured 06/27/2017

Estimated Yield* 5 (GPM) Test Type Air Lift

Test Length 4 (Hours) Total Drawdown 178 (Feet)

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

Geologic Log - Free Form

Depth from Surface Feet to	Feet	Description
0	3	TOP SOIL
3	28	SOFT BROWN SANDSTONE
28	53	SANDSTONE
53	80	SHALE
80	175	BLUE GRAY SANDSTONE
175	201	SHALE
201	244	BLUE SANDSTONE SHALE MIX
244	280	SHALE

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	80	Blank	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563			
1	80	280	Screen	PVC	OD: 5.563 in. | SDR: 21 | Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to	Feet	Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	280	Filter Pack	Other Gravel Pack	3/8 Inch	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to	Feet	Borehole Diameter (inches)
0	280	10

Certification Statement

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

Name: FISCH DRILLING
Person, Firm or Corporation

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

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 06/29/2017 (Date Signed) | 683865 (C-57 License Number)

Attachments

WCR2017-001937 location map.pdf - Location Map

WellReport_05222017_1_20170630_073920.pdf - WCR Final

DWR Use Only

Site Number / State Well Number

Latitude Deg/Min/Sec N

Longitude Deg/Min/Sec W

TRS:

APN:

Humboldt County, South Part, California

667—Dryfield-Yorknorth-Witherell complex, 5 to 30 percent slopes

Map Unit Setting

National map unit symbol: v6lh
Elevation: 200 to 2,490 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Dryfield and similar soils: 40 percent
Yorknorth and similar soils: 30 percent
Witherell and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dryfield

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone and/or residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: fine sandy loam
Bt1 - 4 to 19 inches: fine sandy loam
Bt2 - 19 to 41 inches: fine sandy loam
Bt3 - 41 to 59 inches: fine sandy loam
Bt4 - 59 to 79 inches: 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 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F005XZ013CA - Thermic Mountains
Hydric soil rating: No

Description of Yorknorth

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Colluvium derived from sandstone and/or earthflow deposits derived from schist

Typical profile

A1 - 0 to 6 inches: loam
A2 - 6 to 19 inches: loam
ABt - 19 to 26 inches: silt loam
Bt1 - 26 to 35 inches: clay loam
Bt2 - 35 to 53 inches: clay
C1 - 53 to 60 inches: clay loam
C2 - 60 to 79 inches: paragravelly clay loam

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Description of Witherell

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Typical profile

A - 0 to 3 inches: loam
Bw - 3 to 8 inches: loam
Bt - 8 to 12 inches: gravelly loam
C - 12 to 79 inches: gravel

Properties and qualities

Slope: 5 to 30 percent
Depth to restrictive feature: 10 to 14 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: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R005XZ005CA - Thermic Hills
Hydric soil rating: No

Minor Components

Coolyork

Percent of map unit: 10 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: 2 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

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

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