

ATTACHMENT 4D
Well Report Final

LINDBERG GEOLOGIC CONSULTING

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

June 6, 2022

Project No: 0469.00

High Point Honeydew Farm, Inc.
Attention: Mr. Evan Kouchalakos
74 Amherst Road
Merrimack, New Hampshire 03054

Subject: Hydrologic Isolation of Existing Well from Surface Waters
47730 Mattole Road, Honeydew, APN: 107-054-036, WCR2021-005628

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 springs, wetlands, and or surface waters, and if pumping this well could affect such waters in nearby water courses. Creeks in the vicinity of this well drain to the Upper North Fork Mattole River (Figure 1). A California-Certified Engineering Geologist visited this site on May 11, 2022, to observe the subject well and local site conditions. Based on our professional experience, our observations, and research, it is our opinion the subject well has a 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 understand that the applicant plans 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 the applicant can supply that information.

By our estimation, this parcel 107-054-036 (Figure 2) encompasses approximately 39 acres. Based on our on-site GPS measurements, the site well is located approximately at latitude 40.25953° north, and longitude 124.11606° west ($\pm 9'$). Site well is 200 feet deep, at an elevation of approximately 1,610 feet. As reported by the driller, this well is in Section 31, T2S, R1E, HB&M (Figures 1 and 2). Site well location is shown on Figures 1, 2, 3, 4, and 6. Two other wells were drilled on the parcel, but they did not encounter water and were not completed or developed. Driller's reports of well completion for the two "dry holes" are attached (WCR 2017-001202, and WCR2017-001203); these are the only "wells" within 1,000 feet of the site well.

Based on the Humboldt County WebGIS mapping, this well is approximately 600 feet from the nearest mapped surface waters, an unnamed west-flowing tributary of Upper North Fork Mattole River (Figure 1). Based on interpolation from the USGS Bull Creek topographic quadrangle map (Figure 1), and the Humboldt County WebGIS, well elevation is approximately 1,610 feet above sea level. At the nearest point to the site well, the elevation of the Upper North Fork Mattole River tributary is approximately 1,470 feet. The elevation of the bottom of the well is approximately 1,410 feet which is 60 feet lower than the elevation of the unnamed tributary of Upper North Fork Mattole River at the nearest point, based on the Humboldt County WebGIS map.

LINDBERG GEOLOGIC CONSULTING
(707) 442-6000

June 6, 2022

Project No: 0469.00

Page 2

Three springs are mapped in Section 31 on the 1970 USGS Bull Creek topographic quadrangle map (Figure 1). From the site well, the nearest mapped spring appears to be approximately 400 feet northwest, at an elevation of approximately 1,560 feet, on or near the property line between the subject parcel and parcel 107-054-035. There is a second spring within 1,000 of the property on parcel 107-054-019. The spring on -019 is approximately 920 feet southeast of the site well and 450 feet southeast of the shared property line. We observed only one other spring mapped in Section 31, and that spring is estimated to be more than 1,500 feet northeast of the site well.

The site well was drilled by Fisch Well Drilling Inc. of Hydesville, California, in May 2021, under county permit #20/21-0761. Fisch Well Drilling is a licensed well-drilling contractor (C-57 #683865). Fisch Well Drilling submitted the well completion report (DWR 188) on May 7, 2021 (attached). Fisch Well Drilling estimated the yield of this well at 40 gallons per minute on April 30, 2021. Based on a four-hour air lift pump test, the total drawdown was reported to be 149 feet. The well location is shown on the attached Figure 1, 2, 3, 4, and 6.

Total drilled depth is 200 feet; borehole diameter is 10-inches. Low carbon steel pipe, 6-inches in diameter was installed from grade to 200 feet. A bentonite surface sanitary seal was installed to seal the upper 20 feet of the well. This well is screened from 50 to 63 feet. Screen consisted of low carbon steel with 0.032-inch milled slots. From 20 to 200, feet the annulus was backfilled with 3/8-inch pea gravel. The well is cased and sealed through any potential shallow subsurface aquifers. Depth to first water was reported as 51 feet below grade, and depth to static water in the completed and developed well was reported to be 43 feet bgs when the driller conducted the pump test on April 30, 2021.

On the geologic map (Figure 4), by McLaughlin et al. (2000), this area is underlain by a large Quaternary landslide developed in the Pliocene to late Cretaceous, rocks of the Coastal belt of the Franciscan Complex. Landslide materials consist of “Mélange-dominantly of highly folded argillite and abundant clayey, penetratively sheared rock that exhibits rounded, lumpy, and irregular, poorly incised topography.” Basaltic rocks are also mapped to the south of the well site location such that the well site may be underlain in part by Late Cretaceous basaltic rock which may include “pillow flows, tuffs, flow breccias, and intrusives present as rare blocks or slabs in mélange. Basalt is tholeiitic to alkalic in composition”.

Materials reported on the geologic log of the driller’s well completion report (attached) include one foot of “Top Soil” over 23 feet of “Brown Sand Stone”. From the depth of 24 to 33 feet, the driller logged “Silty Clay, Sand” which was in turn underlain by 14 feet (33’ – 47’) of “Basalt (Rock) Floater”. From 47 feet to 63 feet, which appears to be the first water-bearing unit, the driller logged “Brown Fractured sandstone & Blue Fractured Sandstone”. This well is also screened through the 50- to 63-foot interval. The subsequent 118 feet of the site well was logged by the driller as “Shale Mulache” (presumably mélange). Below the shale mulache, from 181 feet to 200 feet, the driller logged “Fractured Shale”. The site well is cased, not screened from 63 feet to the total depth (200’).

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June 6, 2022

Project No: 0469.00

Page 3

We interpret the brown and blue fractured sandstone section of this profile, from 47 feet to 63 feet to be the water bearing unit in the site well. Sandstones are commonly productive water-bearing aquifer materials, and when fractured can have high transmissivity and permeability. At the location of the site well, the elevation of the water-bearing aquifer unit is thus between approximately 1,563 feet and 1,547 feet.

Below the one foot of topsoil, the earth materials encountered in the boring are likely landslide materials as mapped by McLaughlin et al. (2000). The silty caly with sand from 24 to 33 feet materials may be expected to have a low hydraulic conductivity and constitute a significant aquitard. We interpret the underlying sequence of materials described by the driller (silty clay, sandstone, and mélange), as lithologies within the Coastal Belt of the Franciscan Complex. The fractured sandstone from 47 to 63 feet is expected to have a significantly higher hydraulic conductivity than the silty clay above or the mélange and shale below 63 feet. As mentioned, the fractured sandstone is the water bearing unit in this well, in our interpretation.

A hydrogeologic cross section of the area after McLaughlin et al. (2000) shows the structural and stratigraphic relationships between the local geologic units (Figure 5). The coastal belt mélange unit co1 is shown with foliation that dips steeply. On-site, no attitudes of the rock units could be observed in the soil-mantled landslide deposits. We interpret the slip plane of the large Quaternary landslide to be a hydrologic boundary of minimal permeability (due to the grinding and shearing that occurs along landslide slip planes) which effectively separates the landslide materials from the coastal belt Franciscan mélange, and limit groundwater flow between these fault-bound units.

In our professional opinion, based on our experience, observations, and review of pertinent and available information, this well has a low potential of having any direct connection to surface waters. First water was encountered at 51 feet. This well is sealed through the upper 20 feet of any potential unconfined, near-surface aquifers with which it might potentially communicate hydraulically through the borehole because the bentonite-sealed surface casing isolates the topsoil, and brown sandstone materials from the deeper fractured sandstone aquifer. When considered with the stratigraphy and geologic structure, distances (horizontal and vertically) from the nearest surface waters, depth of the producing zone of this well (~50' – 63'), as well as its position relative to the nearest adjacent unnamed watercourse, we conclude that the depth of the surface seal is sufficient to preclude the potential for hydraulic connectivity with surface waters, of which there are none closer than 400 feet to the northwest on the subject parcel. Thus, the water source from which this well draws appears to be a confined subsurface aquifer in landslide deposits and not connected to any unconfined, near-surface aquifer(s). This well appears, in our professional opinion, likely to be hydraulically isolated from nearby wells, surface waters, springs or wetlands.

In our professional opinion, it appears that the aquifer tapped by the subject well is recharged by water infiltrating from source areas extending up to 2,500 feet upslope and east of the site well. As noted, the "Water Level and Yield of Completed Well" section of the Well Completion Report estimated the yield of this well at 40 gallons per minute (gpm) on April 30, 2021, with 149 feet of

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(707) 442-6000

June 6, 2022

Project No: 0469.00

Page 4

drawdown, after Fisch Drilling's four-hour air-lift pump test. At a rate of 40 gallons per minute, this well could potentially produce 57,600 gallons per day. As noted on the well completion report, this capacity may not be representative of this well's long-term yield.

As discussed, in our opinion the subject well does not appear to be hydrologically connected to, or capable of influencing surface water flows in the nearest tributary of Upper North Fork Mattole River. Nor does this well appear likely to be hydrologically connected to the nearby springs or ephemeral wetlands (if any). Given the horizontal distances involved, and the topographic and elevation differences between the water-producing zone in the subject well, and the nearest surface waters, the potential for hydrologic connectivity with groundwater in the deep bedrock aquifer appears low. Further, given the apparently limiting condition of 23 feet of low-transmissivity silty caly and basalt materials above the water-bearing fractured sandstone units, the water-producing zone is considered hydrologically isolated from, and not demonstrably connected to any other aquifer(s) in the surrounding coastal belt Franciscan deposits.

On the Bull Creek USGS topographic quadrangle map, as mentioned, the nearest mapped spring is to the northwest at an elevation of approximately 1,560 feet, and no closer than approximately 400 feet (Figure 1) on parcel 107-054-036. This spring is the nearest mapped spring to the site well and is at an elevation higher than the bottom of the well. At 1,560 feet, the elevation of the spring is close to the elevation of the static water level in the well. Given the cross-slope location of the spring in a separate drainage swale, and that recharge likely comes from upslope, these two water sources are likely independent of each other. There is one other spring approximately 920 feet southeast of the site well at an elevation of 1,690 feet, or 80 feet higher than the site well. There do not appear to be any other springs or wetlands within 1,000 feet of this subject well.

We researched the California Department of Water Resources (DWR) database to determine if there were other wells within 1,000 feet of the subject well on our client's property. There are two "dry holes" on this subject parcel (WCR2017-001202 and WCR2017-001203, attached). In Section 31 (T2S, R1E), we found one other well in the Department of Water Resources (DWR) database; the well completion report is attached. On APN 107-054-005, a parcel to the east of the subject property, there is a well (WCR2017-000727) that was drilled in January 2017. Well WCR2017-000727 is more than 2,000 feet from the subject well and is 220 feet deep. No other permitted wells were recorded in Section 31 in the California Department of Water Resources database.

The Natural Resources Conservation Service's, online Web Soil Survey, shows the subject well to be located within the Wirefence-Windynip-Devilshole soil complex (#646, Figure 6), which is described as well-drained loam, gravelly loam, and very gravelly fine sandy loam. The Web Soil Survey Unit description is attached to this report. Mean annual precipitation in the area is listed as 60 to 100 inches per year. Capacity of the most limiting layer to transmit water (Ksat) is described as moderately high to high (0.60 to 2.00 in/hr). with a depth to water table of more than 80 inches. If just ten percent of 60 inches of precipitation is absorbed by the soils and does not flow across

LINDBERG GEOLOGIC CONSULTING
(707) 442-6000

June 6, 2022

Project No: 0469.00

Page 5

the surface to local watercourses, then approximately 19.5 acre-feet, or 6.35 million gallons, of water per year may be expected to recharge the local aquifer below this 39-acre subject property. The potentially available recharge area upslope of the site well is estimated at 35 acres (from the Humboldt County WebGIS) which could generate 17.5 acre-feet or 5.7 million gallons of water per year. Thus, in our opinion, five to six million gallons of water per year may be considered sustainable, in this hydrogeologic setting.

On the 28th of March, 2022, our governor issued an executive order (N-7-22) relating to the ongoing drought California is experiencing. In his executive order, the governor outlined several measures the state will undertake to avoid and ameliorate the negative impacts of the current drought. Among these measures, it was ordered that counties, cities, and other public agencies have been prohibited from approving permits for new groundwater wells (or alteration of existing wells) in basins *“subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well is proposed”*. Your well at 47730 Mattole Road is not within a groundwater basin subject to the Act, and there has been no Groundwater Sustainability Agency established with authority over your permitted well.

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

Based on our professional experience, observations, and research, it is our opinion that the well at 47730 Mattole Road has a low likelihood of being hydrologically connected to nearby surface waters or wells in any manner that might affect adjacent wetlands, wells, and or surface waters in the vicinity. The well is not expected to interfere with the production or functioning of any existing permitted wells nearby and is very unlikely to cause subsidence that might adversely impact or damage nearby infrastructure.

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

Sincerely,

David N. Lindberg, CEG
Lindberg Geologic Consulting

DNL:sll

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June 6, 2022

Project No: 0469.00

Page 6

Attachments:

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

State of California Well Completion Reports:

Site Well: WCR2021-005628

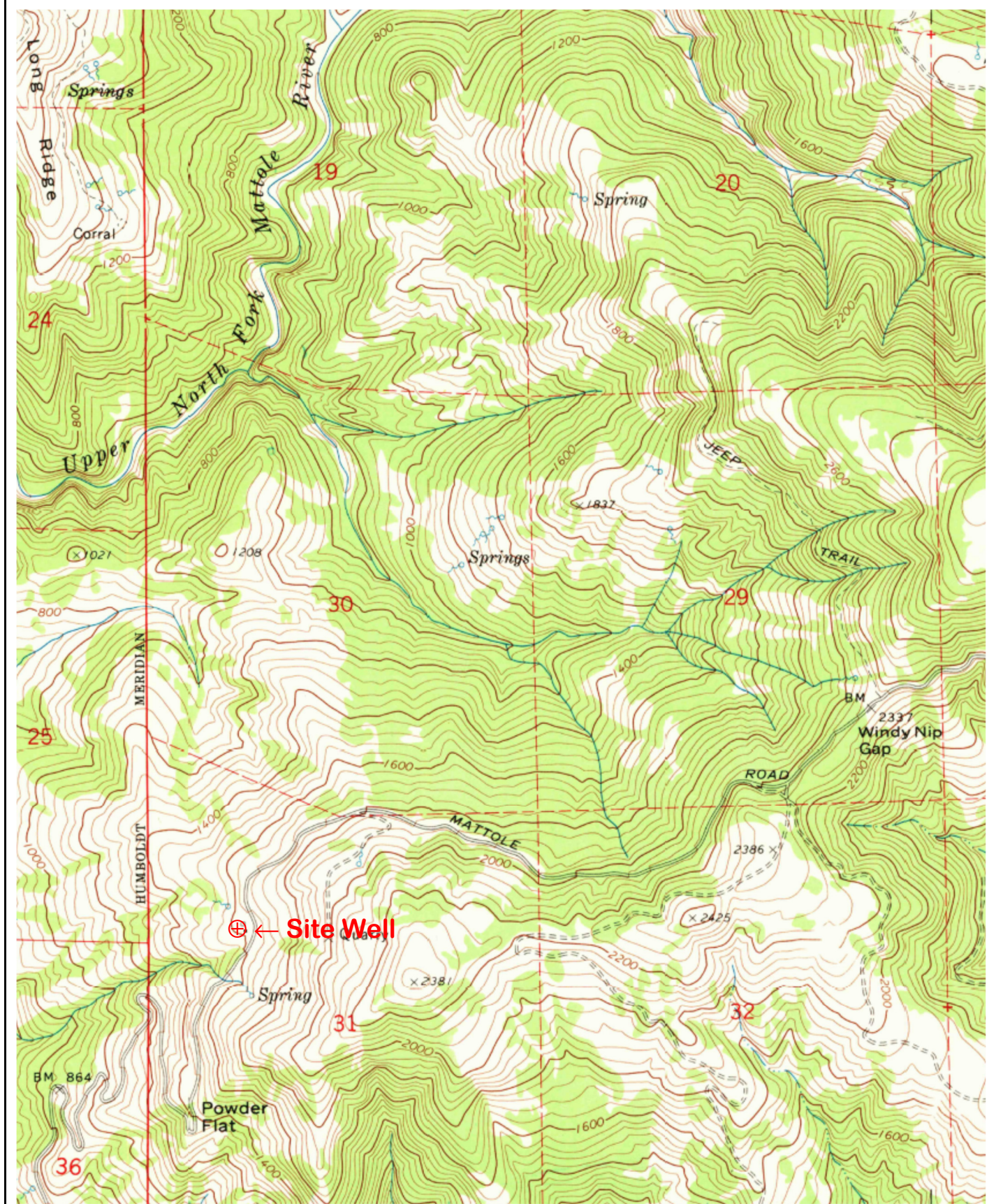
"Dry Holes" on Parcel 107-054-035: WCR2107-001202 and WCR2017-001203

Nearest other well: WCR-2017-000727 on 107-054-005, 360 Hilde Lane

Web Soil Survey, NRCS Unit Description:

Wirefence-Windynip-Devilshole, 5 to 30 percent slopes.

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 1
Post Office Box 306	47730 Mattole Road, Honeydew, Humboldt County, California	June 6, 2022
Cutten, CA 95534	APN 107-054-036, High Point Honeydew Farm, Inc.	Project 0469.00
(707) 442-6000	Topographic Project Location Map (locations approximate)	1" ≈ 1,800'

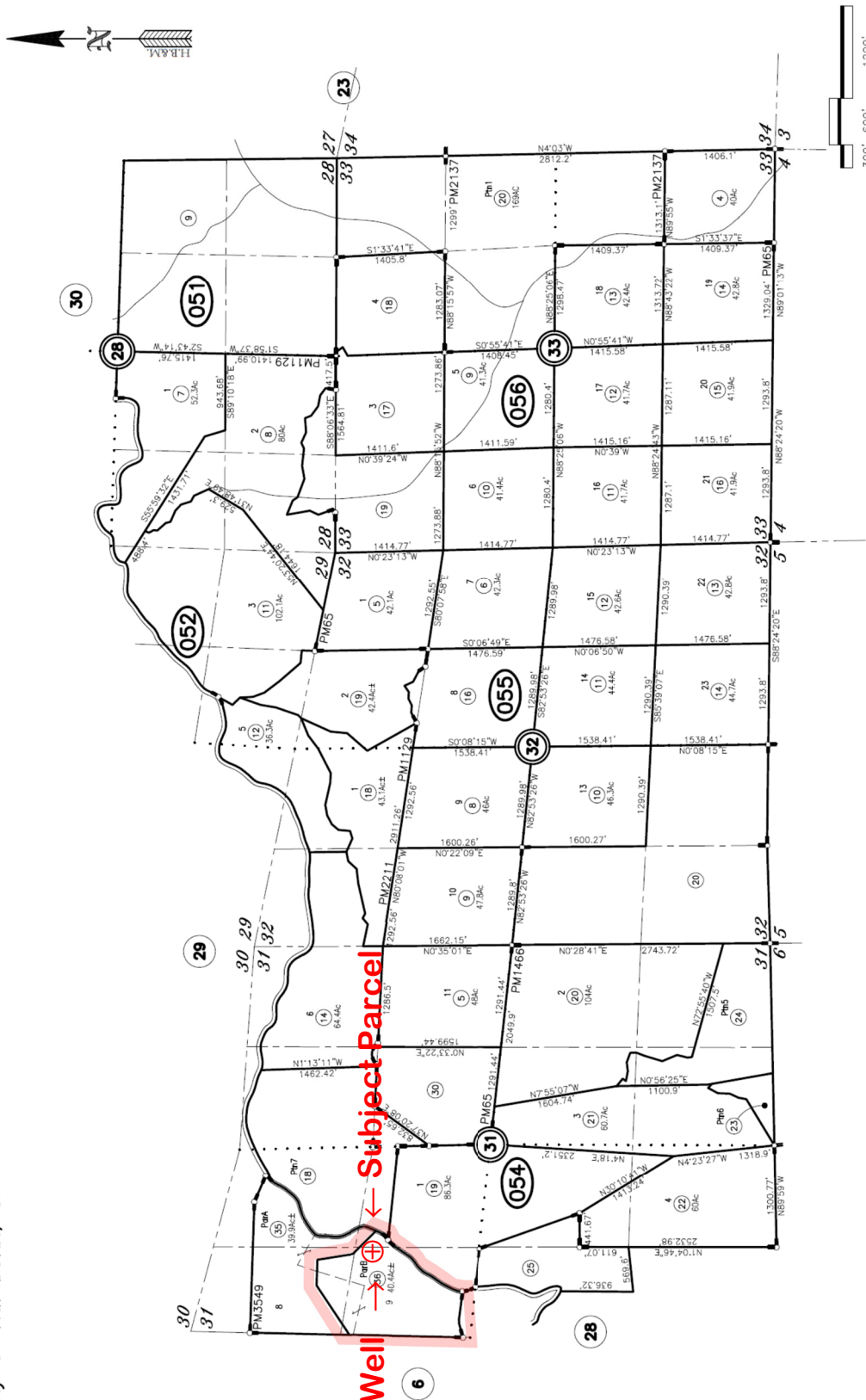


Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 2
Post Office Box 306	47730 Mattole Road, Honeydew, Humboldt County, California	June 6, 2022
Cutten, CA 95534	APN 107-054-036, High Point Honeydew Farm, Inc.	Project 0469.00
(707) 442-6000	Humboldt County Assessor's Parcel Map (locations approximate)	Scale as Shown

107-05

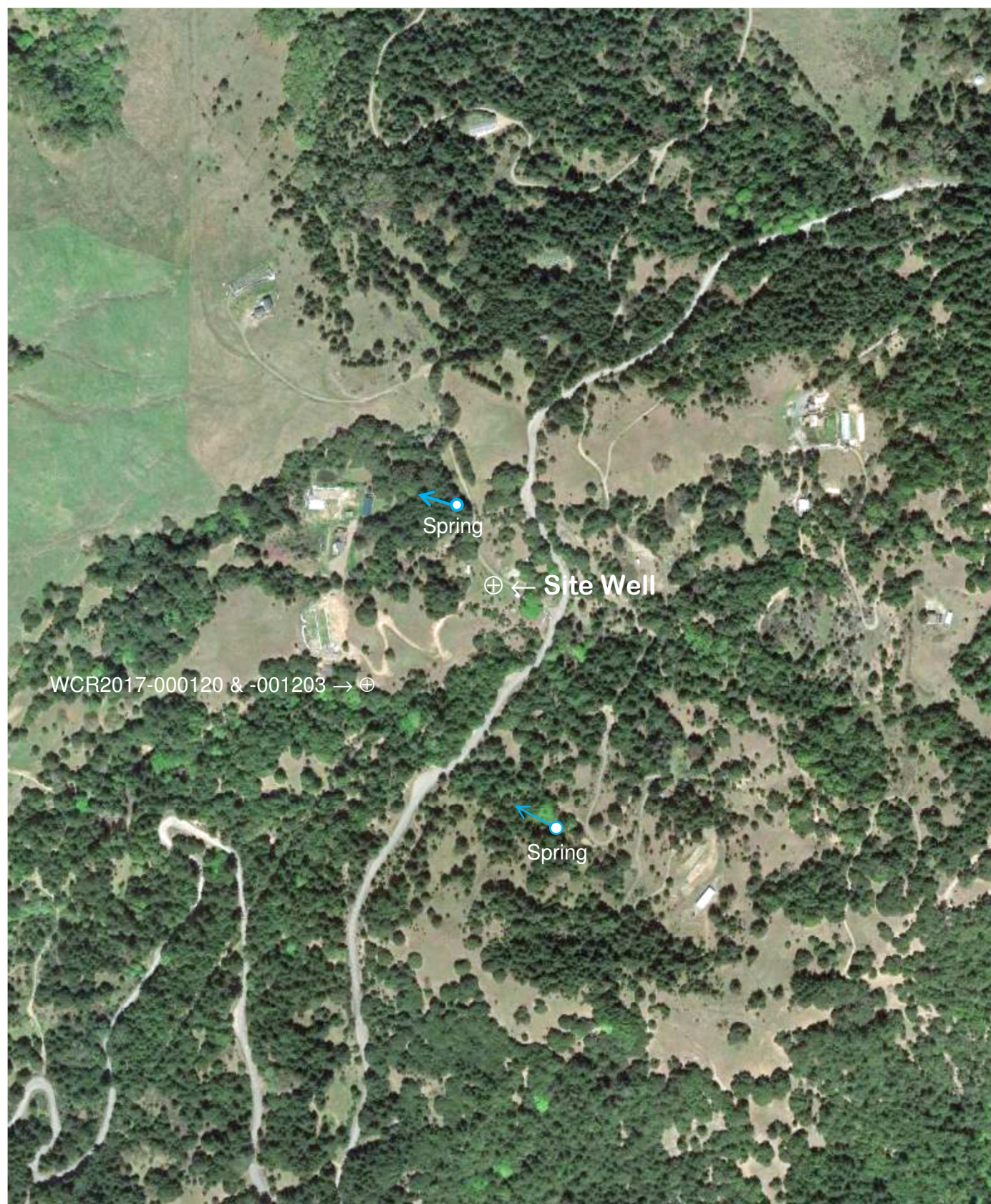
SECS. 28,29,30,31,32,33 T2S R1E

Assessor's Map Bk.107, Pg.5
County of Humboldt, CA.

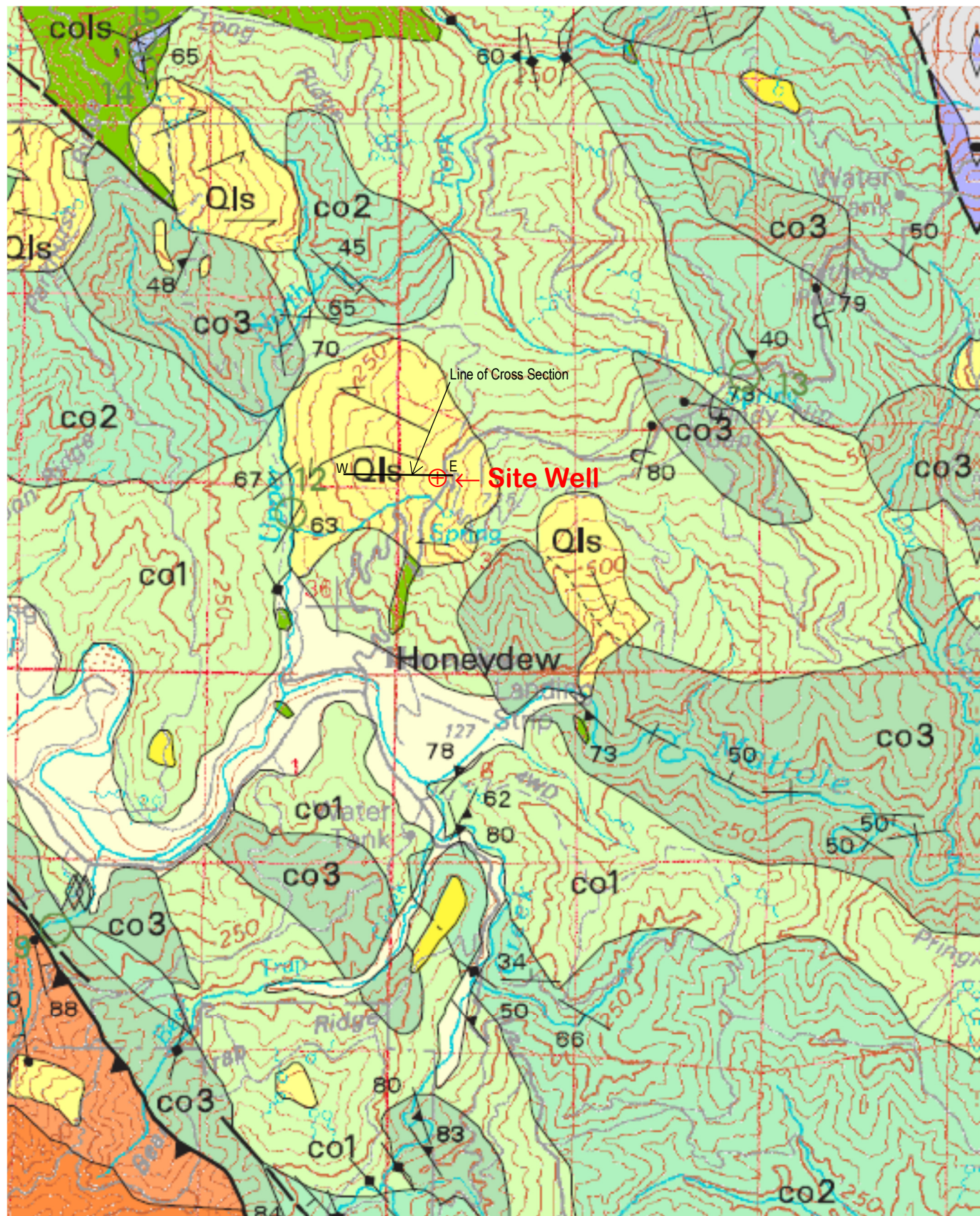


NOTE - Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles.

Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 3
Post Office Box 306	47730 Mattole Road, Honeydew, Humboldt County, California	June 6, 2022
Cutten, CA 95534	APN 107-054-036, High Point Honeydew Farm, Inc.	Project 0469.00
(707) 442-6000	Satellite Image of Well Site (locations approximate)	1" ≈ 500'



Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 4
Post Office Box 306	47730 Mattole Road, Honeydew, Humboldt County, California	June 6, 2022
Cutten, CA 95534	APN 107-054-036, High Point Honeydew Farm, Inc.	Project 0469.00
(707) 442-6000	Geologic Map (locations approximate)	1" = 4,000'



Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 4a
P. O. Box 306	47730 Mattole Road, Honeydew, Humboldt County, California	June 6, 2022
Cutten, CA 95534	APN 107-054-036, High Point Honeydew Farm, Inc.	Project 0469.00
(707) 442-6000	Geologic Map Explanation	No Scale

DESCRIPTION OF MAP UNITS

GREAT VALLEY SEQUENCE OVERLAP ASSEMBLAGE

QUATERNARY AND TERTIARY OVERLAP DEPOSITS

Qal	Alluvial deposits (Holocene and late Pleistocene?)
Qm	Undeformed marine shoreline and alluvial 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)
col	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
kr1	Limestone
kr	Chert
krb	Basalt

False Cape terrane (Miocene? to Oligocene?)

fc	Sedimentary rocks of the False Cape terrane (Miocene? to Oligocene?)
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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	Tallaferro Metamorphic Complex of Suppe and Armstrong (1972) (Early Cretaceous to Middle Jurassic?)
ybc	Chicago Rock melange of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
gs	Greenstone
c	Metachert
ybh	Metagraywacke of Hammerhorn Ridge (Late Jurassic to Middle Jurassic)
c	Metachert
gs	Greenstone
sp	Serpentine
ybd	Devils Hole Ridge broken formation of Blake and Jayko (1983) (Early Cretaceous to Middle Jurassic)
c	Radiolarian chert
ybi	Little Indian Valley argillite of McLaughlin and Ohlin (1984) (Early Cretaceous to Late Jurassic)

Yolla Bolly terrane

Rocks of the Yolla Bolly terrane, undivided

GREAT VALLEY SEQUENCE AND COAST RANGE OPHIOLITE

Elder Creek(?) terrane

ecms	Mudstone (Early Cretaceous)
ecg	Coast Range ophiolite (Middle and Late Jurassic):
ecg	Layered gabbro
ecsp	Serpentine melange

Del Puerto(?) terrane

	Rocks of the Del Puerto(?) terrane:
dpms	Mudstone (Late Jurassic)
	Coast Range ophiolite (Middle and Late Jurassic):
dpt	Tuffaceous chert (Late Jurassic)
dpb	Basaltic flows and keratophytic tuff (Jurassic?)
dps	Diabase (Jurassic?)
dpsp	Serpentine melange (Jurassic?)
sp	Undivided Serpentinized peridotite (Jurassic?)

KLAMATH MOUNTAINS PROVINCE

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

Hayfork terrane

Eastern Hayfork subterrane:

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

Western Hayfork subterrane:

whu	Hayfork Bally Meta-andesite of Irwin (1985), undivided (Middle Jurassic)
whwg	Wildwood (Chancelulla Peak of Wright and Fahan, 1988) pluton (Middle Jurassic)
whwp	Clinopyroxenite
whji	Diorite and gabbro plutons (Middle? Jurassic)

Battlesnake Creek terrane

rcm	Melange (Jurassic and older)
rcis	Limestone
rcc	Radiolarian chert
rcis	Volcanic Rocks (Jurassic or Triassic)
rcic	Intrusive complex (Early Jurassic or Late Triassic)
rcp	Plutonic rocks (Early Jurassic or Late Triassic)
rcum	Ultramafic rocks (age uncertain)
rcpd	Blocky peridotite

Western Klamath terrane

Smith River subterrane:

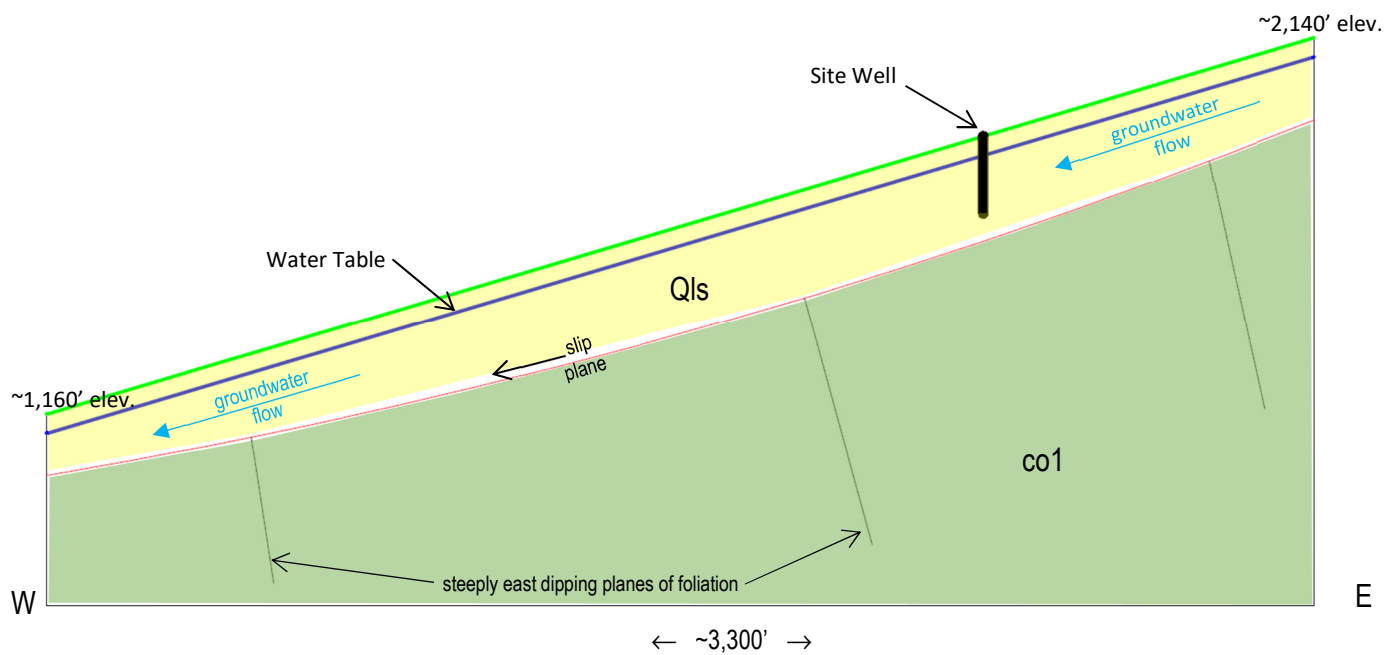
srs	Galice? formation (Late Jurassic)
srv	Pyroclastic andesite
srgb	Glen Creek gabbro-ultramafic complex of Irwin and others (1974)
srpd	Serpentinized peridotite

MAP SYMBOLS

— · · · · · ?	Contact
— · · · · · ?	Fault
▼ ▼ ▼ ▼ ▼ ?	Thrust fault
— · · · · · ?	Trace of the San Andreas fault associated with 1906 earthquake rupture
— / / / / /	Strike and dip of bedding:
10° / 20°	Inclined
/ / / / /	Vertical
⊕	Horizontal
10° / 20°	Overturned
/ 20°	Approximate
10° /	Joint
10° /	Strike and dip of cleavage
10° /	Shear foliation:
10° /	Inclined
/	Vertical
	Folds:
← + →	Synclinal or synformal axis
← - →	Anticlinal or antiformal axis
← + →	Overturned syncline
⊕	Landslide
⊕	Melange Blocks:
△	Serpentine
□	Chert
◇	Blueschist
○	Greenstone
○ ¹⁰	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 Hydrogeologic Well Isolation Report	Figure 5
Post Office Box 306	47730 Mattole Road, Honeydew, Humboldt County, California	June 6, 2022
Cutten, CA 95534	APN 107-054-036, High Point Honeydew Farm, Inc.	Project 0469.00
(707) 442-6000	Hydrogeologic Cross Section (locations approximate)	1" ≈ 500'



Lindberg Geologic Consulting	Engineering-Geologic Hydrogeologic Well Isolation Report	Figure 6
Post Office Box 306	47730 Mattole Road, Honeydew, Humboldt County, California	June 6, 2022
Cutten, CA 95534	APN 107-054-036, High Point Honeydew Farm, Inc.	Project 0469.00
(707) 442-6000	USDA-NRCS Soil Map (locations approximate)	Scale not Specified



State of California
Well Completion Report
 Form DWR 188 Auto-Completed 7/12/2021
 WCR2021-005628

Owner's Well Number 1 Date Work Began 03/24/2021 Date Work Ended 04/30/2021
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 20/21 -0761 Permit Date 03/04/2021

Well Owner (must remain confidential pursuant to Water Code 13752)		Planned Use and Activity
Name <u>XXXXXXXXXXXXXXXXXXXX</u>	Activity <u>New Well</u>	
Mailing Address <u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>	Planned Use <u>Water Supply Irrigation - Agriculture</u>	
City <u>XXXXXXXXXXXXXXXXXXXX</u> State <u>XX</u> Zip <u>XXXXX</u>		

Well Location	
Address <u>47730 Mattole RD</u>	APN <u>107-054-036</u>
City <u>Honeydew</u> Zip <u>95545</u> County <u>Humboldt</u>	Township <u>02 S</u>
Latitude <u>40</u> <u>15</u> <u>34.477</u> <u>N</u> Longitude <u>-124</u> <u>6</u> <u>57.798</u> <u>W</u>	Range <u>01 E</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>31</u>
Dec. Lat. <u>40.25957696</u> Dec. Long. <u>-124.116055</u>	Baseline Meridian <u>Humboldt</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water <u>51</u> (Feet below surface)
Drilling Method <u>Other - Under Ream Down Hole Hammer</u> Drilling Fluid <u>Air</u>	Depth to Static _____
Total Depth of Boring <u>200</u> Feet	Water Level <u>43</u> (Feet) Date Measured <u>04/30/2021</u>
Total Depth of Completed Well <u>200</u> Feet	Estimated Yield* <u>40</u> (GPM) Test Type <u>Air Lift</u>
	Test Length <u>4</u> (Hours) Total Drawdown <u>149</u> (feet)
	*May not be representative of a well's long term yield.

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	1	Top Soil
1	24	Brown Sand Stone
24	33	Silty Clay, Sand
33	47	Basalt (Rock) Floater
47	63	Brown Fractured sandstone & Blue Fractured Sandstone
63	181	Shale Mulache
181	200	Fractured 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	50	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	50	63	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.032	
1	63	180	Blank	Low Carbon Steel	Grade: ASTM A53	1.88	6			
1	180	200	Blank	Low Carbon Steel	Grade: ASTM A53	0.25	6			

Annular Material					
Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	200	Filter Pack	Other Gravel Pack	3/8 inch	Pea Gravel

Other Observations:

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	200	10

Certification Statement

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

Name

FISCH DRILLING

Person, Firm or Corporation

3150 JOHNSON ROAD

HYDEVILLE

CA

95547

Address

City

State

Zip

Signed

electronic signature received

05/07/2021

683865

C-57 Licensed Water Well Contractor

Date Signed

C-57 License Number

Attachments
Location Map.pdf - Location Map

DWR Use Only

CSG #

State Well Number

Site Code

Local Well Number

N

W

Latitude Deg/Min/Sec

Longitude Deg/Min/Sec

TRS:

APN:

State of California
Well Completion Report
WCR Form - DWR 188 Complete 06/19/2017
WCR2017-001202

Owner's Well Number Well #1 Date Work Began 04/18/2017 Date Work Ended 04/18/2017
Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
Secondary Permit Agency _____ Permit Number 16/17-0453 Permit Date 11/02/2016

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

Name XXXXXXXXXXXXXXXXXXXX
Mailing Address XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
City XXXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well
Planned Use Water Supply Domestic

Well Location

Address 47730 Mattole RD APN 107-054-035
City Honeydew Zip 95545 County Humboldt Township 02 S
Latitude _____ N Longitude _____ W Range 01 E
_____ Deg. _____ Min. _____ Sec. _____ Deg. _____ Min. _____ Sec. Section 31
Dec. Lat. _____ Dec. Long. _____ Baseline Meridian Humboldt
Vertical Datum _____ Horizontal Datum WGS84 Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____ Elevation Accuracy _____
Elevation Determination Method _____

Borehole Information

Orientation Vertical Specify _____
Drilling Method Direct Rotary Drilling Fluid Air
Total Depth of Boring 250 Feet
Total Depth of Completed Well 20 Feet

Water Level and Yield of Completed Well

Depth to first water _____ (Feet below surface)
Depth to Static _____
Water Level _____ (Feet) Date Measured _____
Estimated Yield* _____ (GPM) Test Type _____
Test Length _____ (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	20	Topsoil
20	250	Grey 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	Stainless Steel	N/A	0.188	8			

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	250	Other Fill	See description.		No Annular Fill

Other Observations:

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	12
20	250	7.875

0	20	12
20	250	7.875

Attachments
WellReport_05222017_1_20170619_091403.pdf - WCR Final

WellReport_05222017_1_20170619_091403.pdf - WCR Final

<h2 style="margin: 0;">Certification Statement</h2>				
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief				
Name	WATSON WELL DRILLING			
	<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> Person, Firm or Corporation </div>			
	<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> 500 Summer Street </div>	<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> Eureka </div>	<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> CA </div>	<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> 95501 </div>
	Address	City	State	Zip
Signed	<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> <i>electronic signature received</i> </div>		<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> 04/24/2017 </div>	<div style="border-bottom: 1px solid black; margin: 0; padding-bottom: 5px;"> 1014048 </div>
	C-57 Licensed Water Well Contractor		Date Signed	C-57 License Number

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

Name	WATSON WELL DRILLING			
Person, Firm or Corporation				
500 Summer Street		Eureka	CA	95501
Address		City	State	Zip

Signed	<i>electronic signature received</i>	04/24/2017	1014048
	C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

DWR Use Only															
Site Number / State Well Number															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px; text-align: center; vertical-align: middle;">N</td> </tr> </table> <p style="text-align: center; margin-top: 5px;">Latitude Deg/Min/Sec</p>							N	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px;"></td> <td style="width: 15%; height: 30px; text-align: center; vertical-align: middle;">W</td> </tr> </table> <p style="text-align: center; margin-top: 5px;">Longitude Deg/Min/Sec</p>							W
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						W									
<p>TRS:</p> <p>APN:</p>															

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			N
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Latitude Deg/Min/Sec

				W
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Longitude Deg/Min/Sec

TRS:

APN:

State of California
Well Completion Report
WCR Form - DWR 188 Complete 06/19/2017
WCR2017-001203

Owner's Well Number Well #2 Date Work Began 04/17/2017 Date Work Ended 04/17/2017
Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
Secondary Permit Agency _____ Permit Number 16/17-0453 Permit Date 11/02/2016

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

Name XXXXXXXXXXXXXXXXXXXX
Mailing Address XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
City XXXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well
Planned Use Water Supply Domestic

Well Location

Address 47730 Mattole RD APN 107-054-035
City Honeydew Zip 95545 County Humboldt Township 02 S
Latitude _____ N Longitude _____ W Range 01 E
_____ Deg. _____ Min. _____ Sec. _____ Deg. _____ Min. _____ Sec. Section 31
Dec. Lat. _____ Dec. Long. _____ Baseline Meridian Humboldt
Vertical Datum _____ Horizontal Datum WGS84 Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____ Elevation Accuracy _____
Elevation Determination Method _____

Borehole Information

Orientation Vertical Specify _____
Drilling Method Direct Rotary Drilling Fluid Air
Total Depth of Boring 310 Feet
Total Depth of Completed Well 20 Feet

Water Level and Yield of Completed Well

Depth to first water _____ (Feet below surface)
Depth to Static _____
Water Level _____ (Feet) Date Measured _____
Estimated Yield* _____ (GPM) Test Type _____
Test Length _____ (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	2	Topsoil
2	310	Grey 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	Stainless Steel	N/A	0.188	8			

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	310	Other Fill	See description.		No Annular Fill

Other Observations:

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	12
20	310	7.875

0	20	12
20	310	7.875

Attachments
WellReport_05222017_1_20170619_111933.pdf - WCR Final

WellReport_05222017_1_20170619_111933.pdf - WCR Final

<h2 style="margin: 0;">Certification Statement</h2>			
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief			
Name	WATSON WELL DRILLING		
<hr/> Person, Firm or Corporation			
<hr/> 500 Summer Street	Eureka	CA	95501
<hr/> Address	<hr/> City	<hr/> State	<hr/> Zip
Signed	<i>electronic signature received</i>	04/24/2017	1014048
<hr/> C-57 Licensed Water Well Contractor		<hr/> Date Signed	<hr/> C-57 License Number

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

Name WATSON WELL DRILLING

Person, Firm or Corporation

500 Summer Street

Eureka

CA

95501

Address

City

State

Zip

Signed	<u><i>electronic signature received</i></u>	<u>04/24/2017</u>	<u>1014048</u>
	C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

DWR Use Only															
Site Number / State Well Number															
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						W									
Latitude Deg/Min/Sec	Longitude Deg/Min/Sec														
<p>TRS:</p> <p>APN:</p>															

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Site Number / State Well Number

				N						W
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Latitude Deg/Min/Sec

Longitude Deg/Min/Sec

TRS:

APN:

State of California
Well Completion Report
WCR Form - DWR 188 Complete 06/23/2017
WCR2017-000727

Owner's Well Number 2 Date Work Began 01/18/2017 Date Work Ended 01/24/2017
Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
Secondary Permit Agency _____ Permit Number 16/17-0453 Permit Date 11/02/2016

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

Name XXXXXXXXXXXXXXXXXXXX
Mailing Address XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
City XXXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well
Planned Use Water Supply Domestic

Well Location

Address 360 Hilde LN APN 107-054-005
City Honeydew Zip 95545 County Humboldt Township 02 S
Latitude _____ N Longitude _____ W Range 01 E
_____ Deg. _____ Min. _____ Sec. _____ Deg. _____ Min. _____ Sec. Section 31
Dec. Lat. _____ Dec. Long. _____ Baseline Meridian Humboldt
Vertical Datum _____ Horizontal Datum WGS84 Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____ Elevation Accuracy _____
Elevation Determination Method _____

Borehole Information

Orientation Vertical Specify _____
Drilling Method Other - Casing Advance Drilling Fluid Air
Total Depth of Boring 220 Feet
Total Depth of Completed Well 220 Feet

Water Level and Yield of Completed Well

Depth to first water 50 (Feet below surface)
Depth to Static _____
Water Level 32 (Feet) Date Measured 01/25/2017
Estimated Yield* 45 (GPM) Test Type Air Lift
Test Length _____ (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	2	Top Soil
2	50	Brown Clay w/Gravel
50	195	Fractured Blue Sandstone
195	220	Black 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	20	Blank	Low Carbon Steel	N/A	0.188	8			
2	0	40	Blank	Low Carbon Steel	N/A	0.188	6			
2	40	80	Other: Knife Cut Screen	Other	N/A	0.188	6		0.25	
2	80	100	Blank	Low Carbon Steel	N/A	0.188	6			
2	100	140	Other: Knife Cut Screen	Low Carbon Steel	N/A	0.188	6		0.25	
2	140	160	Blank	Low Carbon Steel	N/A	0.188	6			
2	160	180	Other: Knife Cut Screen	Low Carbon Steel	N/A	0.188	6		0.25	
2	180	200	Blank	Low Carbon Steel	N/A	0.188	6			
2	200	220	Other: Knife Cut Screen	Low Carbon Steel	N/A	0.188	6		0.25	

Annular Material					
Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Non Hydrated Bentonite	0.375	Non-Hydrated
20	220	Other Fill	See description.		No Annular Fill

Other Observations:

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	20	12
20	150	7.5
150	220	7.44

Certification Statement			
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief			
Name	WATSON WELL DRILLING		
	Person, Firm or Corporation		
	500 Summer Street	Eureka	CA 95501
	Address	City	State Zip
Signed	<i>electronic signature received</i>	03/07/2017	1014048
	C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

Attachments
WellReport_05222017_1_20170623_145830.pdf - WCR Final

DWR Use Only												
Site Number / State Well Number												
												N
Latitude Deg/Min/Sec						Longitude Deg/Min/Sec						
												W

TRS:

APN:

Humboldt County, South Part, California

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

Map Unit Setting

National map unit symbol: 1lpq7

Elevation: 200 to 3,280 feet

Mean annual precipitation: 60 to 100 inches

Mean annual air temperature: 48 to 57 degrees F

Frost-free period: 240 to 300 days

Farmland classification: Not prime farmland

Map Unit Composition

Wirefence and similar soils: 35 percent

Windynip and similar soils: 30 percent

Devilshole and similar soils: 20 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wirefence

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Mountaintop

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Colluvium and residuum derived from sandstone

Typical profile

A1 - 0 to 11 inches: loam

A2 - 11 to 21 inches: loam

A3 - 21 to 33 inches: gravelly loam

AB - 33 to 46 inches: gravelly loam

Bw - 46 to 63 inches: very gravelly fine sandy loam

C - 63 to 79 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 5 to 30 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: F004BI106CA - High precipitation mountain slopes

Hydric soil rating: No

Description of Windynip

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Mountaintop

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Colluvium and residuum derived from sandstone and mudstone

Typical profile

A1 - 0 to 5 inches: loam

A2 - 5 to 12 inches: clay loam

A3 - 12 to 20 inches: clay loam

AB - 20 to 33 inches: clay loam

Bt1 - 33 to 59 inches: gravelly clay loam

Bt2 - 59 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 5 to 30 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R004BI202CA - Loamy Uplands

Hydric soil rating: No

Description of Devilshole

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder

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

Typical profile

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

Properties and qualities

Slope: 5 to 30 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 39 to 59 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

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

Minor Components

Yorknorth, moist

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

Crazycoyote

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear

Hydric soil rating: No

Rainbear

Percent of map unit: 4 percent

Landform: Mountain slopes, ridges

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Humboldt County, South Part, California

Survey Area Data: Version 10, Sep 6, 2021