APPENDIX H

LIMITED EVALUATION OF WATER SUPPLY

LAWRENCE
& ASSOCIATES
ENGINEERS & GEOLOGISTS

019112.00

December 30, 2019

Ms. Jacque Hostler-Carmesin
Chief Executive Officer
Trinidad Rancheria
27 Scenic Drive
Trinidad, CA 95570

Dear Ms. Hostler-Carmesin:

SUBJECT: LIMITED EVALUATION OF WATER-SUPPLY EVALUATION, TRINIDAD RANCHERIA HOTEL PROJECT, TRINIDAD, CALIFORNIA

INTRODUCTION

This letter presents the results of Lawrence & Associates (L&A) limited evaluation of potential well interference from pumping a new water-supply well for the Trinidad Rancheria's proposed hotel project (Project), near Trinidad, California. The work was conducted to evaluate whether operation of the new wells drilled and installed in November and December 2019 will adversely affect neighboring wells.

Per your email to me, dated November 15, 2019, the following tasks were performed:

- Review project documents.
- Review pertinent groundwater and geologic reports and area well logs.
- Consult with other Project consultants regarding the well test and data requirements.
- If needed to verify geologic conditions and locations of nearby wells, perform a site/area visit.
- Develop a rough groundwater balance, including local groundwater demand and estimate of annual recharge.
- Estimate the potential extent of pumping impact from the well using the pump-test data collected by others.
- Summarizing findings and conclusions in memo report.

All of the above work was conducted under the supervision of Bonnie E. Lampley, California Certified Hydrogeologist No. 626. The actual well testing and field work were conducted by others.

SUMMARY

The long-term yield of Well #1 may be 3 gpm or less for the long term, although calculation of long-term yield using the pump testing data suggests the long-term yield is less than 1 gpm. It will not sustain pumping rates of 5 gpm or higher for the long term.

The long-term yield of Well #2 is approximately 5 to 6 gpm. Taken together, the two wells may be able to supply the Project's estimated demand of 9,500 gpd (6.6 gpm). If the demand is actually higher than this estimate or if groundwater levels are lower than observed during the testing period (November and December 2019), however, the two wells likely would not be able to supply the new Hotel. We recommend that the Project have a back-up water supply.

Neither well will cause interference with the other or on neighboring wells.Interference impacts from Well #1 will not be felt beyond approximately 20 feet from the well. Interference impacts from Well #2 will not be felt beyond approximately 50 feet from the well.

The new hotel demand will not exceed the probable annual recharge to the aquifer. The potential total annual demand for the new hotel is approximately 11 acre-feet/year (existing demand on the Rancheria is supplied by the City of Trinidad). Adding this to the assumed existing groundwater demand (approximately 20 acre-feet/year) gives a total groundwater demand of approximately 31 acre-feet/year. This is well below the estimated annual recharge volume of 174 acre-feet/year.

SITE DESCRIPTION

The Project site is located approximately 0.75 miles south of the town of Trinidad, Humboldt County, California (**Figure 1**). The Rancheria covers approximately 43 acres in Township 8 North, Range 1 West, Section 25 of the Humboldt Meridian.

The proposed hotel is planned to have 100 rooms. Water demand is estimated to be at least 9,500 gallons per day (gpd).[1] This equates to approximately 11 acre-feet per year (9,500 gpd × 365 days/year ÷ 325851 gallons/acre-foot). L&A did not evaluate the potential water demand.

Figures 1 and **3** show the surface-water drainage area of the Rancheria site. The drainage area covers approximately 174 acres. Within this area, there appear to be 18 possible domestic wells, based on the presence of structures as seen on an aerial photo (**Figure 3**).

The site is located atop a coastal bluff. Geologic materials underlying the site were described as part of the Geotechnical Report for the Environmental Assessment: *The site is underlain by Pleistocene marine terrace sediments deposited on a wave-cut bench in rock of the Jura-Cretaceous Franciscan Complex. The marine terrace sediments are generally comprised of pebbly sand, silt and clay. The underlying Franciscan Complex is comprised of weathered/sheared shale.*[2]

[1] Pers. comm., Ms. Jacque Hostler-Carmesin, December 2019.

[2] Bureau of Indian Affairs, September 2018, *Environmental Assessment, Trinidad Rancheria Economic Development Corporation, Hotel Development Project*, Appendix B: Crawford & Associates, Taber, November 2016, *Draft Geotechnical Feasibility and Preliminary Design Report*.

Drilling logs for the two new water-supply wells installed for the Project show a similar stratigraphy to the geotechnical borings. **Figure 2** shows the well locations; **Attachment A** contains the driller's logs. The boring for Well #1 showed nine feet of marine terrace sediment overlying bedrock to a total depth of 80 feet below ground surface (bgs); the boring for Well #2 showed 32 feet of marine terrace sediment overlying bedrock to a depth of 35 feet bgs. The driller's logs describe the bedrock as soft to hard blue or black shale, consistent with the previous geotechnical borings.

Well #1 ("Louie's Property") was completed at 80 feet bgs in August 2019. First water was at 26 feet bgs, within the Franciscan bedrock. Static water level in December was approximately 20 feet bgs. The driller test pumped Well #1 at 3 gpm, for 24 hours, upon its completion, although drawdown was not measured. Additional test pumping was conducted in December 2019, as described in the Results & Discussion section, below.

Well #2 ("Sundberg Property") was completed at 35 feet bgs in November 2019. First water was at 12 feet bgs, within the marine terrace deposits. Static water level in December was approximately 16 feet bgs. Test pumping of Well #2 is described in the Results & Discussion section, below.

RESULTS & DISCUSSION

Stepped- and constant-rate discharge tests were conducted on both wells. Rich Drilling, McKinleyville, California, conducted the testing. **Table 1** lists the testing conducted. **Figures 4** through **9** show graphs of data and interpretations of the above tests.

Table 1. Summary of Well Tests

Well	Date	Test Type	Pumping Rate
Well 1 (Louie's Property)	12/13/19	Stepped discharge	1, 2, & 3 gpm
	12/13/19	Constant discharge, 8 hours	2 gpm
	12/19/19	Stepped discharge	5 & 8 gpm (8 gpm not sustained for entire step)
	12/20/19	Constant discharge, 24 hours	5 gpm (not sustained for 24 hours)
Well 2 (Sundberg's Property)	11/22/19	Stepped discharge	6, 10, & 13 gpm
	11/25/19	Constant discharge, 8 hours	10 gpm
	12/11/19	Constant discharge, 8 hours	7 gpm

WELL #1

Two stepped-discharge tests were conducted on Well #1. The first (12/13/19) was at 1, 2, and 3 gpm, and the second (12/19/19) at 5 and 8 gpm. Two constant-discharge tests were conducted, at 2 gpm (12/13/19) and 5 gpm (12/20/19). **Figures 4** through **6** show the graphs and interpretation of these tests.

For pumping rates of 3 gpm or less, the water levels showed an initial drop, but then began to rise (**Figure 4**). During the second stepped-discharge test (which had an initial pumping rate of 10 gpm because the valve was bumped), the water level declined gradually at 5 gpm and for the first portion of the 8 gpm step. Once the water level reached approximately 40 feet bgs, however, the rate of drawdown increased rapidly (**Figure 5**). The faster rate of drawdown at approximately 40 feet also was observed during the 24-hour constant discharge test at 5 gpm. During this test, the water level dropped to the pump intake after approximately 10 hours of pumping. The driller kept the pump on, however, and the well would recover enough to pump a bit, then drop, off and on for the remainder of the test. The driller reported an average pumping rate of 4.4 gpm for the latter part of the test.

At the completion of the constant-rate test, the water level returned to 90% of its static level within three hours, and to near full static level within 24 hours.

Figure 6 shows the calculation of aquifer parameters and long-term yield for Well #1. Using a simplified analytical solution to the Theis equation (a standard hydrogeologic equation often used to estimate aquifer parameters), the transmissivity[3] of the water-bearing formation in Well #1 is estimated to be 91 gpd/foot. This is a relatively low value, showing that this bedrock aquifer is of low yield (high-yield aquifers can show values in the tens of thousands).

Using the data from the 12/20/19 test (at 5 gpm), the long-term yield of Well #1 is approximately 0.8 gpm. The long-term yield was calculated by extrapolating the drawdown curve out to 180 days (representing the dry season) to predict the theoretical drawdown if pumping had continued at the test-pumping rate (**Figure 6**). The theoretical drawdown is then used in the following equation to estimate the long-term yield at 180 days:

Long-term yield	=	(Maximum allowable drawdown ÷ predicted drawdown) × Test Discharge
	=	(15 feet / 92 feet) × 5 gpm
	=	0.8 gpm

The foregoing analysis used the part of the test data from later in the test, but before the drawdown increased rapidly below approximately 40 feet bgs. The portion of the curve from earlier in the test was not used because it generally is assumed to not be representative of longer term pumping. Nonetheless, the tests at the lower pumping rates (less than 3 gpm) showed that water levels above approximately 40 feet could be maintained. It may be that this well will sustain pumping rates of 3 gpm or less for the long term. It will not sustain pumping rates of 5 gpm or higher for the long term.

WELL #2

One stepped-discharge tests was conducted on Well #2. On 11/22/19, Well #2 was pumped at 6, 10, and 13 gpm. Two constant-discharge tests were conducted, at 10 gpm (11/25/19) and 7

[3] Transmissivity is a measure of how much water an aquifer can transmit and it depends, in part, on the aquifer thickness (a thinner aquifer cannot transmit as much water as a thicker aquifer).

gpm (12/11/19), both for 8 hours. **Figures 7** through **9** show the graphs and interpretation of these tests.

During the stepped-discharge test, the water level declined gradually during the steps at 6 and 10 gpm; the water level declined rapidly during the 13 gpm step. Once the water level reached approximately 22 feet bgs, the rate of drawdown increased rapidly and fell below the pump intake at 32 feet (**Figure 7**).

During the two constant discharge tests, the water level remained above 20 to 25 feet, and the drawdown rate remained relatively steady.

Figures 8 and **9** show the calculation of aquifer parameters and long-term yield for Well #2, using data from both constant-discharge tests. Because transmissivity is dependent on the aquifer thickness (a thinner aquifer cannot transmit as much water as a thicker aquifer), the 10 gpm test showed a transmissivity of 249 gpd/foot, while the 7 gpm test showed 672 gpd/foot. Again, these are relatively low values, showing that the marine-terrace aquifer also is of low yield, although slightly higher than the bedrock aquifer supplying Well #1.

The long-term yield of Well #2 is approximately 5 to 6 gpm, using the same methodology described above (calculations shown in **Figures 8** and **9**).

WELL INTERFERENCE

Figures 10 and **11** show calculations for well interference at varying distances, using the Theis equation. Because both of the wells are of low yield and will not sustain high pumping rates, the radius of influence for both are small. Interference impacts from Well #1 will not be felt beyond approximately 20 feet from the well. Interference impacts from Well #2 will not be felt beyond approximately 50 feet from the well. Thus, neither well will cause interference with the other or on neighboring wells.

GROUNDWATER SUPPLY

To evaluate the overall groundwater supply, and whether there may be a sufficient groundwater supply for existing users and the new hotel, we developed an approximate groundwater balance. The groundwater balance includes inflows (mainly recharge from precipitation) and outflows (pumping by users and evapotranspiration by plants) for the area of the groundwater "basin".

We first assume that the groundwater "basin" is defined by the surface-water drainage area of the Rancheria property (**Figures 1** and **3**). Assuming that a groundwater basin is defined by the overlying surface-water drainage area is a common assumption in the absence of data that may more closely define the groundwater basin, especially for clastic aquifers. This may not be the case here, in that one of the wells is completed in the bedrock aquifer.

Within and near the groundwater "basin" as defined herein, there appear to be at least 20 structures or residences that may use groundwater (**Figure 3**). Typical water use for a residential property is less than one acre-foot per year (about 0.6 gpm; current estimates of

domestic water use are less than half of that)[4]. Thus, groundwater useage in the "basin" may be on the order of 20 acre-feet per year or less.

Recharge to groundwater is assumed to be mainly from percolation of precipitation. Average annual precipitation in the Trinidad area is approximately 52 inches.[5] Not all of this precipitation is available for groundwater recharge. Some is used for evapotranspiration by plants and some runs off. Average annual evapotranspiration (ET) along the California coast is approximately 33 inches.[6] Subtracting the annual ET from the precipitation leaves approximately 19 inches available for recharge and runoff. Research in other areas of the northern California coast has shown that there is approximately 12 inches of deep percolation of precipitation annually.[7]

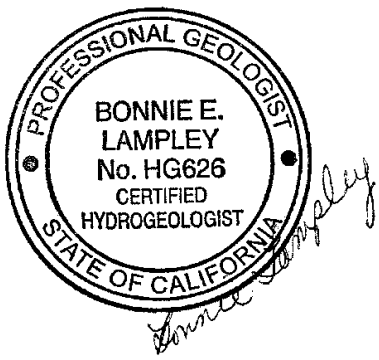
Assuming 12 inches of deep percolation to groundwater gives an annual recharge of approximately 174 acre-feet (174 acres of drainage area × 1 foot of deep percolation). The potential total annual demand for the new hotel is approximately 11 acre-feet/year (existing demand on the Rancheria is supplied by the City of Trinidad). Adding this to the assumed existing groundwater demand (approximately 20 acre-feet/year) gives a total groundwater demand of approximately 31 acre-feet/year. This is well below the assumed annual recharge volume of 174 acre-feet/year.

Please do not hesitate to contact me at (530) 275-4800 or blampley@lwrnc.com if you have any questions regarding this report.

Sincerely,

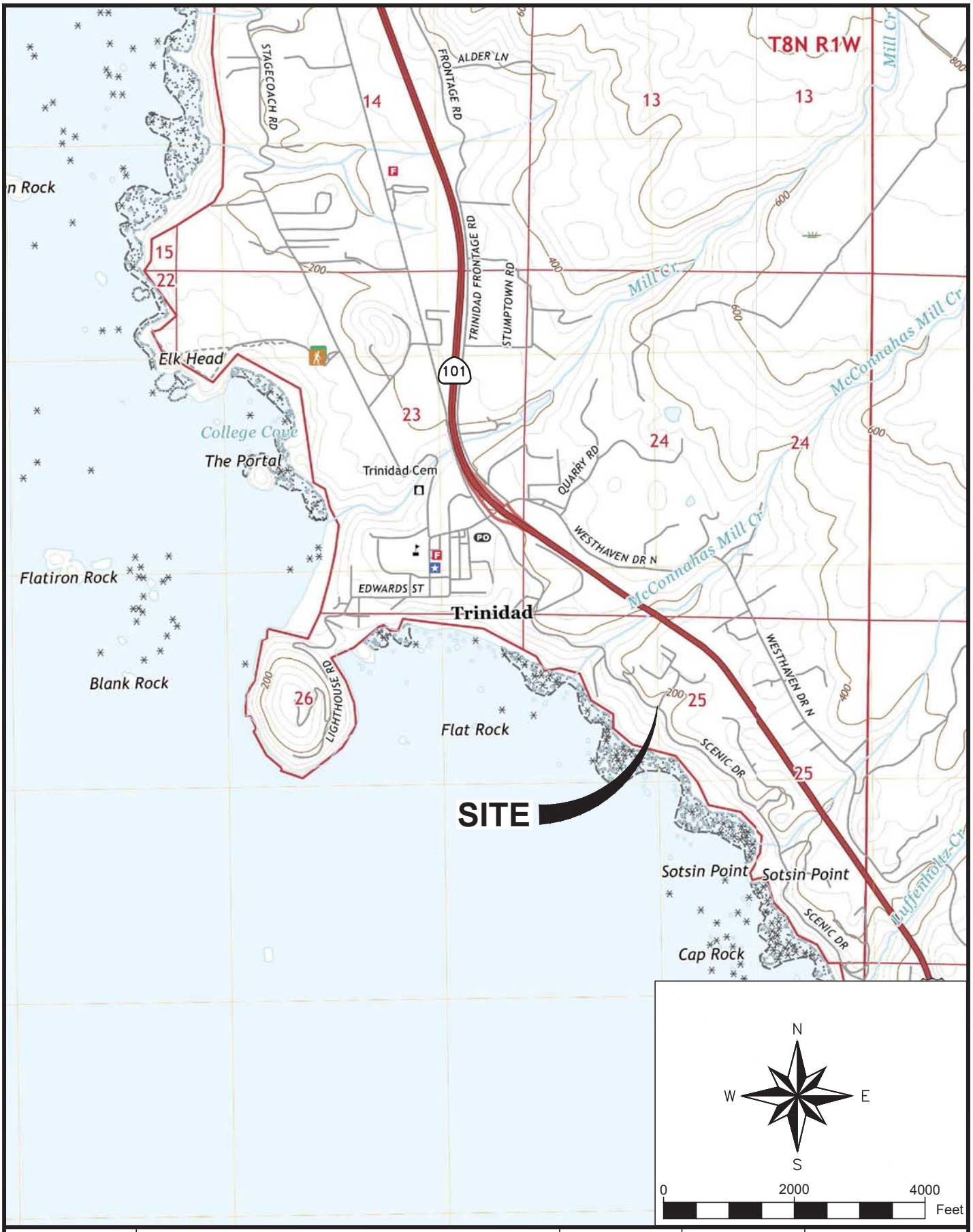
Bonnie E. Lampley

Bonnie E. Lampley
Principal Hydrogeologist, CHG 626



Attachments:
Figure 1. Site Location Map
Figure 2. Site Plan
Figure 3. Drainage Area and Local Wells
Figure 4. Well #1, 12/13/19, Stepped- & Constant-Discharge Depth to Water
Figure 5. Well #1, 12/19-20/19, Stepped- & Constant-Discharge Depth to Water
Figure 6. Well #1, Calculation of Aquifer Parameters & Long-Term Yield
Figure 7. Well #2, 11/22-25/19, Stepped- & Constant-Discharge Depth to Water
Figure 8. Well #2, 11/25/19, Calculation of Aquifer Parameters & Long-Term Yield
Figure 9. Well #2, 12/11/19, Calculation of Aquifer Parameters & Long-Term Yield
Figure 10. Drawdown/Interference Calculations, Well #1
Figure 11. Drawdown/Interference Calculations, Well #2
Attachment A. Driller's Logs

[4] https://www.usgs.gov/special-topic/water-science-school/science/water-qa-how-much-water-do-i-use-home-each-day?qt-science_center_objects=0#qt-science_center_objects
[5] http://cdec.water.ca.gov/dynamicapp/QueryDaily?end=2019-12-30&s=ork
[6] California Department of Water Resources, August 2000, *Estimating Irrigation Water Needs of Landscape Plantings in California, Appendix A – Table 1*.
[7] Questa Engineering, 2004, *Groundwater Modeling Study of the Mendocino Headlands, Mendocino, California*.



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SITE LOCATION MAP

MAP ADAPTED FROM U.S.G.S.
7.5-MINUTE TOPOGRAPHIC QUADS:
TRINIDAD AND CRANNELL, CA.

PROJECT NAME: WATER SUPPLY EVALUATION	PROJECT NO: 019112.00	DATE: 12/13/2019
CLIENT: TRINIDAD RANCHERIA	DRAWN BY: J. BEERS	FIGURE 1
SCALE: 1" = 2,000'	CHECKED BY: B. LAMPLEY	

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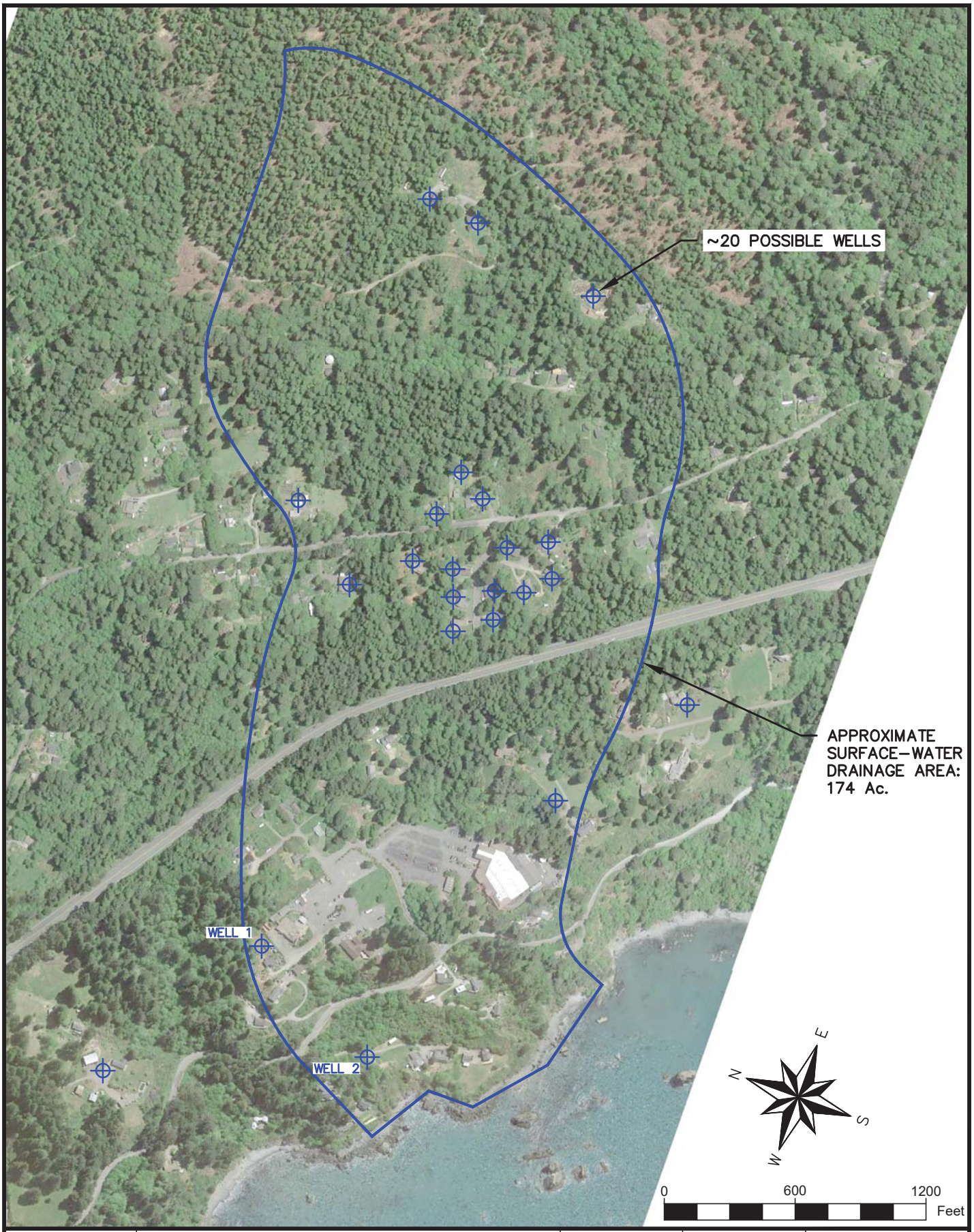

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ENGINEERS & GEOLOGISTS

APPROXIMATE SURFACE WATER DRAINAGE AREA & WELLS

PROJECT NAME: WATER SUPPLY EVALUATION	PROJECT NO: 019112.00	DATE: 12/30/2019
CLIENT: TRINIDAD RANCHERIA	DRAWN BY: J. BEERS	FIGURE 3
SCALE: 1" = 600'	CHECKED BY: B. LAMPLEY	

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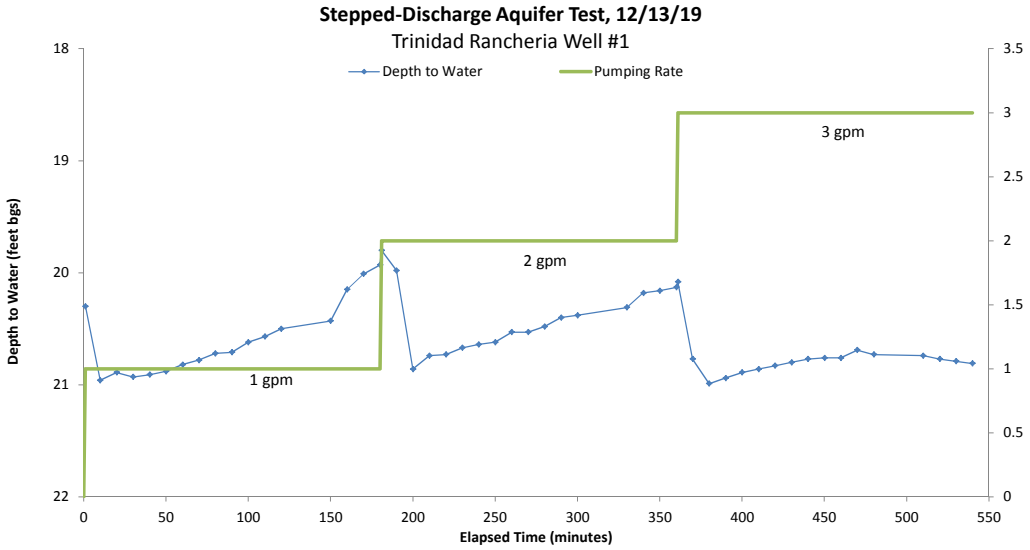
Trinidad Rancheria
Well #1 Testing



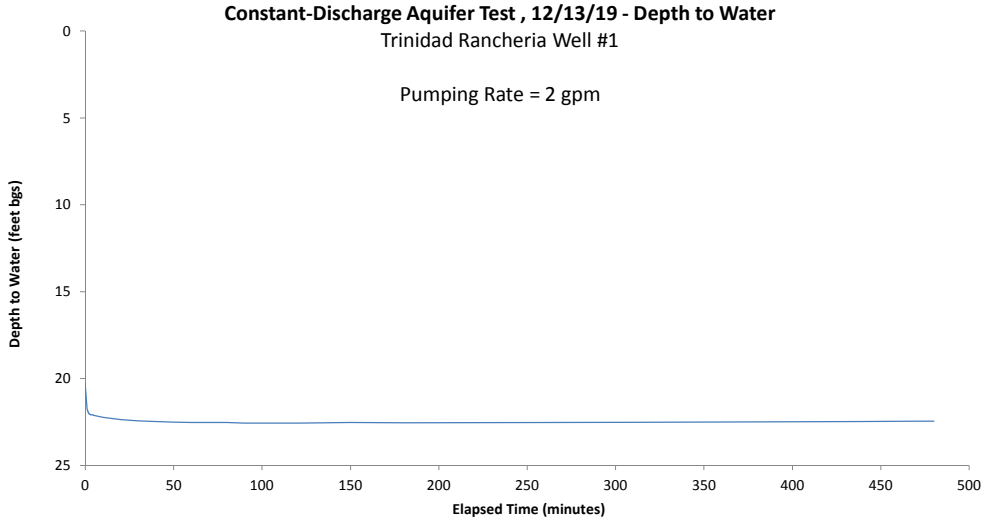
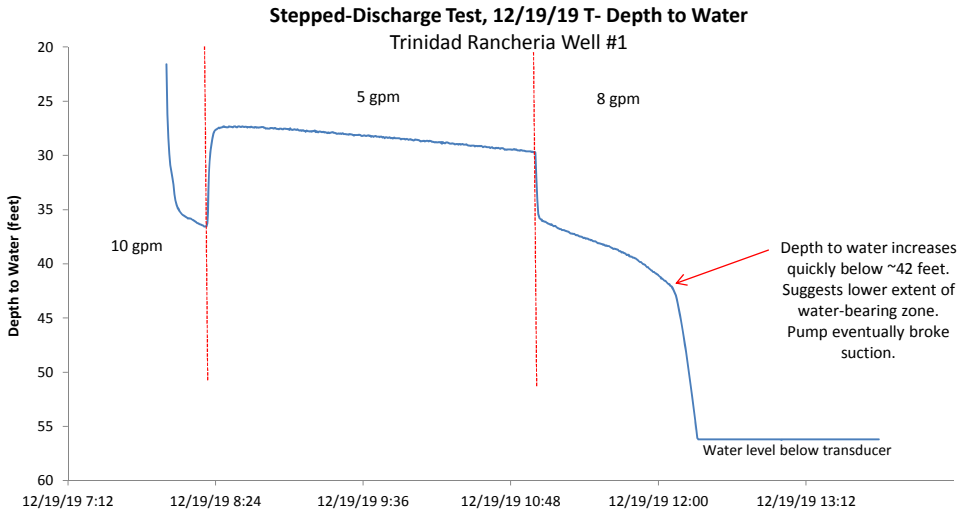


FIGURE 4

Trinidad Rancheria
Well #1 Testing



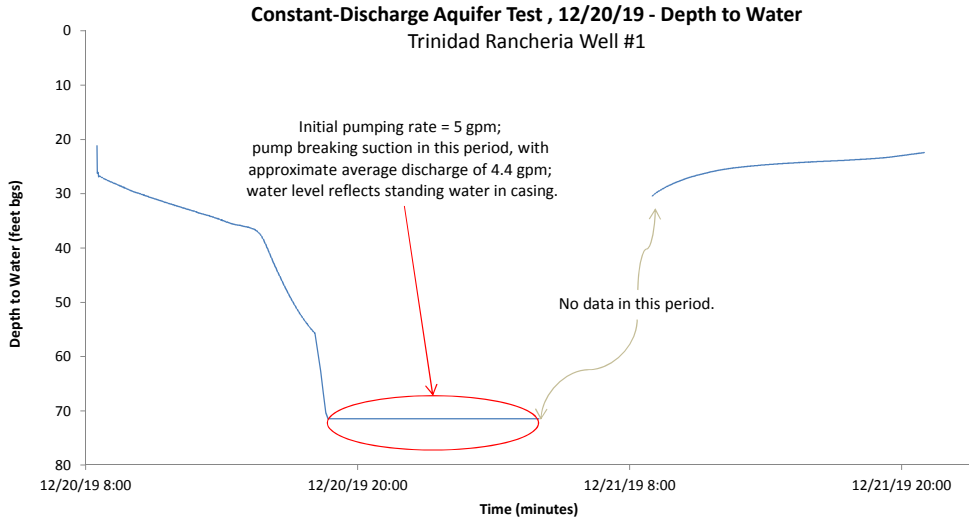
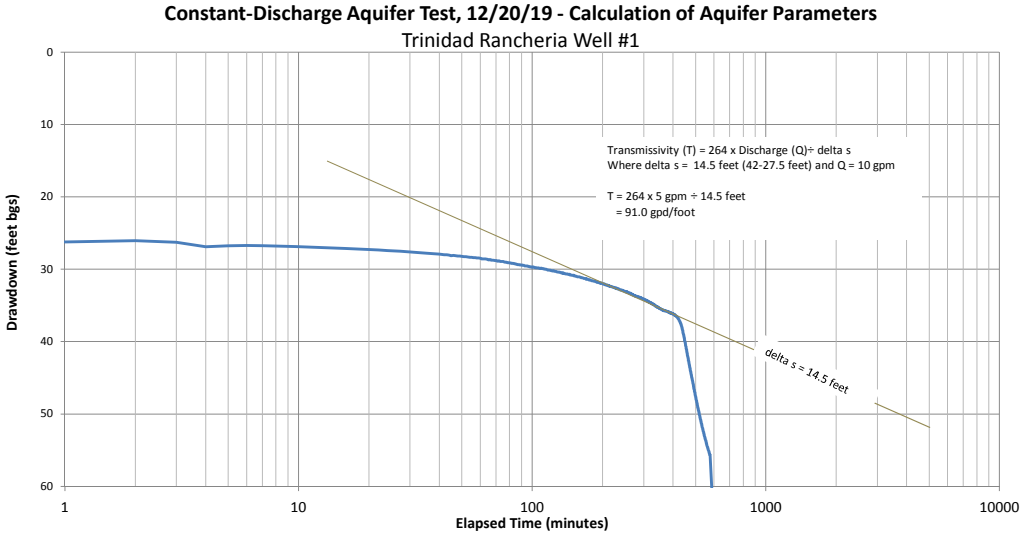


FIGURE 5

Trinidad Rancheria
Well #1 Testing



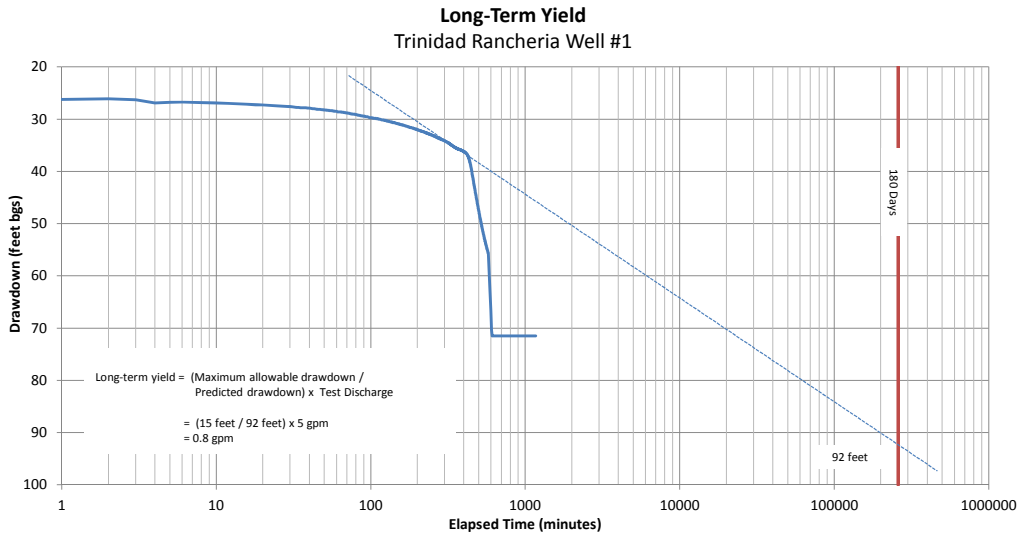
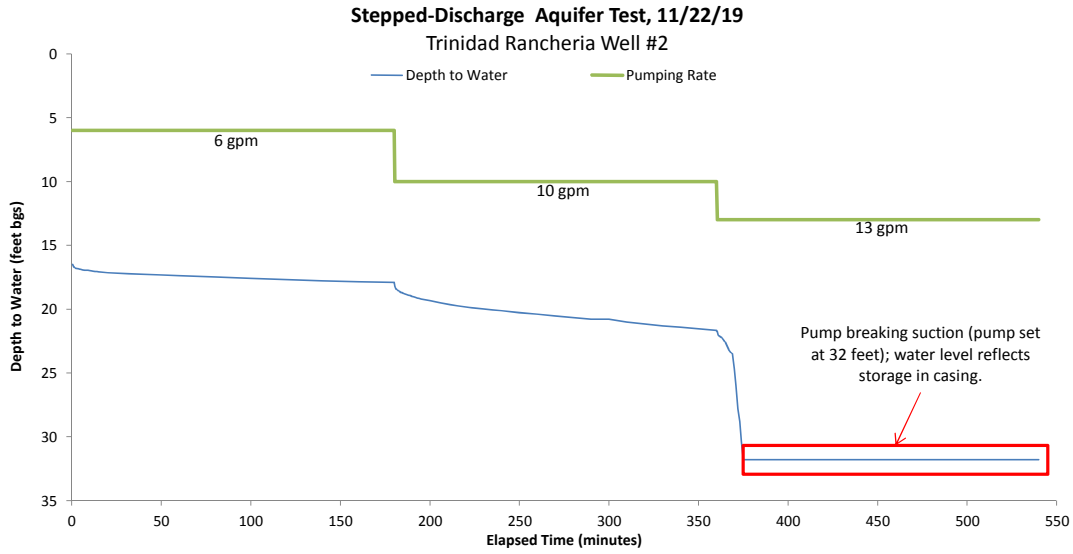


FIGURE 6

Trinidad Rancheria
Well #2 Testing



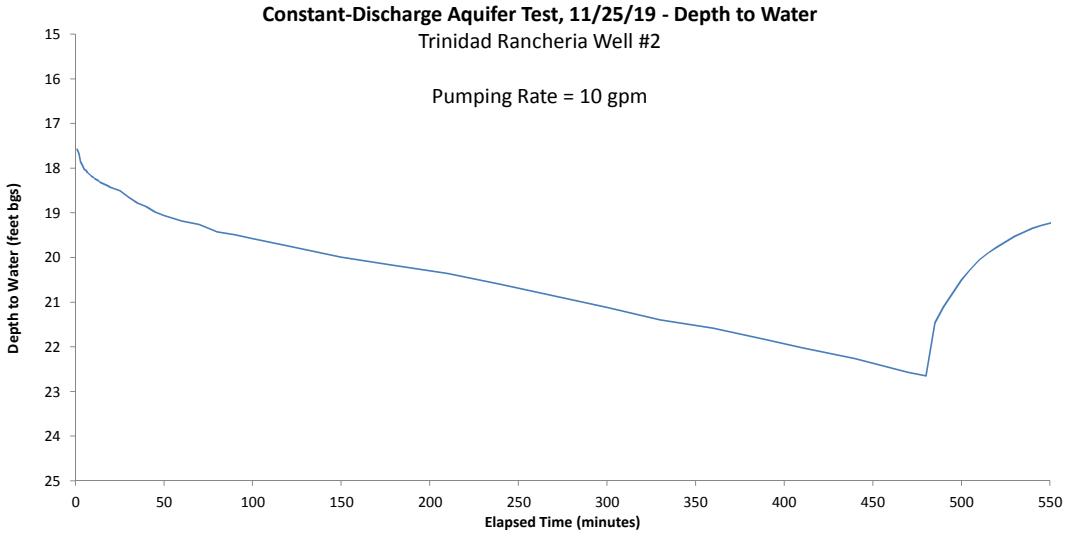
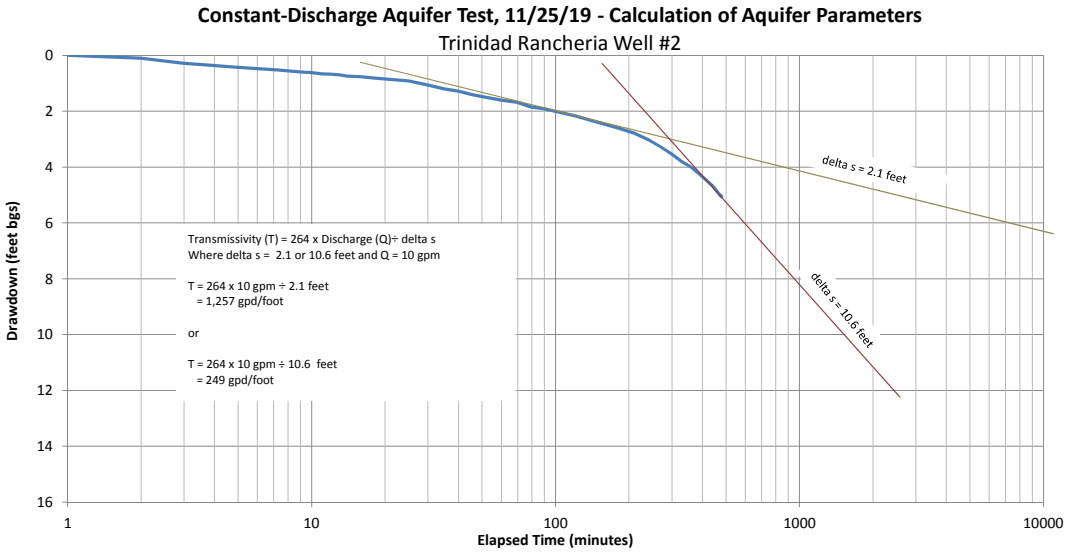


FIGURE 7

Trinidad Rancheria
Well #2 Testing



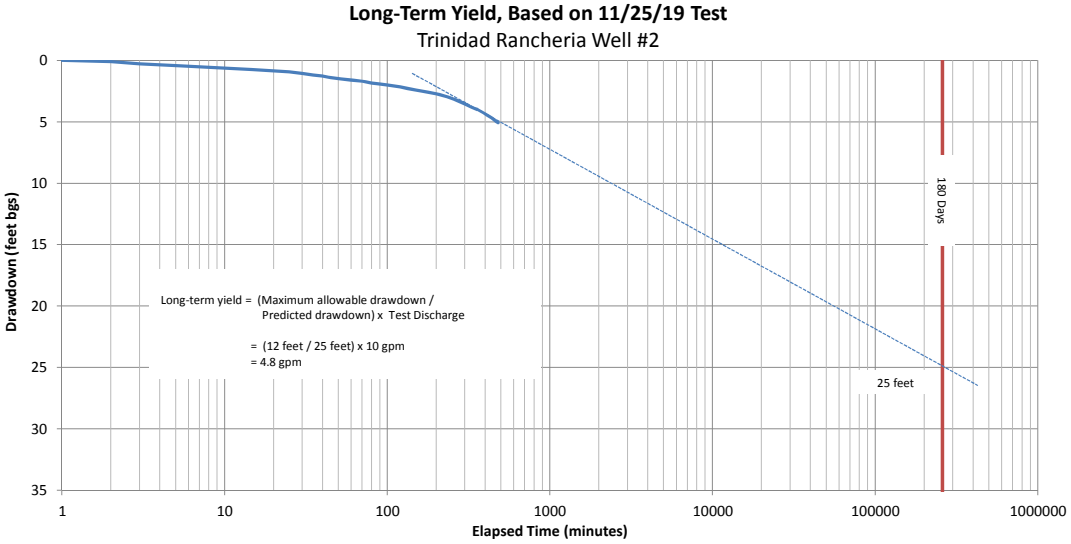
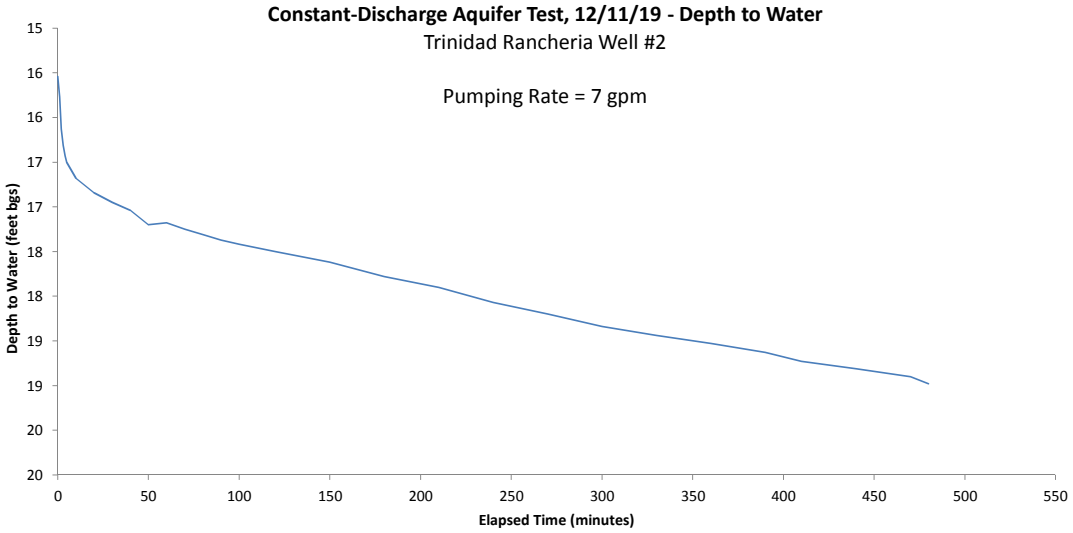
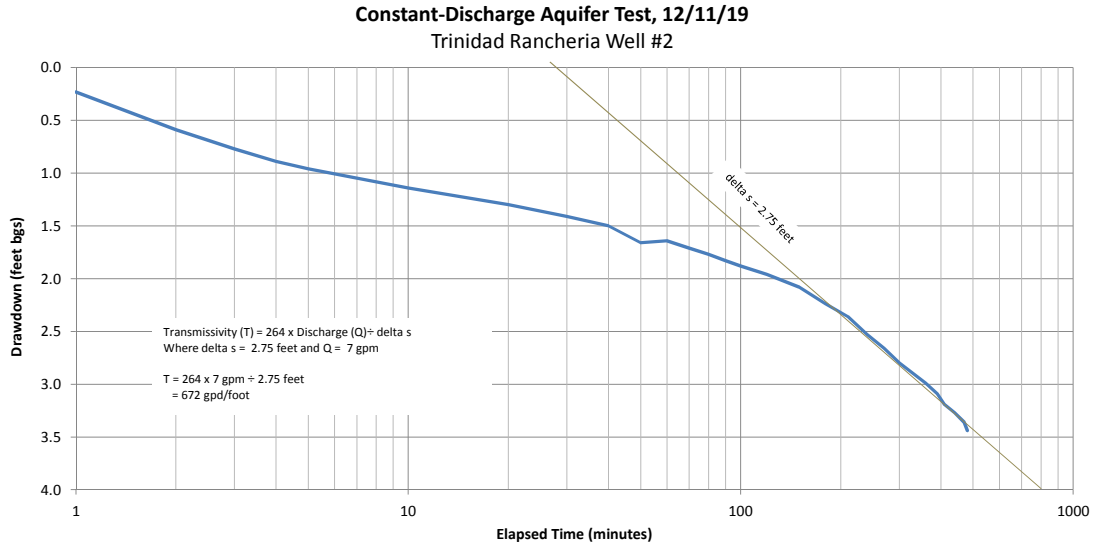


FIGURE 8

Trinidad Rancheria
Well #2 Testing





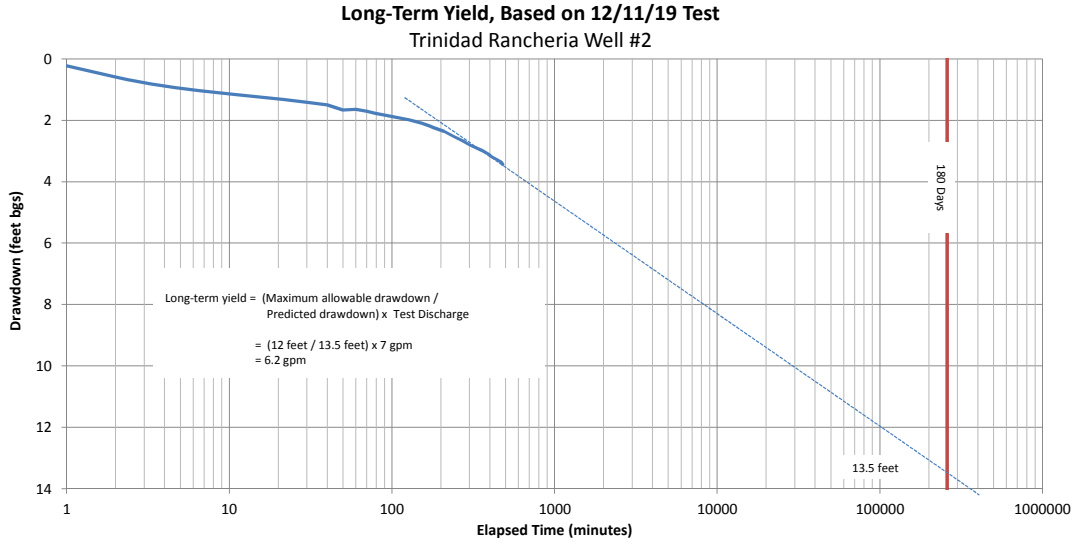


FIGURE 9

TRINIDAD RANCHERIA WELL #1 (80 feet TD; Louie's Property)

Drawdown at Distances

	Well #1, Predicted	5 Feet	10 Feet	20 Feet	50 Feet	100 Feet	200 Feet	400 Feet
Transmissvity, in gpd/ft., **T**	91	91	91	91	91	91	91	91
Storage coefficient, unitless, **S** (assumed)	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Discharge, in gpm, **Q**	1	1	1	1	1	1	1	1
Length of pumping period, days	180	180	180	180	180	180	180	180

Parameter	**Units**	**Pumping Well #1, Predicted**	At 5 Feet	At 10 Feet	At 20 Feet	At 50 Feet	At 100 Feet	At 200 Feet	At 400 Feet
Distance from center of well	r, ft	0.2	5	10	20	50	100	200	400
Storage coefficient	S, di'less	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Transmissivity	T, gpd/ft	91	91.0	91.0	91.0	91.0	91.0	91.0	91.0
Pumping time	t, minutes	259200	259200	259200	259200	259200	259200	259200	259200
	t, days	180	3	3	3	3	3	3	3
Discharge	Q, gpm	1	1	1	1	1	1	1	1
u = [1.87r^2S/Tt]	u	1.49E-06	5.14E-02	2.05E-01	8.22E-01	5.14E+00	2.05E+01	8.22E+01	3.29E+02
Well function of u	W(u)	12.84	2.44	1.18	ERROR	ERROR	ERROR	ERROR	ERROR
Drawdown, theoretical = [s1=114.6QW(u)/T]	s1, ft	16.17	3.07	1.49	0.00	0.00	0.00	0.00	0.00
Well efficiency	eff., percent	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Calculated drawdown from pumping well	s2, ft	**16.17**	**3.07**	**1.49**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note: ERROR indicates that the calculation is out of range; that is, the calculation indicates that there would be no effect at that distance.

FIGURE 10

TRINIDAD RANCHERIA WELL #2 (35 feet TD; Sundberg's Property)

Drawdown at Distances

	Well #2, Predicted	5 Feet	10 Feet	20 Feet	50 Feet	100 Feet	200 Feet	400 Feet
Transmissvity, in gpd/ft., **T**	672	672	672	672	672	672	672	672
Storage coefficient, unitless, **S** (assumed)	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Discharge, in gpm, **Q**	6	6	6	6	6	6	6	6
Length of pumping period, days	180	180	180	180	180	180	180	180

Parameter	**Units**	**Pumping Well #2, Predicted**	At 5 Feet	At 10 Feet	At 20 Feet	At 50 Feet	At 100 Feet	At 200 Feet	At 400 Feet
Distance from center of well	r, ft	0.2	5	10	20	50	100	200	400
Storage coefficient	S, di'less	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Transmissivity	T, gpd/ft	672	672.0	672.0	672.0	672.0	672.0	672.0	672.0
Pumping time	t, minutes	259200	259200	259200	259200	259200	259200	259200	259200
	t, days	180	3	3	3	3	3	3	3
Discharge	Q, gpm	6	6	6	6	6	6	6	6
u = [1.87r^2S/Tt]	u	2.01E-07	6.96E-03	2.78E-02	1.11E-01	6.96E-01	2.78E+00	1.11E+01	4.45E+01
Well function of u	W(u)	14.84	4.40	3.03	1.72	ERROR	ERROR	ERROR	ERROR
Drawdown, theoretical = [s1=114.6QW(u)/T]	s1, ft	15.19	4.50	3.10	1.76	0.00	0.00	0.00	0.00
Well efficiency	eff., percent	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Calculated drawdown from pumping well	s2, ft	**15.19**	**4.50**	**3.10**	**1.76**	**0.00**	**0.00**	**0.00**	**0.00**

Note: ERROR indicates that the calculation is out of range; that is, the calculation indicates that there would be no effect at that distance.

FIGURE 11

APPENDIX A

DRILLER'S LOGS

State of California

Well Completion Report

Form DWR 188 Submitted 11/14/2019

WCR2019-016273

Owner's Well Number 1 | Date Work Began 08/21/2019 | Date Work Ended 09/09/2019

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

Secondary Permit Agency | Permit Number 00-000 | Permit Date 08/02/2019

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

Name TRINIDAD RANCHERIA,

Mailing Address 1 Cher-Ae Ln.

City Trinidad | State Ca | Zip 95570

Planned Use and Activity

Activity New Well

Planned Use Water Supply Domestic

Well Location

Address 0 Cher-Ae LN

City Trinidad | Zip 95570 | County Humboldt

Latitude 41 Deg. 3 Min. 21.09 Sec. N | Longitude -124 Deg. 7 Min. 55.27 Sec. W

Dec. Lat. 41.0558583 | Dec. Long. -124.1320194

Vertical Datum | Horizontal Datum WGS84

Location Accuracy | Location Determination Method

APN 000-000-000-

Township 08 N

Range 01 W

Section 25

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 80 Feet

Total Depth of Completed Well 80 Feet

Water Level and Yield of Completed Well

Depth to first water 26 (Feet below surface)

Depth to Static Water Level (Feet) | Date Measured

Estimated Yield* 3 (GPM) | Test Type Pump

Test Length 24 (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	9	Soft Brown Silty Clay
9	18	Hard Grey Rock
18	26	Hard Blue Shale / Green Rock
26	49	water and Hard Rock Grey
49	53	Shale W/ Quartz
53	57	Soft Shale
57	60	Hard Black Shale
60	80	Soft 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	53	Blank	PVC	OD: 4.950 in. | SDR: 17 | Thickness: 0.291 in.	0.291	4.95			
1	53	73	Screen	PVC	OD: 4.950 in. | SDR: 17 | Thickness: 0.291 in.	0.291	4.95	Milled Slots	0.032	
1	73	80	Blank	PVC	OD: 4.950 in. | SDR: 17 | Thickness: 0.291 in.	0.291	4.95			W/ Cap On Bottom

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	80	Filter Pack	Other Gravel Pack	3/8	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	80	9

Certification Statement

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

Name: RICH WELL DRILLING & PUMP SERVICE INC (Person, Firm or Corporation)

1251 RAILROAD DRIVE (Address) | MC (City) | CA (State) | 95519 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 11/14/2019 (Date Signed) | 902702 (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:

State of California

Well Completion Report

Form DWR 188 Submitted 11/26/2019

WCR2019-016882

Owner's Well Number 2 | Date Work Began 11/20/2019 | Date Work Ended 11/21/2019

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

Secondary Permit Agency | Permit Number 00-000 | Permit Date

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

Name Trinidad Rancheria

Mailing Address 0 Cher-Ae Ln

City Trinidad State CA Zip 95570

Planned Use and Activity

Activity New Well

Planned Use Water Supply Domestic

Well Location

Address 0 Cher-Ae LN

City Trinidad Zip 95570 County Humboldt

	Deg.	Min.	Sec.		Deg.	Min.	Sec.	
Latitude	41	3	14.3809	N	Longitude -124	7	57.145	W

Dec. Lat. 41.0539947 Dec. Long. -124.1325403

Vertical Datum Horizontal Datum WGS84

Location Accuracy Location Determination Method

APN 000-000-000

Township 08 N

Range 01 W

Section 25

Baseline Meridian Humboldt

Ground Surface Elevation

Elevation Accuracy 10 Ft

Elevation Determination Method

Borehole Information

Orientation Vertical Specify

Drilling Method Direct Rotary Drilling Fluid Air

Total Depth of Boring 35 Feet

Total Depth of Completed Well 35 Feet

Water Level and Yield of Completed Well

Depth to first water 12 (Feet below surface)

Depth to Static Water Level 17 (Feet) Date Measured 11/25/2019

Estimated Yield* 10 (GPM) Test Type Pump

Test Length 8 (Hours) Total Drawdown 4 (feet)

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

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	12	Brown Clay
12	15	Sand w/ Small Gravels
15	25	Gravels
25	32	Larger Gravel
32	35	Bedrock

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	22	Blank	Low Carbon Steel	N/A	0.188	8.625			other
1	22	32	Screen	Low Carbon Steel	N/A	0.188	8.625	Torched Slots	0.1875	other
1	32	35	Blank	Low Carbon Steel	N/A	0.188	8.625			other

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	12	Bentonite	Other Bentonite	3/8	3/8 hole plug
12	35	Filter Pack	Other Gravel Pack		

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	35	12

Certification Statement

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

Name: RICH WELL DRILLING & PUMP SERVICE INC (Person, Firm or Corporation)

1251 RAILROAD DRIVE (Address) | MC (City) | CA (State) | 95519 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 11/26/2019 (Date Signed) | 902702 (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: