SUPPLEMENTAL INFORMATION #1

For Planning Commission Agenda of:
June 1, 2023

[X]	Consent Agenda Item	**No. E-6**
[ ]	Continued Hearing Item	
[ ]	Public Hearing Item	
[ ]	Department Report	
[ ]	Old Business	

Re: **Enchanted Forest, LLC, Conditional Use Permit**

Record Number: PLN-13107-CUP
Application Number: 13107
Assessor Parcel Number: 524-114-011-000
Willow Creek Area

The project's Well Assessment Report has been amended to include additional information in regards to the wells potential effect and hydro connectivity with nearby surface waters. The updated Well Assessment Report states that the groundwater well TW-3 will not affect the nearby spring because the spring elevation is higher than the groundwater elevation in TW-3. Additionally, there is an intervening "fin" of bedrock between well TW-3 and the spring and nearest surface-water course that would prevent, or at least impede groundwater movement between the well and surface-water features. Thus, pumping well TW-3 will not adversely affect surface-water features.

1. Updated Well Assessment Report to include information on nearby surface waters.

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

023027.00

April 27, 2023

Mr. Kai Ferrara
3594 Buttermilk Lane
Arcata, CA 95521

SUBJECT: WATER-SUSTAINABILITY EVALUATION FOR WELL ON PARCEL NO. 524-014-011, HUMBOLDT COUNTY, CALIFORNIA

INTRODUCTION

This letter presents our evaluation of the sustainability of the water supply (groundwater well) for Parcel No. 524-014-011, Humboldt County, California. We understand that Humboldt County is requiring evaluation of whether the well is sustainable for its proposed use in a cannabis-growing operation.

Work consisted of review of previous site-specific studies conducted by Lawrence & Associates (L&A) for a previous owner of the parcel and report preparation (the site was known as the PG&E 36 Property). You provided information on the water usage and irrigation timing. Per your email of March 16, 2023, Humboldt County is requiring the following in relation to the well/water supply:

a) Pumping schedule and monthly and annual usages.
b) Site description including topography, existing and planned uses, existing and planned water supply sources.
c) Description of the well, strata in which it is screened, depth of sanitary seal, if well seal is only the required 20 feet, describe the effects of shallow gravel/sand pack on ability of well to capture shallow water. If multiple intervals are screened, describe the anticipated impacts.
d) Identification of any wells within 1,000 feet of the subject well, and if so, how will the use of the subject well affect the adjacent wells.
e) Identification of any seeps, springs, or wetlands within 1,000 feet of the subject well.
f) Effects on nearby water features from use of the well.
g) A map showing the location of any existing wells within 1,000 feet of the project.
h) A local geological map with a legend. A hydrogeological cross section map would also be helpful.
i) Identification of groundwater recharge areas for both alluvial and confined aquifers, and a discussion of the sustainability of the well's productivity.
j) Description of the lateral extent of identified aquitards/aquicludes.
k) Evaluation of the extent of identified/interpreted aquitards or aquicludes using relationships presented in the hydrogeological cross section and supported by either mapped or boring log evidence.
l) References and data sources.

LAND AND WATER USE

The Site use is for a total 28,800 square foot, greenhouse Cannabis project. The plants are planted in native soil with added amendments, inside the greenhouses (K. Ferrara, email to B. Lampley, April 2023). The water is delivered by drip tape to the rows of plants, such that each plant has its own drip. The drip tape is installed beneath the mulch to reduce evaporative losses.

The water supply for the Project is an existing groundwater well previously identified as TW-3 for a previous investigation (L&A, March 2005, *Evaluation of Feasibility for Domestic Septic-Waste Disposal, Sierra Pacific Holding Company PG&E 36 Property*; L&A, March 2005, well drilling and testing program at PG&E 36 property, unpublished in-house data).

Table 1. Proposed Irrigation Schedule & Water Use

Unit Use:	300	gallons/hour per 1,000 sq. ft.			
Month	**Area**	**Timing**	**Daily Volume**	**Monthly Volume**	**Average Daily Pumping Rate**
	sq.ft.	hrs./day	gallons	gallons	gpm
January	800	0.17	41	1,202	0.0
February	800	0.17	41	1,202	0.0
March	4,800	0.17	240	7,214	0.2
April	14,000	0.17	701	21,042	0.5
May	28,000	0.17	1,403	42,084	1.0
June	28,000	0.25	2,100	63,000	1.5
July	28,000	0.30	2,520	75,600	1.8
August	28,000	0.30	2,520	75,600	1.8
September	28,000	0.30	2,520	75,600	1.8
October	14,000	0.17	701	21,042	0.5
November	7,000	0.17	351	10,521	0.2
December	3,500	0.17	175	5,261	0.1
			ANNUAL USE:	399,369 gallons or 1.2 acre-feet	0.8 gpm

SITE DESCRIPTION

The site is located in the North Fork of the Trinity River drainage. The river valley is generally oriented with a northwest trend. The drainage is marked by steep slopes with occasional flatter areas caused by hanging or abandoned stream meanders and stream terrace deposits. At the Site, on old river meander creates a relatively flat (slopes less than 10%) bench onto which slightly steeper debris flows have been deposited (10% to 30%) from two secondary drainages. The areal extent of the debris flows narrows and steepens up slope to the east. Above the debris flow

deposits, the grades are steeper than 30% and side slopes range from vertical to 3-to-1 (horizontal to vertical).

PROJECT WELL

Several wells and test borings were installed at the Site as part of the previously mentioned project (*ibid*.). **Attachment A** contains the Department of Water Resources (DWR) driller's logs for the wells and **Figure 4** shows the locations.

All wells were completed with a 20-foot surface seal. As described in the following section (Hydrogeological Setting), the productive aquifer occurs within sand and gravel deposits atop bedrock at various depths depending on surface elevation.

Well yields range from less than 1 gallon per minute (gpm) to over 10 gpm. Wells TW-3 and TW-6 showed a long-term yield of 14 and 4 gpm, respectively (**Attachment B**). This is in excess of the highest average daily Project pumping rate of approximately 2 gpm. Both of these wells have sufficient yield for Project supply.

HYDROGEOLOGICAL SETTING

The subject parcel is located in the Klamath Mountains Geologic province of northwestern California. The basement rock at the site consists the Jurassic age (208 to 146 million years old), Galice Formation (**Figure 2**). In the vicinity of the subject property, the Galice Formation consists of metamorphosed marine sandstone, ranging from massive to highly fractured. The Galice Formation has been incised by the south Fork of the Trinity River, leaving hanging meanders approximately 100 to 220 feet above the current channel. Within the meander are point-bar river terrace deposits of sand and gravel of Quaternary Age (less than 2 million years old).

Figure 3 shows a local geologic map based on field reconnaissance conducted in 2005 by L&A. West of South Fork Road is an exposed fin of sandstone protruding into the river deposits; the sandstone outcrop has been smoothed by river flows and subsequently weathered. Overlying the river deposits are debris flows of two different ages, both derived from the mountains to the east of the river. The older deposits have a developed soil including a 2-foot-deep soil horizon. A paleosol was observed in two test pits indicating episodic deposition between long periods of no deposition. The soil development suggests that portions of the older debris flows may have predated or been contemporaneous with the deposition of the river deposits. The younger debris-flow deposits overly both the older debris-flow deposits and stream deposits. The younger debris flow-deposits have no soil development indicating that they are of recent origin.

The debris fans consist of coarse material and are generally very permeable. The underlying fractured sandstone will vary from virtually impermeable to moderately permeable depending on the degree of fracturing.

Attachment A contains the Department of Water Resources (DWR) driller's logs for the wells installed at the Site for a previous project; **Figure 4** shows the locations. The hydrogeologic setting for the Site is based on the results from these six wells which were installed in 2005 to investigate groundwater occurrence and evaluate well yields.

The wells showed that groundwater, where present, occurs at the base of the debris-flow deposits, immediately above the bedrock surface. Groundwater also may occur within the bedrock fractures, but the productive aquifer zone ranges in thickness from zero to approximately 15 feet. Depth to first water ranged from 12 to 95 feet; the depth depended on the elevation of the well location (wells farther uphill had deeper depths to water). Two dry holes (TB-1 and TB-2) were observed at the Site, downhill of and between the river and the more productive wells. The aquifer from which the Site wells, including TW-3 (the Project well) is not hydraulically connected to the river.

One spring was noted at the Site in 2005, near TW-1 (**Figure 4**). The spring likely occurs where the ground surface is lower in elevation and exposes the aquifer atop the bedrock. Pumping he groundwater in well TW-3 will not affect this spring because the spring elevation is higher than the groundwater elevation in TW-3. Additionally, there is an intervening "fin" of bedrock between well TW-3 and the spring and nearest surface-water course that would prevent, or at least impede groundwater movement between the well and surface-water features (**Figure 5**). Thus, pumping well TW-3 will not adversely affect surface-water features.

Recharge to the aquifer is from infiltration of precipitation and stream flow. The recharge areas likely are represented by the drainage areas upstream of well locations, to the top of Hennessy Ridge. For example, the likely recharge area for well TW-3 (Project well) covers 385 acres (**Figure 1**). **Table 1** shows the calculation for estimating recharge to the aquifer from this area.

The estimated average annual recharge is 352 acre-feet/year. The estimated annual Project water use is 1.2 acre-feet/year. Thus, there is sufficient average recharge to sustain the Project use. In dry years, there may be no recharge and in wet years there may be more recharge. Because the aquifer is capable of storing water year to year, however, the Project well likely would be able to supply water even in dry years.

Table 1. Recharge Estimation

Average Annual Precipitation[A]	39.2	inches
Runoff, assume 50%	19.6	inches
Wet Season Evapotranspiration[B]	9.0	inches
Net Precipitation for Recharge	11	inches
Average Recharge (net precip. × 385 acres)	352	acre-feet/year

Monthly Evapotranspiration

Month	Daily (inches)	Monthly (inches)	
Jan	0.04	1.20	
Feb	0.07	1.96	
Mar	0.10	3.10	
Apr	0.16	4.80	
May	0.21	6.51	
Jun	0.26	7.80	
Jul	0.29	8.99	
Aug	0.25	7.75	
Sep	0.19	5.70	
Oct	0.12	3.72	
Nov	0.06	1.80	
Dec	0.03	0.93	
		54.26	inches/year
		8.99	inches/wet season (Jan-Mar, Nov-Dec)

Notes:

A. Data from Mud Springs station (MUD), Trinity Co., https://cdec.water.ca.gov/dynamicapp/QueryDaily?s=MUD&end=2023-04-27

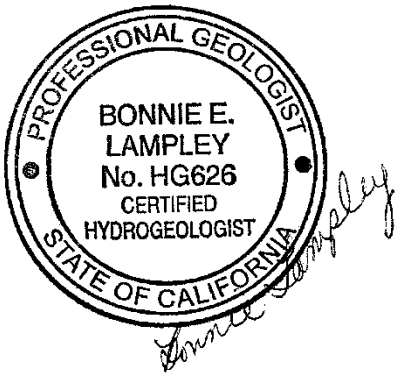
B. CA Dept. of Water Resources, 2000, *A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California*; https://cimis.water.ca.gov/Content/PDF/wucols00.pdf

Please contact me at blampley@lwrnc.com if you have any questions regarding this report.

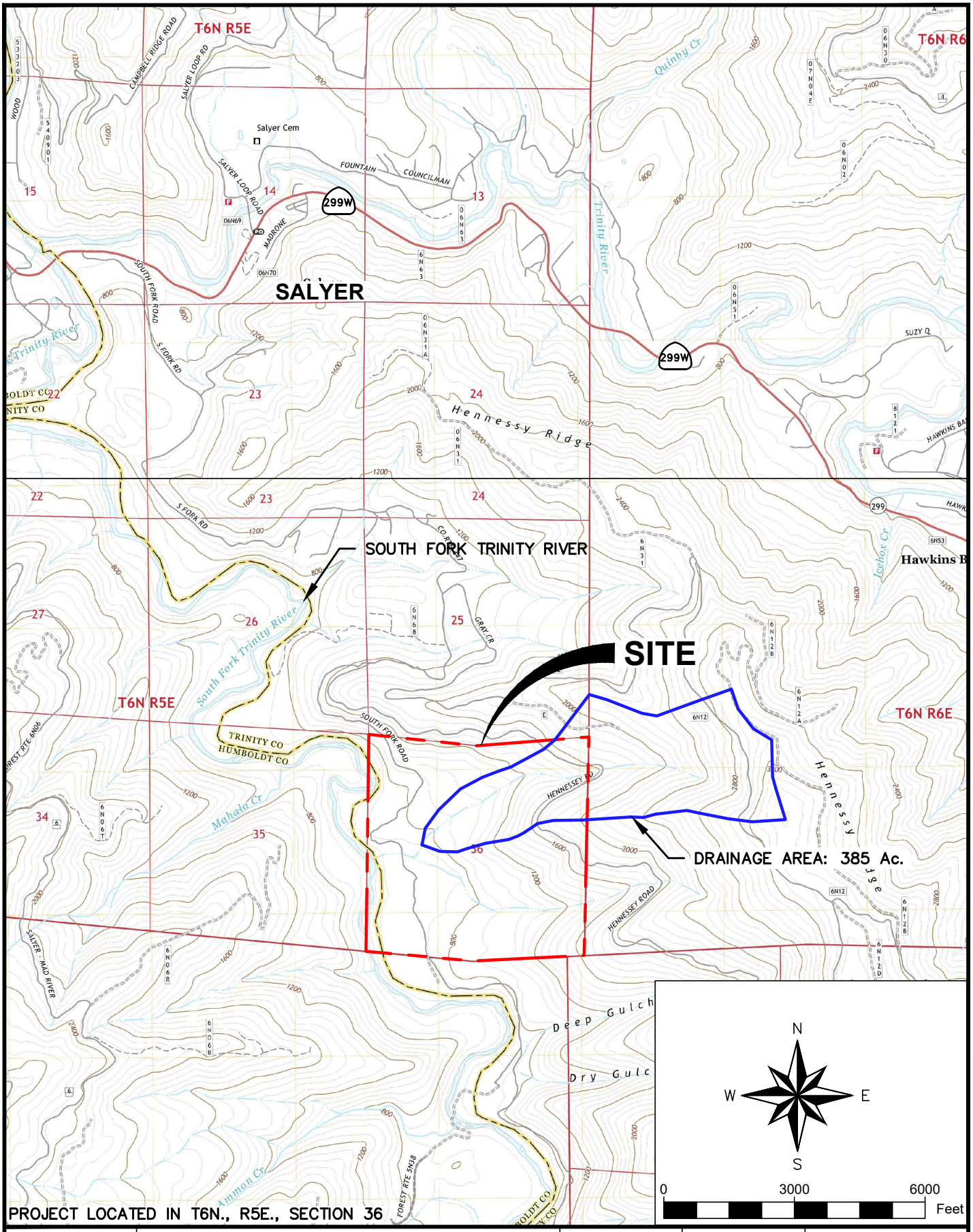
Sincerely,

Bonnie E. Lampley

Bonnie Lampley
Principal Hydrogeologist



enc.: Attachment A. Site Well Logs
Attachment B. Site Well-Yield Testing



PROJECT LOCATED IN T6N., R5E., SECTION 36

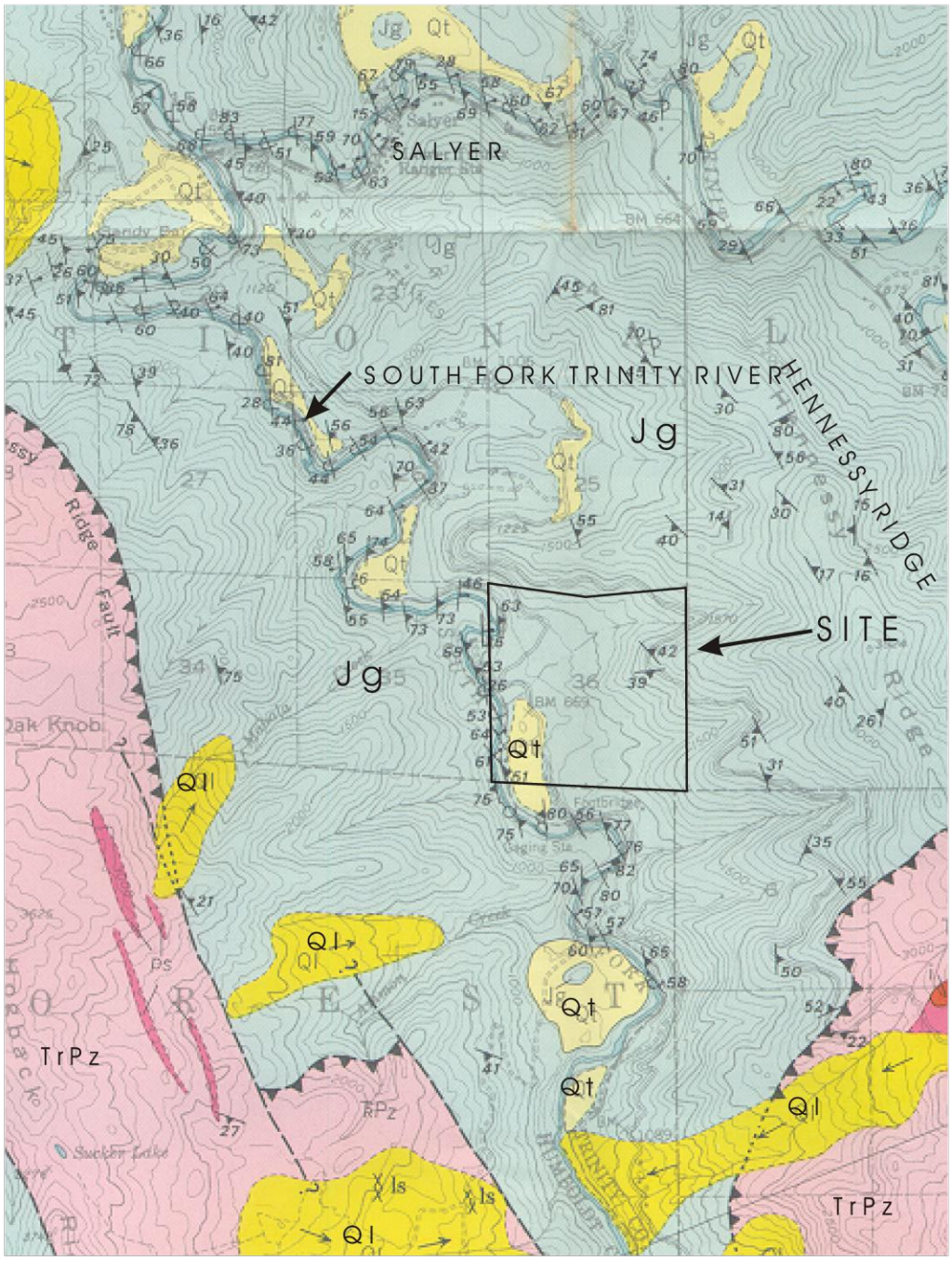
LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

SITE LOCATION MAP

MAP ADAPTED FROM U.S.G.S.
7.5-MINUTE TOPOGRAPHIC QUADS:
SALYER & HENNESSEY PEAK, CA.

PROJECT NAME: W.S. EVALUATION	PROJECT NO: 023027.00	DATE: 4/27/2023
CLIENT: KAI FERRARA	DRAWN BY: J. BEERS	FIGURE 1
SCALE: 1" = 3,000'	CHECKED BY: B. LAMPLEY	

p:\023027.00_kai ferrara\site_loc.dwg J.R.B. 4/27/2023



LEGEND

- Ql: Quaternary landslide or slump
- Qt: Quaternary terrace deposit
- Jg: Jurassic Galice Formation (Sandstone)
- TrPz: Western Paleozoic and Triassic Belt (melange)

Adapted from: Yioung, J.C., 1978, Geologic Map and Sections of the Willow Creek 15' Quadrangle, Humbolt and Trinity Counties, California, California Division of Mines and Geology Map Sheet 31

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

REGIONAL GEOLOGIC MAP

PROJECT NAME:	PROJECT NO:	DATE:
W.S. EVALUATION	023027.00	4/27/2023
CLIENT:	DRAWN BY:	FIGURE 2
KAI FERRARA	J. BEERS	
SCALE:	CHECKED BY:	
1" = ~1 MILE	B. LAMPLEY	

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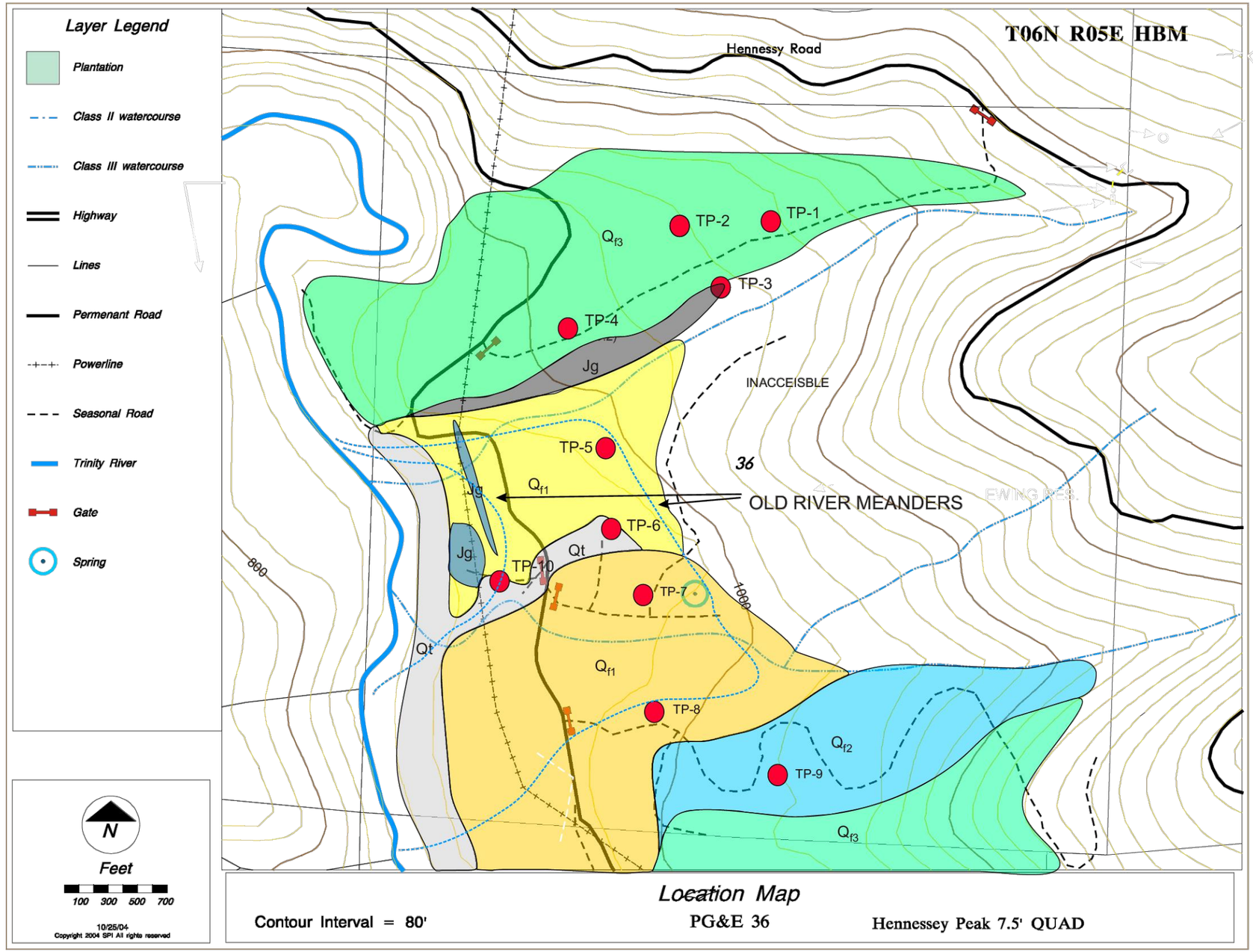

GEOLOGIC LEGEND

Qt	RIVER TERRACE DEPOSITS
Q_{f1}	YOUNGER DEBRIS FAN (NORTH)
Q_{f1}	YOUNGER DEBRIS FAN (SOUTH)
Q_{f2}	OLD DEBRIS FAN
Q_{f3}	OLDEST DEBRIS FAN
Jg	GALICE SANDSTONE (BEDROCK)

Note: All boundaries are approximate

TP-5 Test Pit Location

N

0 500

1" = APPROX 500'

NOTE: ALL LOCATIONS ARE APPROXIMATE.

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

SITE GEOLOGIC MAP SHOWING TEST PIT LOCATIONS PG&E 36 SITE

WATER SUSTAINABILITY EVALUATION

KAI FERRARA

PROJECT NO: 023027.00	SCALE: AS SHOWN
DRAWN BY: J. BEERS	DATE: 4/27/2023
CHECKED BY: B. LAMPLEY	FIGURE 3

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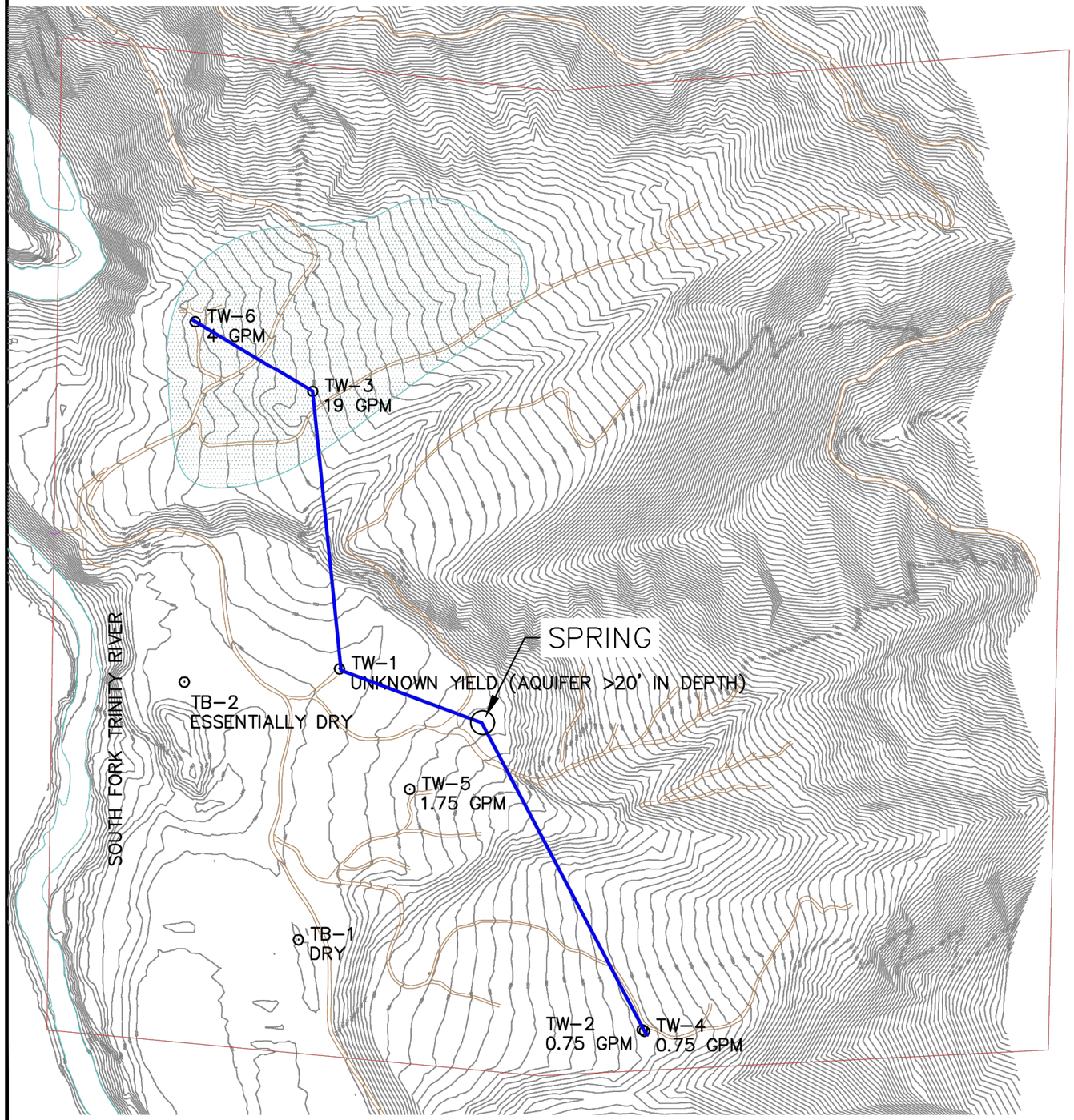

GRAPHIC SCALE

300 0 150 300

(IN FEET)

LEGEND

- PROPERTY LINE
- ROAD
- AREA OF USABLE AQUIFER YIELDING SUFFICIENT WATER (>4 GPM / 4 HOURS)
- ⊙ TB–1 — TEST BORING LOCATION
- ⊙ TW–1, 1 GPM — TEST BORING LOCATION; TEST WELL SHOWING YIELD IN GALLONS PER MINUTE

BORING/WELL #	TOTAL DEPTH (FT)	DEPTH TO BEDROCK (FEET B.G.S.)	DEPTH TO WATER (FEET, B.G.S.)	AQUIFER THICKNESS (FEET)	WELL YIELD (GPM)
TB-1	10	8	DRY	0	0
TB-2	45	26	24.5	8	<0.3
TW-1	100	25	12.0	13	SEALED OFF
TW-2	98	23	95.0	15	1
TW-3	121	94	85.0	15	19
TW-4	119	108	95.0	15	1
TW-5	45	35	27.0	9	2
TW-6	85	76	49.0	16	4

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

TEST BORINGS AND WELLS
PG&E 36 SITE
SOUTH FORK TRINITY RIVER

WATER SUSTAINABILITY EVALUATION

KAI FERRARA

PROJECT NO: 023027.00	SCALE: AS SHOWN
DRAWN BY: J. BEERS	DATE: 4/27/2023
CHECKED BY: B. LAMPLEY	FIGURE 4

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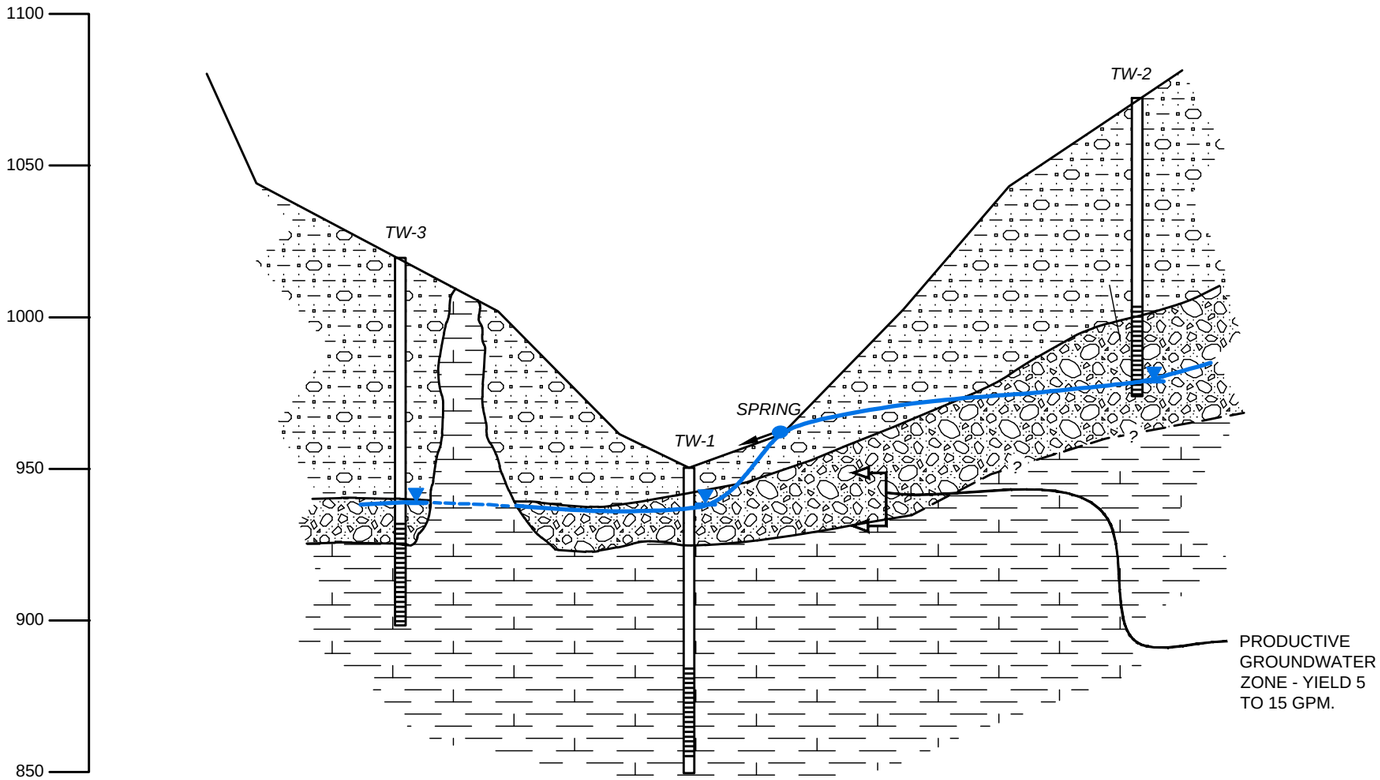


Debris-flow deposits: Silty sand and gravel.

River-bed deposits: Silty gravel and cobbles, with basal cobble lag deposits

Bedrock: Slate, fractured to unfractured, quartz veining and healed fractures

Screened interval

Static groundwater level

Groundwater table

50 feet

0

500 feet

H: 1" = APPROX 500'

V: 1" = 50'

NOTE: ALL LOCATIONS ARE APPROXIMATE.

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

GENERALIZED CROSS-SECTION
PG&E 36 SITE

WATER SUSTAINABILITY EVALUATION

KAI FERRARA

PROJECT NO: 023027.00	SCALE: AS SHOWN
DRAWN BY: J. BEERS	DATE: 4/27/2023
CHECKED BY: B. LAMPLEY	FIGURE 5

p:\023027.00_kai ferrara\figure5.dwg J.R.B. 4/27/2023

ATTACHMENT A
SITE WELL LOGS

TRIPLICATE
Owner's Copy

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 1087277

Owner's Well No. TW-1

Date Work Began 3-14-05, Ended 3-15-05

Local Permit Agency Trinity County Environmental Health

Permit No. WP2005-006 Permit Date 3-10-05

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD air rotary FLUID water

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	8	Silty sand w/gravel
8	25	Sandy gravel
25	100	Bedrock
		Hole caved from 93 feet to 100 feet.

TOTAL DEPTH OF BORING 100 (Feet)

TOTAL DEPTH OF COMPLETED WELL 93 (Feet)

RECEIVED APR 22 2005 DWR NORTHERN DISTRICT

WELL OWNER

Name Sierra Pacific Holding Co.

Mailing Address c/o Lawrence & Associates

2001 Market St. Rm. 523 Redding CA 96001

CITY STATE ZIP

WELL LOCATION

Address approx. 5 miles south of Salyer

City on South Fork Road, Salyer

County Trinity

APN Book 09 Page 080 Parcel 8

Township 6N Range 5E Section 36

Lat ___ DEG. ___ MIN. ___ SEC. N Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH

WEST See attached map EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL X
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 12 (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL n/a (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * approx 45 (GPM) & TEST TYPE air lift

TEST LENGTH n/a (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

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

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	42	9	X				PVC	4	Sch40	
42	63	8	X				PVC	4	Sch40	
63	93	8		X			PVC	4	Sch40	.020

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	1	X			Concrete
1	8		X		Chips
8	44		X		30% solids
44	50		X		Chips
50	95			X	#3 Sand

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other site map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

NAME Diamond Core Drilling, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 491925 Redding CA 96049
ADDRESS CITY STATE ZIP

Signed [signature] 4-21-05 512406
C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 1087275

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. TW-2
Date Work Began 3-15-05, Ended 3-16-05
Local Permit Agency Trinity County Environmental Health
Permit No. WP2005-005 Permit Date 3-10-05

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD air rotary FLUID water

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	73	Silty gravels, weathered, small amounts of schist, quartz and mudstone
73	97	Silty gravel, grades to cobble and boulder-sized

TOTAL DEPTH OF BORING 97 (Feet)
TOTAL DEPTH OF COMPLETED WELL 97 (Feet)

WELL OWNER

Name Sierra Pacific Holding Co.
Mailing Address c/o Lawrence & Associates
2001 Market St. Rm. 523 Redding CA 96001
CITY STATE ZIP

WELL LOCATION

Address approx. 5 miles south of Salyer
City on South Fork Road, Salyer
County Trinity
APN Book 08 Page 080 Parcel 8
Township 5N Range 5E Section 36
Lat ___ DEG. ___ MIN. ___ SEC. N
Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH
WEST See attached map EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL X
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 92.5 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL n/a (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * n/a (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	67	9½	X				PVC	4	Sch40	
67	90	9½		X			PVC	4	Sch40	.020
90	97	8½		X			PVC	4	Sch40	.020

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	1	X			Concrete
1	55½		X		30% solids
55½	60		X		Chips
60	97			X	#3 Sand

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other site map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

NAME Diamond Core Drilling, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS P.O. Box 491925 CITY Redding STATE CA ZIP 96049
Signed ___ DATE SIGNED 4-21-05
C-57 LICENSED WATER WELL CONTRACTOR C-57 LICENSE NUMBER 512406

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

Page 1 of 1

Owner's Well No. TW-2

Date Work Began 2-17-05, Ended 2-18-05

Local Permit Agency Trinity County Environmental Health

Permit No. WP2005-007 Permit Date 2-10-05

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 1087276

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD air rotary FLUID water

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	92	Tan silty clayey sand w/ some gravels (colluvium)
92	93	Very silty sandy gravel
93	120	Black shale

TOTAL DEPTH OF BORING 120 (Feet)

TOTAL DEPTH OF COMPLETED WELL 118 (Feet)

WELL OWNER

Name Sierra Pacific Holding Co

Mailing Address c/o Lawrence & Associates

2001 Market St Rm 523 Redding CA 960

CITY STATE ZIP

WELL LOCATION

Address approx 6 miles south of Salyer

City on South Fork Road, Salyer

County Trinity

APN Book 08 Page 080 Parcel 9

Township 6N Range 5E Section 36

Lat ___ DEG. ___ MIN. ___ SEC. N Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH

WEST See attached map EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL X
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 81 (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL n/a (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * n/a (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

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

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	88	21	X				PVC	4	Sch40	
88	101	21		X			PVC	4	Sch40	020
101	118	21		X			PVC	4	Sch40	020

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	1	X			Concrete
1	18	X	X		grout
18	21		X		Chips
21	77		X		30# solid
77	91		X		Chips
91	120			X	#3 Sand

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other site map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

NAME Diamond Core Drilling, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS P.O. Box 491925 CITY Redding STATE CA ZIP 96049

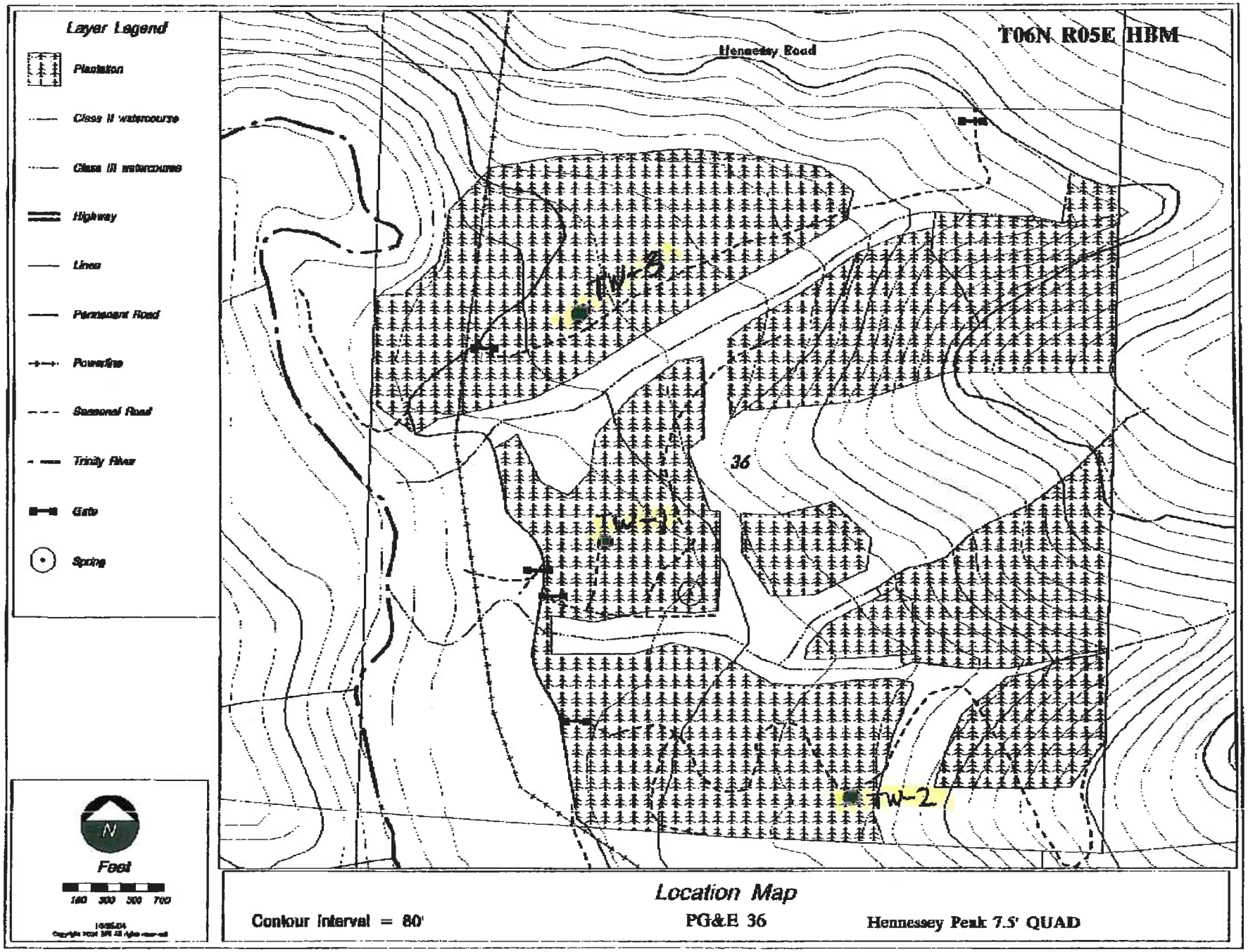
Signed [signature] C-57 LICENSED WATER WELL CONTRACTOR

DATE SIGNED 4-21-05

C-57 LICENSE NUMBER 512406

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



TRIPLICATE
Owner's Copy

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 1092842

Owner's Well No. TW-4

Date Work Began 10-17-05, Ended 10-18-05

Local Permit Agency Trinity County Environmental Health

Permit No. WP2005-060 Permit Date 9-13-05

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD air rotary FLUID water

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	73	Silty gravels, weathered, small amounts of schist, quartz and mudstone
73	90	Silty gravel, graded to cobble and boulder-sized
90	93	Sand, clayey, moist
93	108	Gravel, moist, w/silt
108	110	Fractured to fresh bedrock, black slate w/healed fractures

TOTAL DEPTH OF BORING 110 (Feet)
TOTAL DEPTH OF COMPLETED WELL 110 (Feet)

RECEIVED NOV 14 2005 WATER RESOURCES

WELL OWNER

Name Sierra Pacific Holding Company
Mailing Address c/o Lawrence & Associates
2001 Market Street, Rm. 523 Redding, CA 96001
CITY STATE ZIP

WELL LOCATION

Address Approx. 5 miles south of Salyer
City on South Fork Road, Salyer
County Trinity
APN Book 06 Page 020 Parcel 8
Township 6N Range 5E Section 36
Lat 40 DEG. 50 MIN. 21 SEC. N Long 123 DEG. 33 MIN. 892 SEC. W

LOCATION SKETCH

NORTH
WEST — See attached map — EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL X
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 95 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 95 (Ft.) & DATE MEASURED 10-18-05
ESTIMATED YIELD * 0.75 (GPM) & TEST TYPE air lift
TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN n/a (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	21	10	X				Steel	6	188	
21	100	7½	X				Steel	6	188	
100	111	7½		X			Steel	6	188	1/8
111	112	7½	X				Steel	6	188	
112	110	6½					Open hole			

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	22		X		Granular
					¾" Chips

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other site map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

NAME Diamond Core Drilling, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS P.O. Box 491925 CITY Redding STATE CA ZIP 96049

Signed [signature] C-57 LICENSED WATER WELL CONTRACTOR
DATE SIGNED 11-02-05
C-57 LICENSE NUMBER 512406

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

Page 1 of 1

Owner's Well No. TW-5

Date Work Began 10-18-05, Ended 10-19-05

Local Permit Agency Trinity County Environmental Health

Permit No. WP2005-059 Permit Date 9-13-05

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 1092843

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD air rotary FLUID water

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	18	Gravelly silt, dry
18	26	Gravelly silt w/sand, damp
26	32	Silty gravel, moist to wet, coarse
32	35	Silty gravel, fine gravels, moist to wet
35	45	Bedrock, black shale, dry

TOTAL DEPTH OF BORING 45 (Feet)

TOTAL DEPTH OF COMPLETED WELL 45 (Feet)

WELL OWNER

Name Sierra Pacific Holding Company

Mailing Address c/o Lawrence & Associates

2001 Market St., Rm.523 Redding, CA 96001

CITY STATE ZIP

WELL LOCATION

Address approx. 5 miles south of Salyer

City on South Fork Road, Salyer

County Trinity

APN Book 08 Page 080 Parcel 8

Township 6N Range 5E Section 36

Lat 40 DEG. 50 MIN. 878 SEC. N Long 123 DEG. 34 MIN. 189 SEC. W

LOCATION SKETCH

NORTH

See attached map

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL X
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 27 (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 27 (Ft.) & DATE MEASURED 10-19-05

ESTIMATED YIELD * 1.75 (GPM) & TEST TYPE air lift

TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN n/a (Ft.)

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

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	22	10	X				Steel	6	.188	
22	30	7⅞	X				Steel	6	.188	
30	38	7⅞		X			Steel	6	.188	1/8
38	45	6¾					Open hole			

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	22		X		Granular & Chips

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other site map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

NAME Diamond Core Drilling, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 491925 Redding CA 96049
ADDRESS CITY STATE ZIP

Signed [signature] 11-02-05 512406
C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

TRIPLICATE
Owner's Copy

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 1092844

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Page 1 of 1
Owner's Well No. TW-6
Date Work Began 10-20-05, Ended 10-21-05
Local Permit Agency Trinity County Environmental Health
Permit No. WP2005-058 Permit Date 9-13-05

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD air rotary FLUID water

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	24	Silty gravel/cobbles, dry; coarse gravels to large cobbles
24	36	Clayey sand, moist
36	56	Silty sand w/gravel, damp from 45'-66'
56	60	Clayey gravel w/sand, moist
60	65	Gravelly clay, moist, water in hole at 60'
65	76	Clayey gravel w/cobbles, moist
76	85	Bedrock, dry black slate

TOTAL DEPTH OF BORING 85 (Feet)
TOTAL DEPTH OF COMPLETED WELL 85 (Feet)

WELL OWNER

Name Sierra Pacific Holding Company
Mailing Address c/o Lawrence & Associates
2001 Market St., Rm. 523, Redding CA
CITY STATE ZIP

WELL LOCATION

Address approx. 5 miles south of Salyer
City on South Fork Road, Salyer
County Trinity
APN Book 02 Page 030 Parcel 9
Township 6N Range 5E Section 26
Lat 40 DEG. 51 MIN. 29.2 SEC. N Long 123 DEG. 34 MIN. 27.1 SEC. W

LOCATION SKETCH

NORTH
WEST — See attached map — EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL X
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 60 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 49 (Ft.) & DATE MEASURED 10-21-05
ESTIMATED YIELD * 8 (GPM) & TEST TYPE air lift
TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN n/a (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
20	22	8¾	X				Steel	6	.188	
22	77	7¾	X				Steel	6	.188	
77	85	7¾		X			Steel	6	.188	1/8
0	12	12	X				PVC	4	CL 200	
12	22	9¾	X				PVC	4	CL 200	
65	85	7¾		X			PVC	4	CL 200	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	24		X		Granular
					8 Chips

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other site map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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

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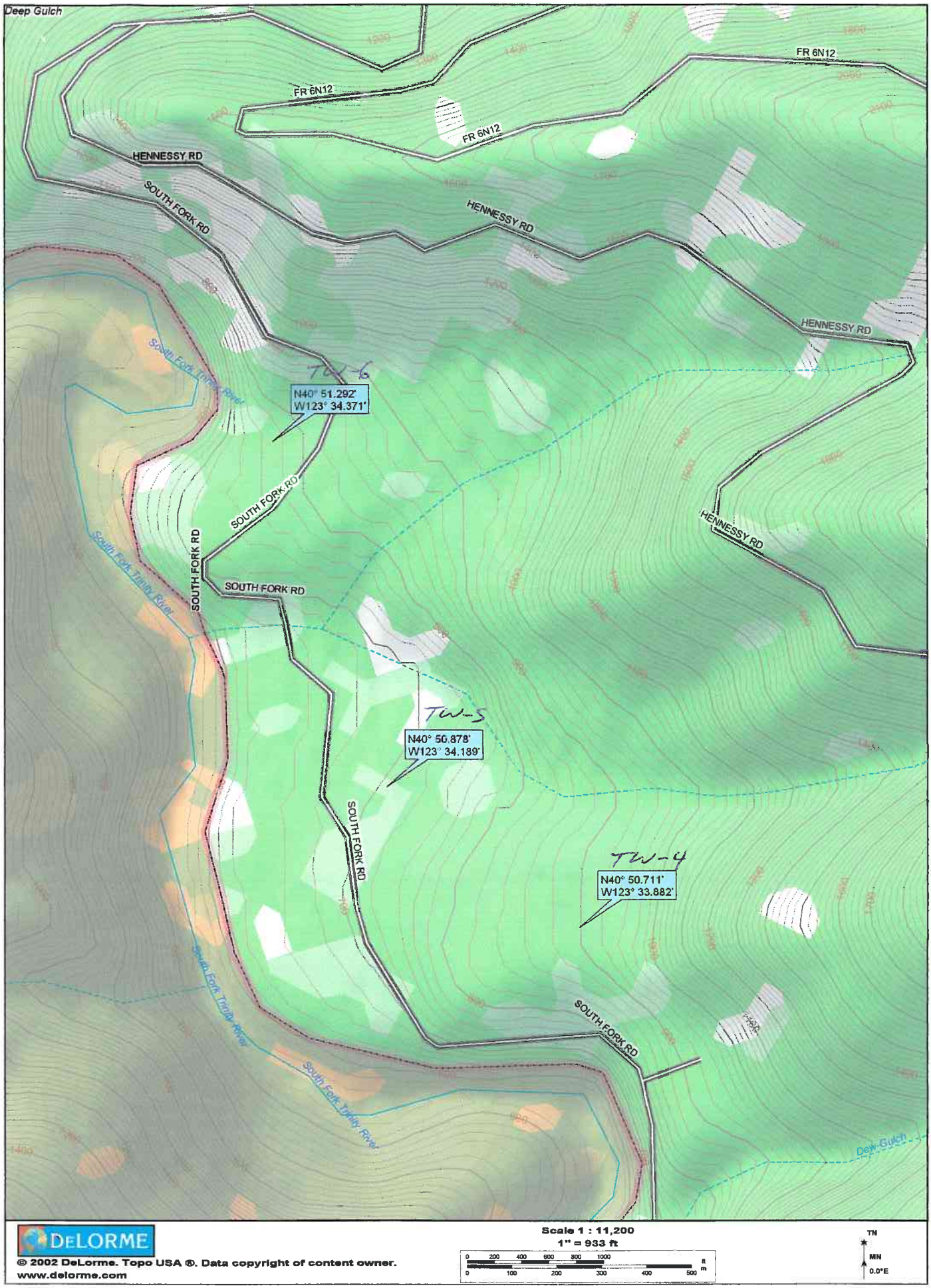
Signed [signature] C-57 LICENSED WATER WELL CONTRACTOR
DATE SIGNED 11-02-05
C-57 LICENSE NUMBER 512406

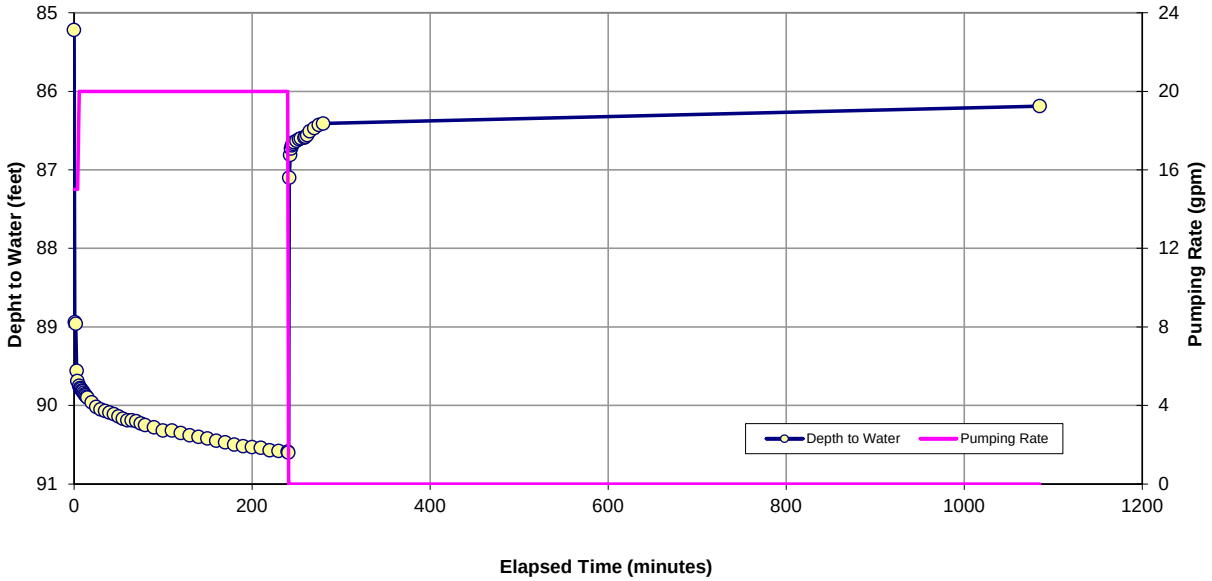
DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

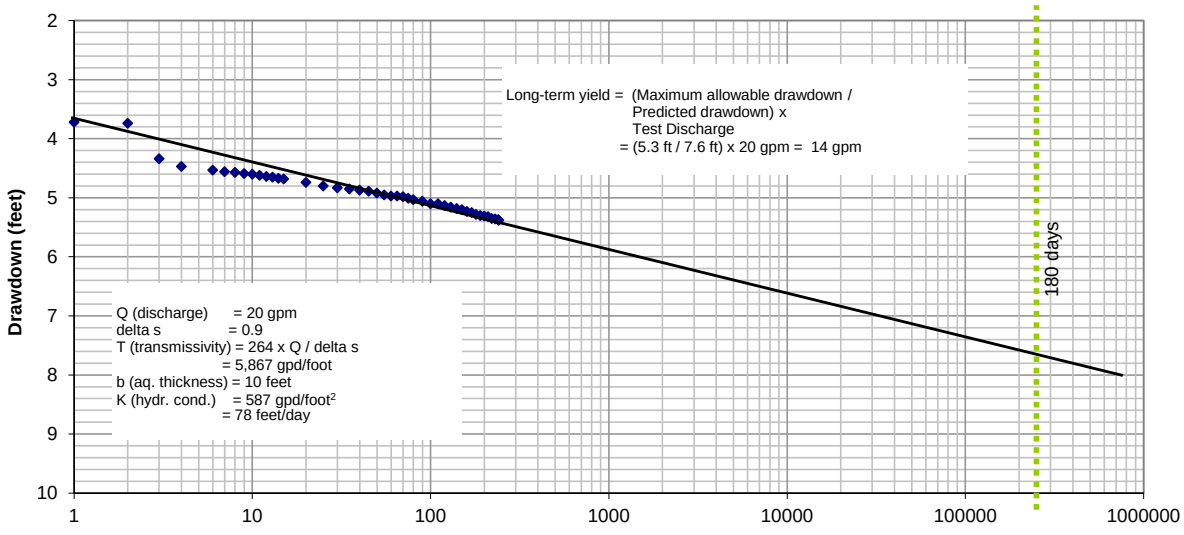


ATTACHMENT B
SITE WELL-YIELD TESTING

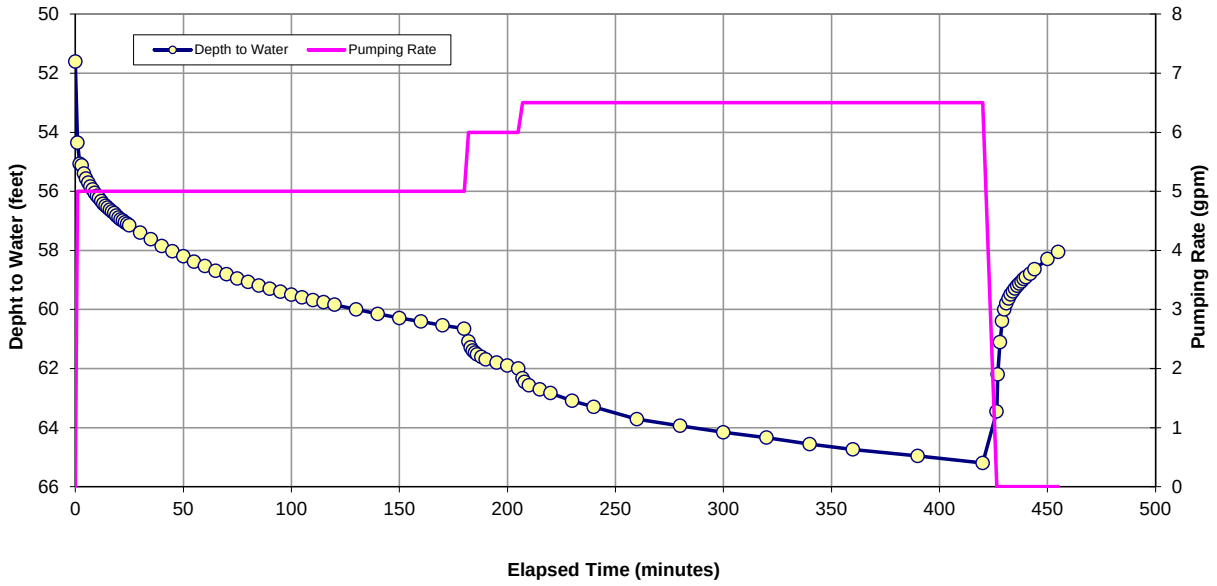
Depth to Water & Pumping Rate, Test on TW-3, 08/22/05
PG&E 36 Site, Trinity County



Drawdown vs. Elapsed Time, Test on TW-3, August 22 - 23, 2005
PG&E 36 Site, Trinity County



Depth to Water & Pumping Rate, Test on TW-6, 10/26/05
PG&E 36 Site, Trinity County



Drawdown vs. Elapsed Time, Test on TW-6, October 26, 2005
PG&E 36 Site, Trinity County