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SAN BERNARDINO COUNTY

SECTION H

WELL REPORT

PRADO EAST WELL PROJECT

FOR

SAN BERNARDINO COUNTY
CHINO, CALIFORNIA

PROJECT NO.: 30.30.0168

Well Service Report

Company Name: *San Bernardino County*	***Date:*** *March 11, 2024*
Well Name: *San Bernardino County – Well #3 and #4*	***Location:*** *33°56'21.35"N, -117°36'50.56"W*
FWC Contact: *Deanna Lestina* ***Department of Public Works - Special Districts*** *Project Management Division* *222 W. Hospitality Lane, 2nd Floor* *San Bernardino, CA 92415-0450*	***Well Tec Services Contact:*** *Larry Lawrence* *909.565.2342* *larry@welltecservices.com* *Mike Rentz* *909.915.0863* *rwelltec@aol.com*

On February 05, 2024, Well Tec Services, Inc. (Well Tec) began the investigation into Wells #3 and #4 for San Bernardino County Department of Public Works Special Districts (Special Districts). The work started with a desktop review of available information associated with the two wells, none was found.

Equipment was mobilized to the well sites (Figure 1) on February 07, 2024, at which time Well Tec personnel cleared access roads and prepared the sites for well access. On February 08, 2024, a crane was mobilized to remove existing pumping equipment from the two wells. After removing pumping equipment, the wells were allowed to settle for a few days. Video logs of each well were completed on February 15, 2024 (Figure 2).

Figure-1

The video logs indicated that Well No. 3 has a 14-inch steel casing to a depth of 341 feet. Mill slotted perforations were found to begin at a depth of 108.6 feet and extended to a depth of 341 feet below the ground surface. The static water level was at a depth of 32.22 feet.

The video logs for Well No. 4 indicated the well has an 8-inch steel well casing extending to a depth of 479-feet. The perforations of the well were not visible due to the heavy rust build up.

After review of the video logs with Special Districts on February 19, 2024, the decision was made to attempt recovery of Well #3 and to put off Well #4 due to the poor condition of the well casing. A diagram of well #3 can be reviewed in Figure 3.

Well Tec personnel mobilized on March 13-14, 2024, to brush the well casing and bail the material left from brushing Well #3. Brush and bail is a common method for well casing cleaning. A brush is used to clean the fouled casing, blank and screen, with most of the debris falling to the bottom of the well. The bailer is used to

"vacuum" the brushed and other settled material from the bottom of the well. The brush and bail process was successful which was documented on March 18, 2024, through a video log of the well (Figure 4).

After completing the brush and bail of Well #3, a video log was done to show if the brush and bail was successful in removing build-up and debris from the well. The video showed the well has a 14-inch steel conductor casing and a 10-inch PVC liner to a depth of 335 feet. Mill slotted perforations were found to begin at a depth of 111 feet and extended to a depth of 335 feet below the ground surface. The static water level was at a depth of 31 feet.

Pumping equipment and appurtenances were installed on March 19, 2024, in preparation of a series of pumping and recovery test of Well #3 (Figure 5). A three-hour, three interval step test was performed on March 20, 2024, with flow rates of 30, 60, and 100 gallon per minute. The results are displayed graphically in Figure 6. After the step test a 24-hour constant rate test was performed, also displayed on Figure 6. The constant rate test ran at 100 gallons per minute for 6-hours at which time dynamic water level was nearing the pump suction. It was determined that it would be better to continue the test at a lower flow rate. The flow rate was dialed back to 90 gallons per minute and then down to 80 gallons per minute at which time the pumping water level stabilized at 288 feet below ground surface, just above the pump inlet at 298 feet below ground surface. Upon completion of the constant rate pumping test the well pump was shut off and the clock was started for a 2-hour water level recovery test, documented in Figure 7. The well did not recover to its static water level of 32.2 feet during the 2-hour test. However, it did recover to 50 feet below ground surface from 288 feet below ground surface at the end of the constant rate test.

After reviewing the results of the Well #3 testing we recommend the installation of a submersible 75 gallon per minute at standard municipal pressure. We also recommend extending the 14-inch conductor with a new concrete pad and pedestal. Figure 8 represents our recommendations graphically.

The project schedule has been included as the last figure for your records (Figure 9).

If you have any questions about our findings, please feel free to contact our team.

Thank you,

Larry Lawrence

Larry Lawrence
Vice President of Operations
larry@welltecservices.com

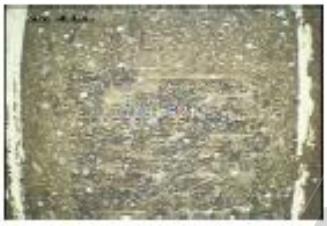
Figure-2

VIDEO LOG REPORT

Company Name: County of SB Prado Well Investigation
Well Name: #3
Location: Prado - Hellman Ave
City: Chino
State: CA
Measured From: Top of Casing

Date: 2/15/2024
Depth: 341'
Water Level: 32.22' **Oil?** No
Operator: Mike **Truck:** 1
Tool Zero: Yes
Reason for Video: Review

Depth	Video Findings	Casing / Perforation Information	
0.3'	14" Steel Casing	**Casing Size:**	**Depth**
3'	Start of 10" PVC Casing	10" PVC	Start 3' to 341'
108.6'	Mill Slot Perf Start		
341'	Bottom of Well		
	Perforations are plugged fill at bottom of well		
		Perforation:	Mill Slot


108.62'


115.48'

166.37'


251.13'


251.14'

341.06' Bottom

Office: (909) 754-7020

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Beaumont, CA 92223

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Figure-3

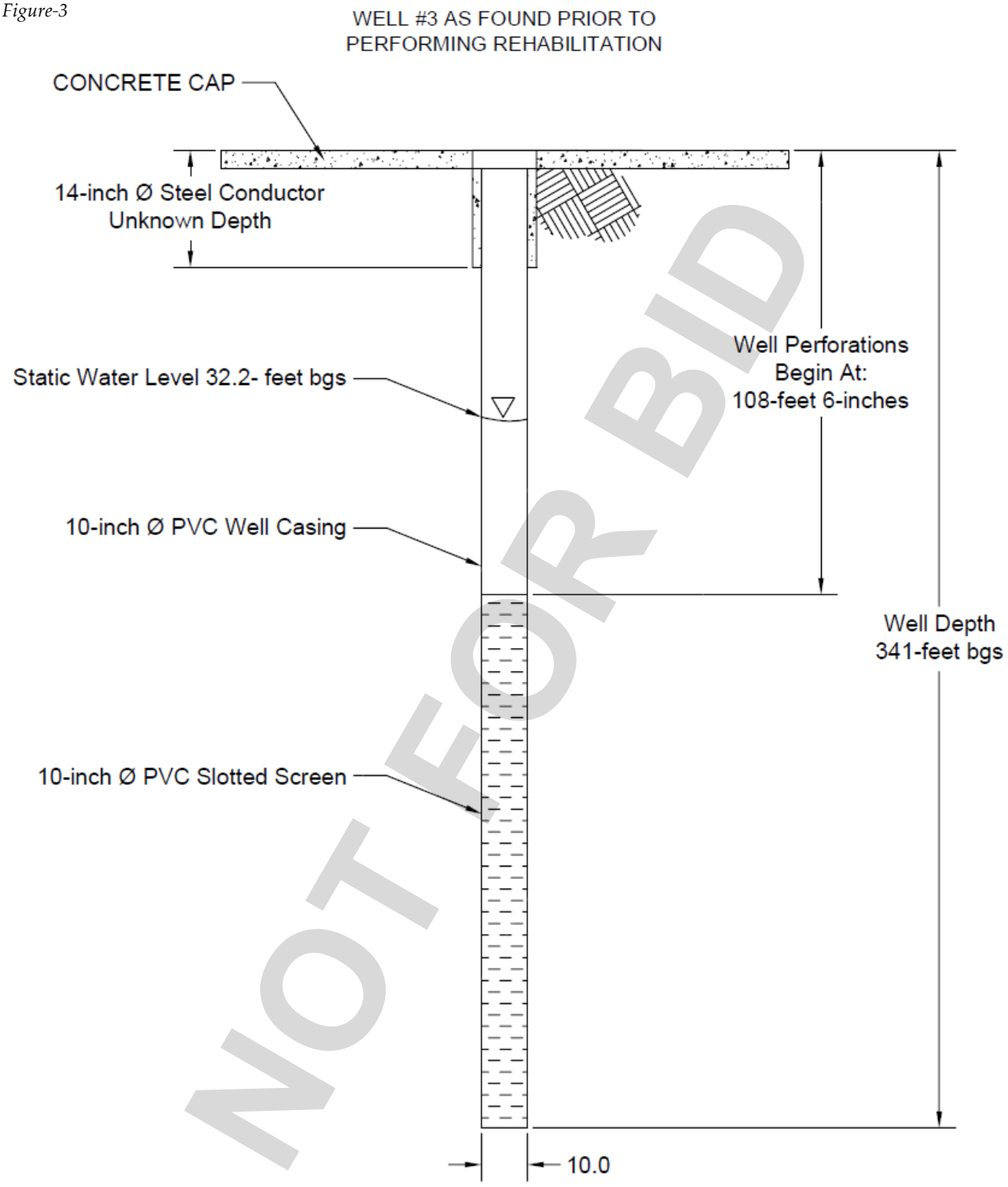


Figure-4

WELL TEC SERVICES

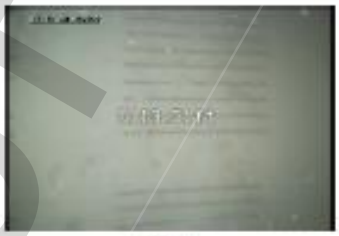
VIDEO LOG REPORT

Company Name: San Bernardino County - Prado
Well Name: Well #3
Location: Hellman Ave
City: Chino
State: California
Measured From: Top of Casing

Date: March 18, 2024
Depth: 335'
Water Level: 31' **Oil?**
Operator: Ryan **Truck:** 1
Tool Zero: Yes
Reason for Video: Review

Depth	Video Findings	Casing / Perforation Information	
03'	14" Steel Casing	Casing Size:	Depth
3'	Start of 10" PVC Casing	10" PVC	Start 3' to 335'
111'	Mill Slot Perf Start		
335'	Bottom of Well		
		Perforation:	Milled Slot


111.35'


113.51'


137.98'

148.22'

247.80'

335.73' Bottom

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Figure 5a: Test Pump, meter, and discharge hose set for pumping test.

Figure 5b: Meter reads 15900 at start of Pumping test, estimate flow from testing ~180,000 gallons.

Figure-6

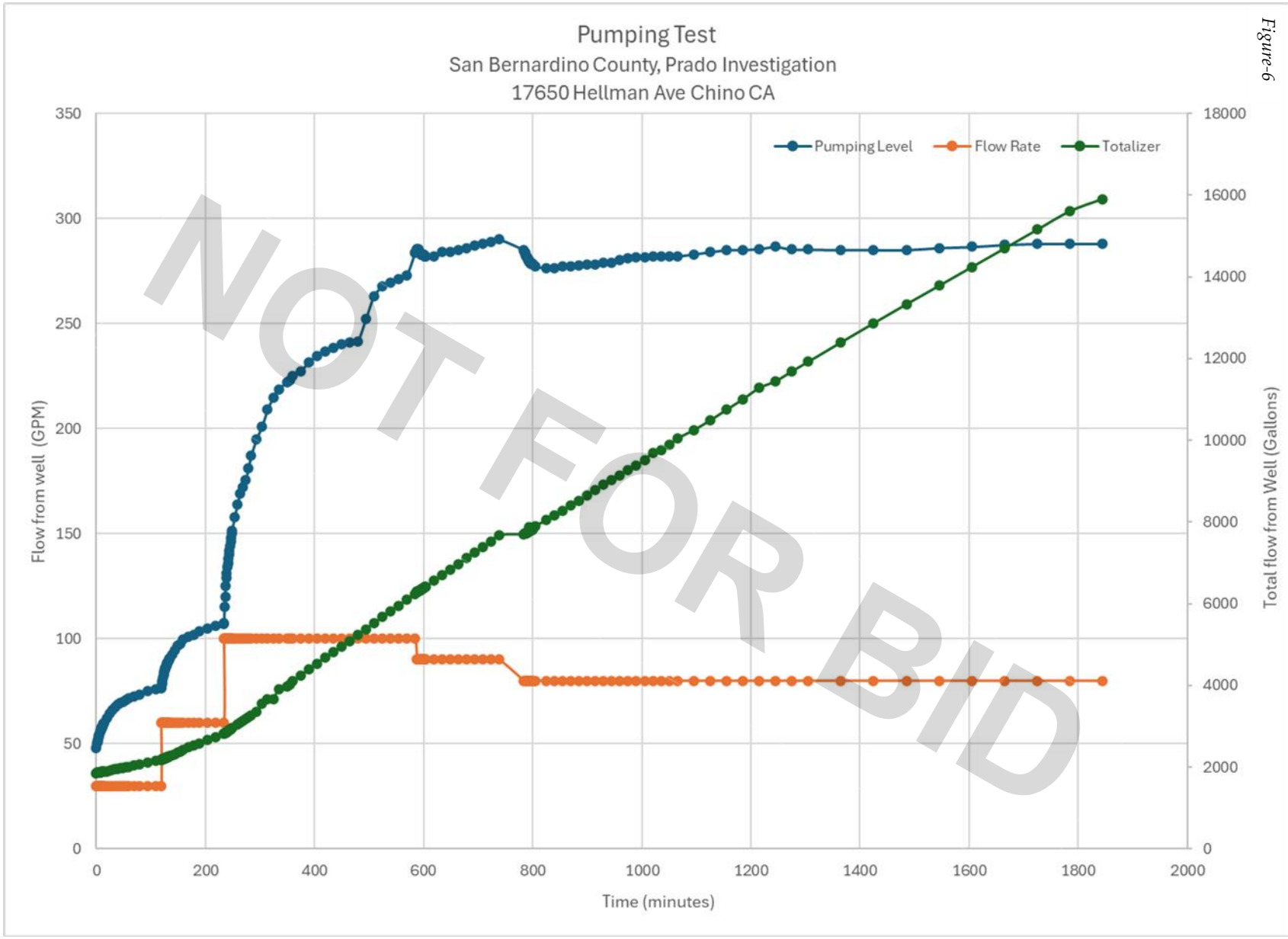


Figure-7

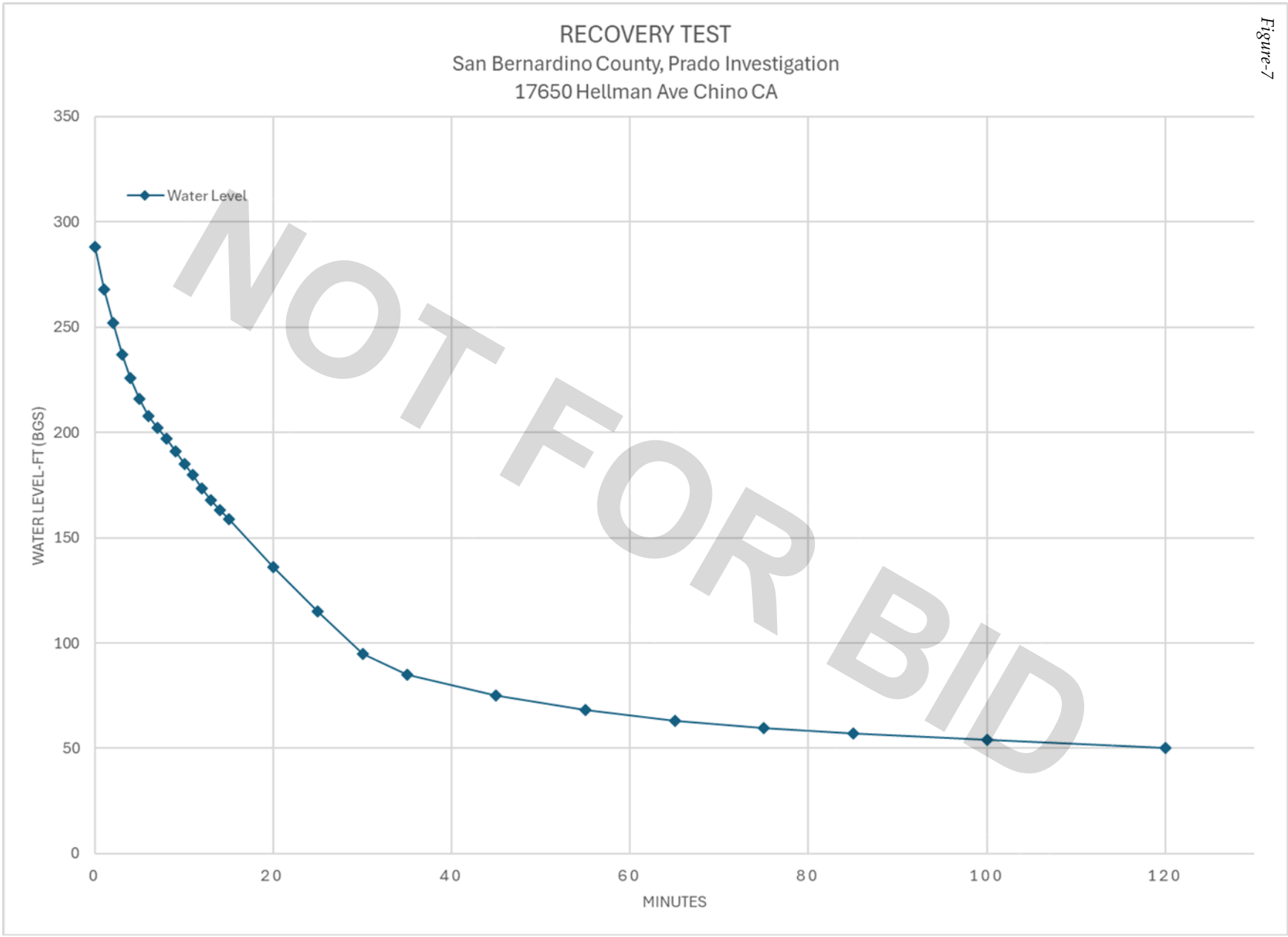
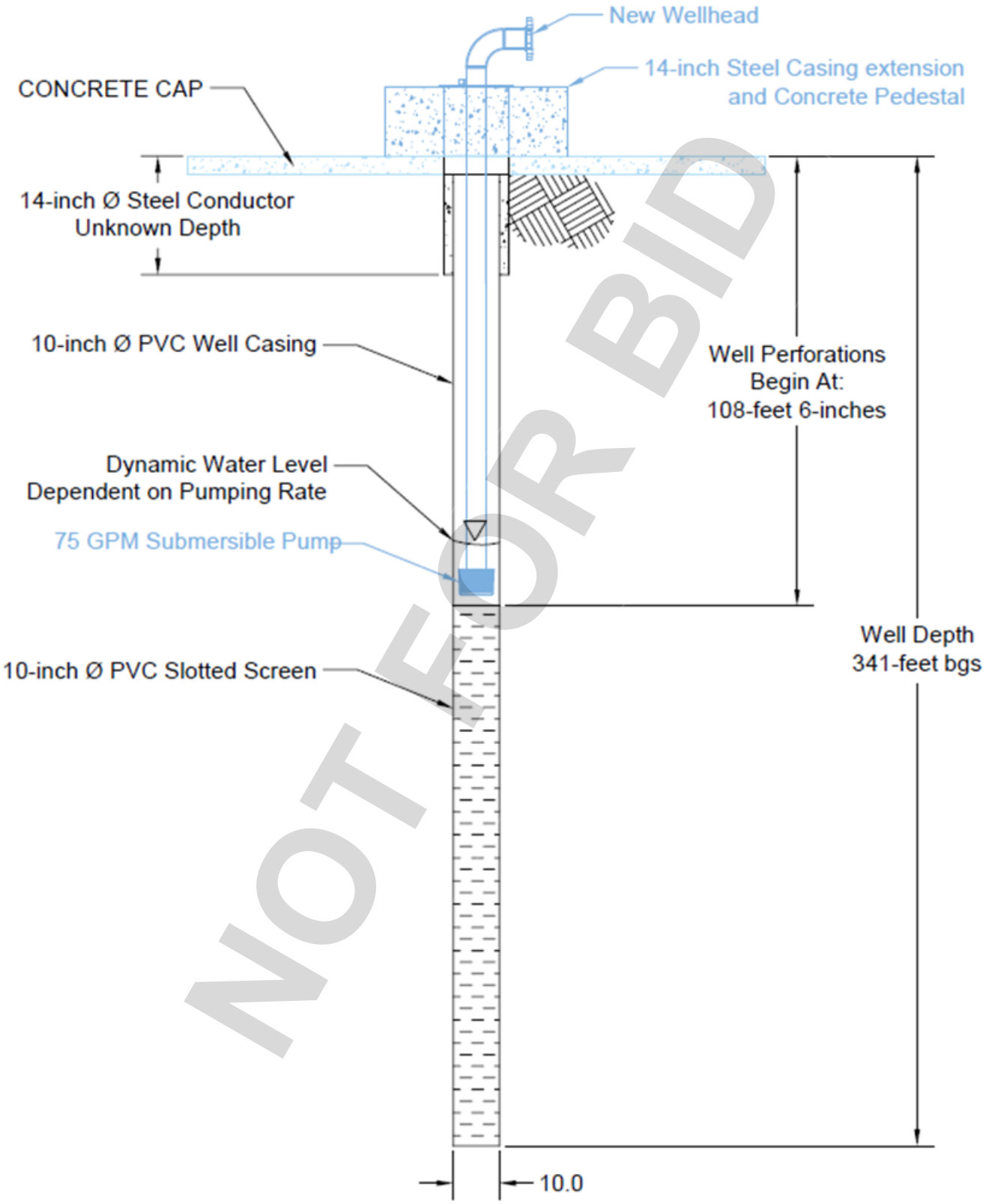
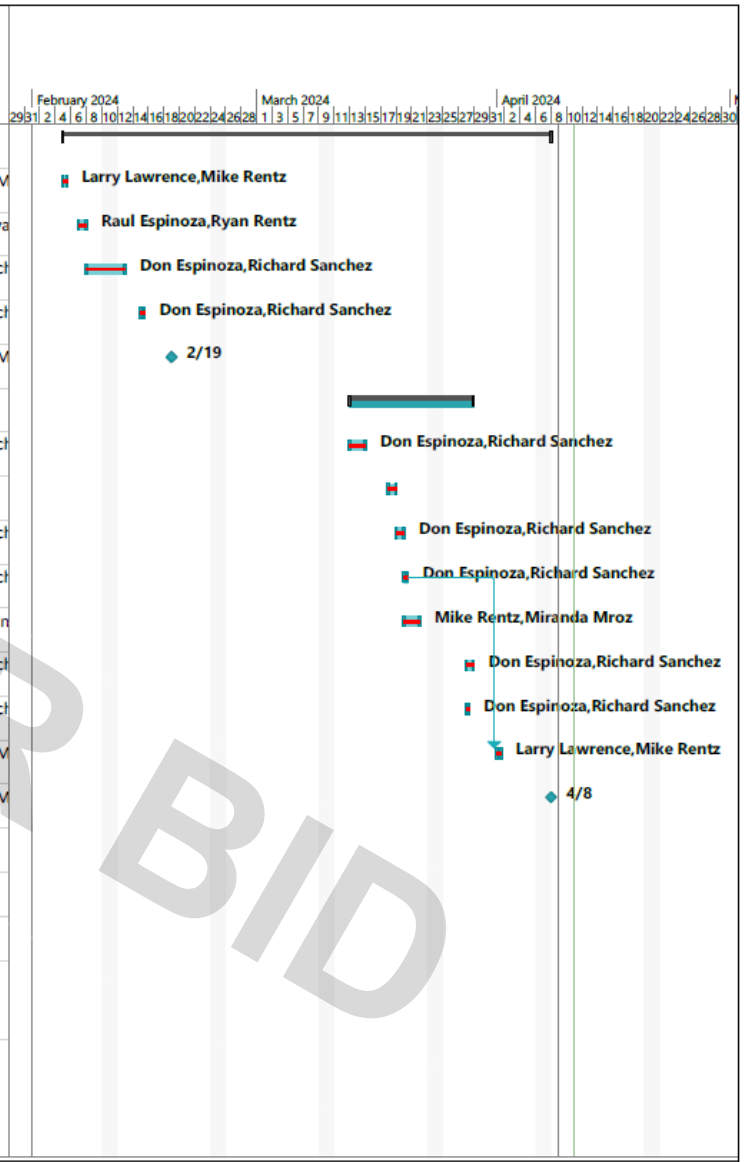

RECOVERY TEST
San Bernardino County, Prado Investigation
17650 Hellman Ave Chino CA
Water Level
WATER LEVEL-FT (BGS)
MINUTES
0
50
100
150
200
250
300
350
0
20
40
60
80
100
120
NOT FOR BID

Figure-8

WELL #3 AFTER REHABILITATION AND TESTING
(RECOMMENDATIONS IN GRAY)



ID	Task Mode	Task Name	Duration	Start	Finish	P	Resource Names
1		**Prado Well Investigation**	**45 days**	**Mon 2/5/24**	**Mon 4/8/24**		
2		Desk Top Review of available Well Information	4 hrs	Mon 2/5/24	Mon 2/5/24		Larry Lawrence,M
3		Mobilization and clear road for Well Access	1 day	Wed 2/7/24	Wed 2/7/24		Raul Espinoza,Rya
4		Mobilize Crane and remove pump equipment	3 days	Thu 2/8/24	Mon 2/12/24		Don Espinoza,Rich
5		Video log of well casing (2-Wells)	4 hrs	Thu 2/15/24	Thu 2/15/24		Don Espinoza,Rich
6		Meet with County to determine next steps	0 hrs	Mon 2/19/24	Mon 2/19/24		Larry Lawrence,M
7		**Path 1 - Brush and Bail (Well #3)**	**12 days**	**Wed 3/13/24**	**Thu 3/28/24**		
8		Brush and Bail (Well #3)	2 days	Wed 3/13/24	Thu 3/14/24		Don Espinoza,Rich
9		Video aqnd access	1 day	Mon 3/18/24	Mon 3/18/24		
10		Install Test Pumps	1 day	Tue 3/19/24	Tue 3/19/24		Don Espinoza,Rich
11		Step test - See Note 1	3 hrs	Wed 3/20/24	Wed 3/20/24		Don Espinoza,Rich
12		24 hour constant rate and recovery test - See Note	2 days	Wed 3/20/24	Thu 3/21/24		Mike Rentz,Miran
13		Removal of test pumps	1 day	Thu 3/28/24	Thu 3/28/24		Don Espinoza,Rich
14		Install locking Well Cover	1 hr	Thu 3/28/24	Thu 3/28/24		Don Espinoza,Rich
15		Report preperation and recommendations	4 hrs	Mon 4/1/24	Mon 4/1/24	1	Larry Lawrence,M
16		Presentation of report and findings to County person	0 hrs	Mon 4/8/24	Mon 4/8/24		Larry Lawrence,M
17							
18							
19							
20		Note 1: Capacity and Production Well Testing will include a 3-hour staged step test at three intervals.					
21		Note 2: Capacity and Production Well Testing will include a 24-hour constant rate test. Pumping test will be follwed by a documented 2-hour recovery period.					



Project: Prado Well Investigatio
Date: Thu 4/11/24

Task	Project Summary	Manual Task	Start-only	Deadline			
Split	Inactive Task	Duration-only	Finish-only	Progress			
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress			
Summary	Inactive Summary	Manual Summary	External Milestone				

Figure-9

Notes:

Well Tec is pleased to provide the reports of the Prado Well Investigations of Well #3 & #4, attached are the field reports for your review. We found Well #3 had a 14" steel conductor casing and a 10" PVC liner to the depth of 341', mill slotted perforations started at 108'6" and extended to 341' BGS provided video on 2/15/24. Static water level was found at a depth of 32'.2" and the perforations were plugged.

On March 13th and 14th Well #4 was brushed and bailed to clean the perforations and the bailer removed the scale that was brushed from the perforations. On March 18th, a video inspection was done to show the effectiveness of the brush and bail which showed the brushing was successful.

On March 20th, a step test was performed at rates of 30gpm, 60gpm, and 100gpm and following with a 24hr test at a start rate of 100gpm which held 100gpm for 6hrs then the pumping level at 285' began to reach the setting level of the pump of 298'. Well Tec then valved back the pump to 90gpm, and the pumping level continued to fall closer the inlet of the pump, pumping gpm was eventually pulled back to 80gpm where a pumping level above the pump was sustained at 288'. Thereafter, a 2 hour recovery test was recorded, and the water table still had not recovered to the starting water table of 32'2" but to 50'. We have provided a recommendation to install a 75gpm that we feel Well #3 can sustain, also we recommend extending the 14" steel casing 24" above grade and a new concrete slab.

Well #4 is an 8" steel well casing extending down to 479'4" and the perforations were not visible due to heavy rust build up. Due to the size and the conditions of Well #3 compared to Well #4 the decision was made to develop Well #3. Well #4 has the potential to be cleaned and brushed if more water is needed for future developments.