



April 28, 2022

954.001.03.004

City of Sebastopol
Public Works Department
Attention: Dante Del Prete, Superintendent
714 Johnson Street
Sebastopol, California 95472

**Re: Groundwater Level Data Transmittal
January through December 2021
City of Sebastopol
Sebastopol, California**

Dear Mr. Del Prete:

This data transmittal has been prepared by PES Environmental, Inc., an NV5 Company (PES), on behalf of the City of Sebastopol (City) to summarize the results of the groundwater level monitoring program performed in 2021 (January through December). The following sections of this transmittal summarize the activities performed and data collected for the subject monitoring period.

GROUNDWATER LEVEL MONITORING PROGRAM

The activities performed for the monitoring period (January through December) included: (1) recording groundwater levels in five City production wells; (2) summarizing regional precipitation data; and (3) preparing groundwater level hydrographs.

Groundwater Level Measurements

Groundwater level data collected during the subject monitoring period (January through December 2021) included groundwater elevations from five City production wells: inactive municipal Well #5, and active municipal Wells #4, #6, #7, and #8. These wells were equipped with Solinst, Inc. (Solinst), electronic submersible “LT Edge Levellogger” absolute (i.e., un-vented) pressure transducers and data logger systems. Additionally, a Solinst “LT Edge Barologger” is installed within Well #4 to provide baseline data for barometric compensation. The pressure transducers/data loggers are programmed to record pressure-head measurements at 20-minute intervals. The pressure-head measurements were barometrically compensated and correlated to groundwater level measurements obtained manually using an electronic water level sounder.

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Due to malfunctions of the telemetry system at Wells #4 and #6, groundwater elevation data were not available for portions of the monitoring period (i.e., August 20th through October 20th for Well #4 and July 14th through October 20th for Well #6). Due to obsolescence of Solinst telemetry units and continued malfunctions/failures of the Solinst equipment, new water level monitoring systems were installed in the five City of Sebastopol wells on October 21, 2021. PES equipped the wells with In-Situ Inc., electronic submersible “LevelTroll®” vented water level pressure transducers and “VuLink®” cellular telemetry devices. The vented pressure transducers automatically compensate for barometric pressure changes. The VuLink® device installed at Well #8 ceased transmitting data on December 5, 2021 and was sent to the manufacturer for evaluation. In-Situ provided a new replacement unit, which will be installed at Well #8 following the City’s pump replacement project. PES understands the pump replacement work is anticipated to be completed in June 2022.

Precipitation Data

Daily precipitation records maintained by the National Oceanic and Atmospheric Administration are summarized on Table 1. The precipitation data (reported in total inches per day) were measured at the Sonoma County Airport, Santa Rosa, California (Station ID: USW00023213). As indicated in Table 1, a total of 30.00 inches of rain was recorded during the monitoring period.

Groundwater Level Hydrographs

Following conversion of the pressure-head measurements to depth-to-groundwater levels, groundwater level hydrographs were prepared for each of the five City wells (Plates 1 through 5). During the subject monitoring period (January through December), observed groundwater levels were generally stable with seasonal variations related to precipitation and associated groundwater recharge.

CLOSURE

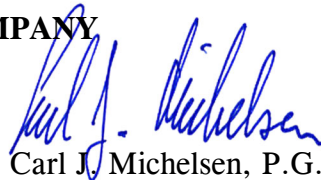
PES appreciates the opportunity to be of service to the City and in providing assistance with the Groundwater Level Monitoring Program. Should you have any questions regarding this information, please call Pete Gorman at (415) 798-3029.

Yours very truly,

PES ENVIRONMENTAL, INC., AN NV5 COMPANY



Peter D. Gorman, P.G., C.HG.
Associate Hydrogeologist



Carl J. Michelsen, P.G., C.HG.
Principal Geochemist

cc: Reyna Ramirez – City of Sebastopol (paper copy)

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Attachments: Table 1 – Summary of Precipitation Totals

Plate 1 – Groundwater Level Hydrograph, Municipal Well #4

Plate 2 – Groundwater Level Hydrograph, Municipal Well #5

Plate 3 – Groundwater Level Hydrograph, Municipal Well #6

Plate 4 – Groundwater Level Hydrograph, Municipal Well #7

Plate 5 – Groundwater Level Hydrograph, Municipal Well #8

TABLE

Table 1
Summary of Precipitation Totals
Sonoma County Airport
Santa Rosa, California

Day	Daily Precipitation Totals (inches) for 2021											
	Jan-2021	Feb-2021	Mar-2021	Apr-2021	May-2021	Jun-2021	Jul-2021	Aug-2021	Sep-2021	Oct-2021	Nov-2021	Dec-2021
1	0.06	0.41	--	--	--	--	--	--	--	--	0.66	--
2	0.07	0.18	--	--	--	--	--	--	--	--	--	--
3	0.02	T	--	--	--	--	--	--	--	--	0.20	--
4	0.73	--	--	--	--	--	--	--	--	--	0.08	--
5	--	--	0.25	T	--	--	--	--	--	--	T	T
6	0.19	--	0.02	--	--	--	--	--	--	--	0.02	0.03
7	0.04	--	--	--	--	--	--	--	--	--	T	--
8	0.17	--	0.14	--	--	--	--	--	--	--	1.06	0.03
9	--	T	0.40	--	--	--	--	--	T	--	0.85	--
10	0.03	--	0.37	--	--	--	--	--	0.04	--	T	--
11	--	0.63	--	--	--	--	--	--	--	--	--	0.04
12	T	T	--	--	--	--	--	--	--	--	--	1.82
13	--	0.11	--	--	--	--	--	--	--	--	--	1.13
14	--	0.08	0.40	--	--	--	--	--	--	--	--	0.19
15	--	0.03	--	--	--	--	--	--	--	--	--	1.04
16	--	--	--	--	--	--	--	--	--	--	--	0.02
17	--	--	--	--	--	--	--	--	--	0.09	T	--
18	--	0.08	1.06	--	--	--	--	--	0.07	T	0.01	--
19	--	0.09	0.01	--	T	--	--	--	--	0.76	0.05	--
20	--	0.16	--	--	--	--	--	--	--	0.70	--	T
21	--	--	--	--	--	--	--	T	--	0.89	--	0.33
22	0.17	--	--	--	--	T	--	T	--	0.75	--	0.31
23	--	--	--	T	--	--	--	--	--	0.97	T	1.18
24	0.08	--	--	T	--	--	--	--	--	6.09	T	0.04
25	--	--	--	0.08	--	--	--	--	--	0.26	--	0.61
26	1.50	--	--	0.01	--	--	--	--	--	0.09	--	0.29
27	0.64	--	--	--	--	--	--	--	0.04	--	--	0.36
28	0.16	--	--	--	--	--	--	--	--	--	T	0.19
29	--	na	--	--	--	--	--	--	--	--	T	0.14
30	--	na	--	--	--	--	--	--	--	0.07	T	--
31	0.03	na	--	na	--	na	--	--	--	0.10	na	--
Total (inches)	3.89	1.77	2.65	0.09	0.00	0.00	0.00	0.00	0.15	10.77	2.93	7.75
Total Precipitation (in inches) for January through December: 30.00												

Notes:

Source of Data: National Oceanic and Atmospheric Administration (NOAA)

Preliminary Record of Climatological Observations for Sonoma County

Airport - Cooperative Station Network (Station ID: USW00023213)

-- = No measurable/reported precipitation

T = Trace precipitation event

na = Not Applicable

PLATES

Plate 1
Groundwater Level Hydrograph - Well #4
City of Sebastopol Municipal Wellfield
Sebastopol, California

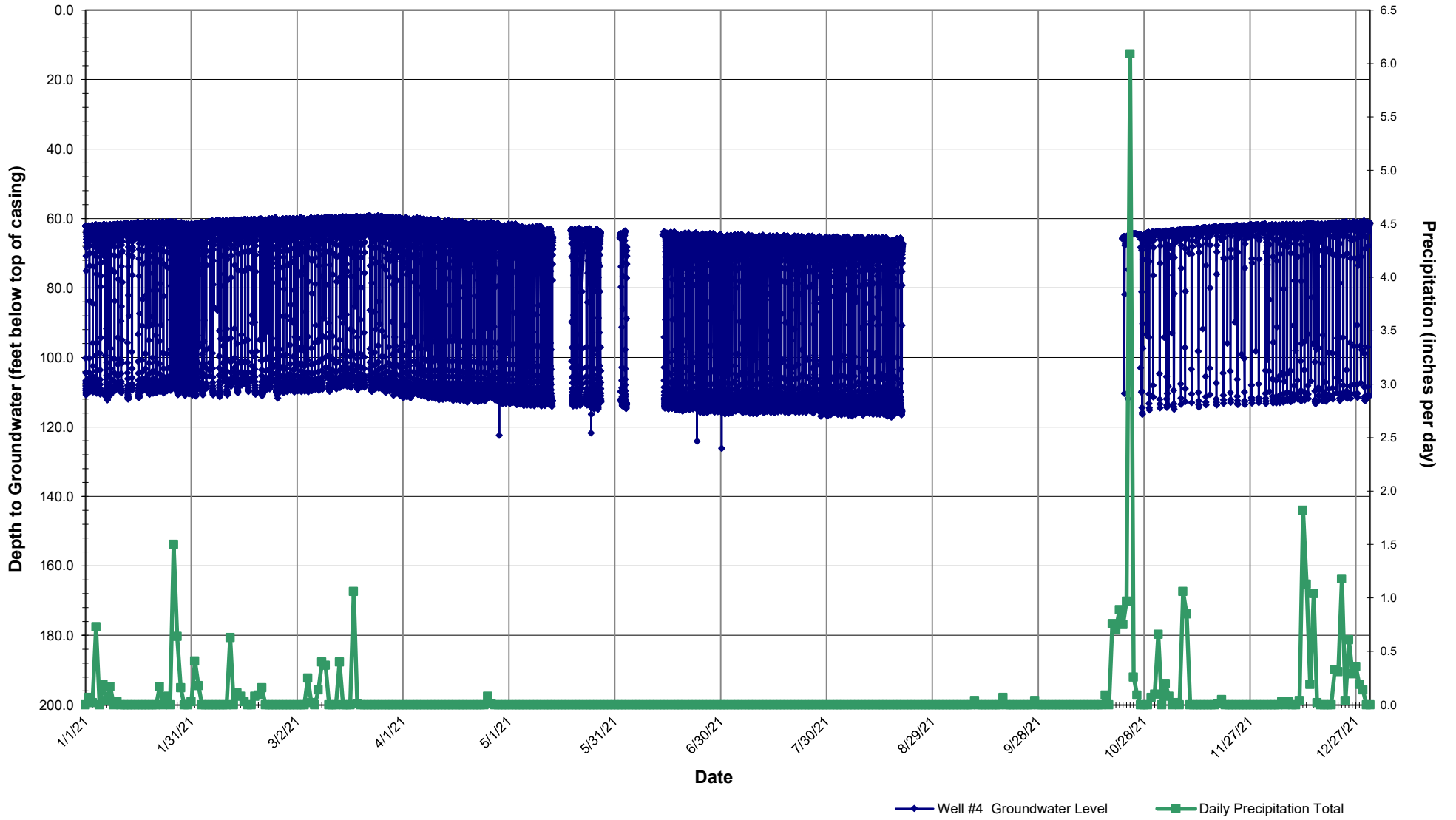


Plate 2
Groundwater Level Hydrograph - Well #5
City of Sebastopol Municipal Wellfield
Sebastopol, California

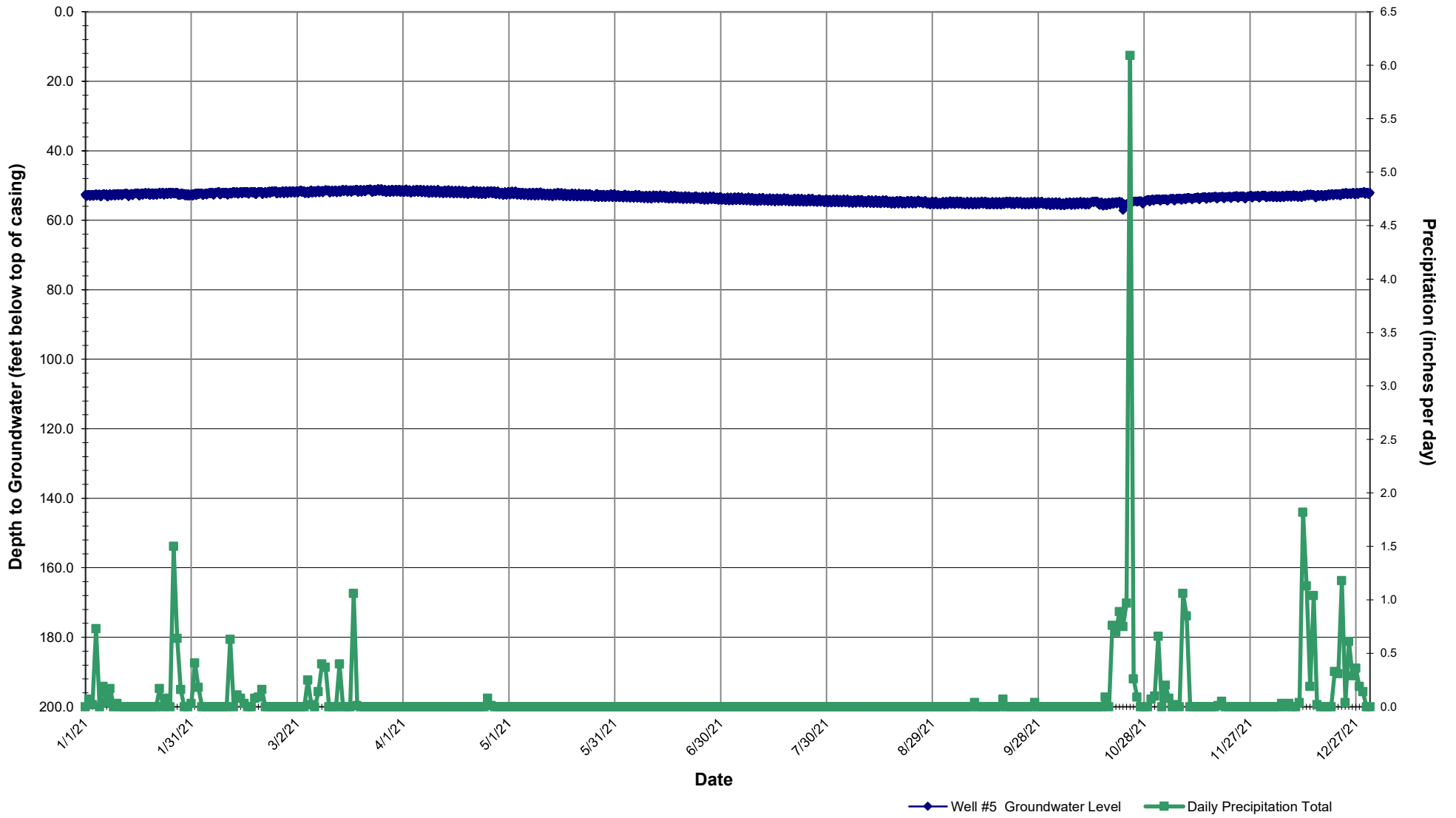


Plate 3
Groundwater Level Hydrograph - Well #6
City of Sebastopol Municipal Wellfield
Sebastopol, California

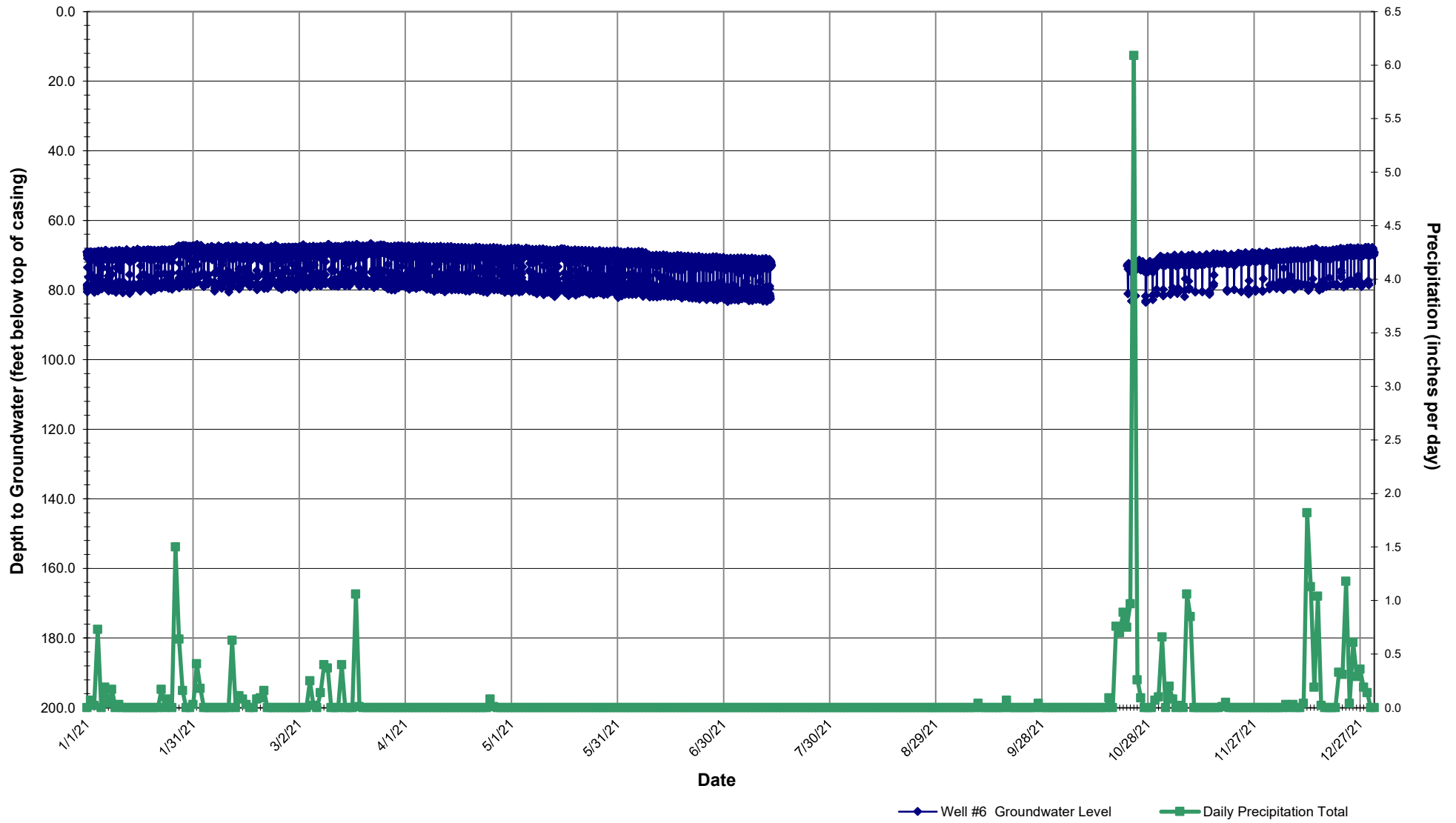
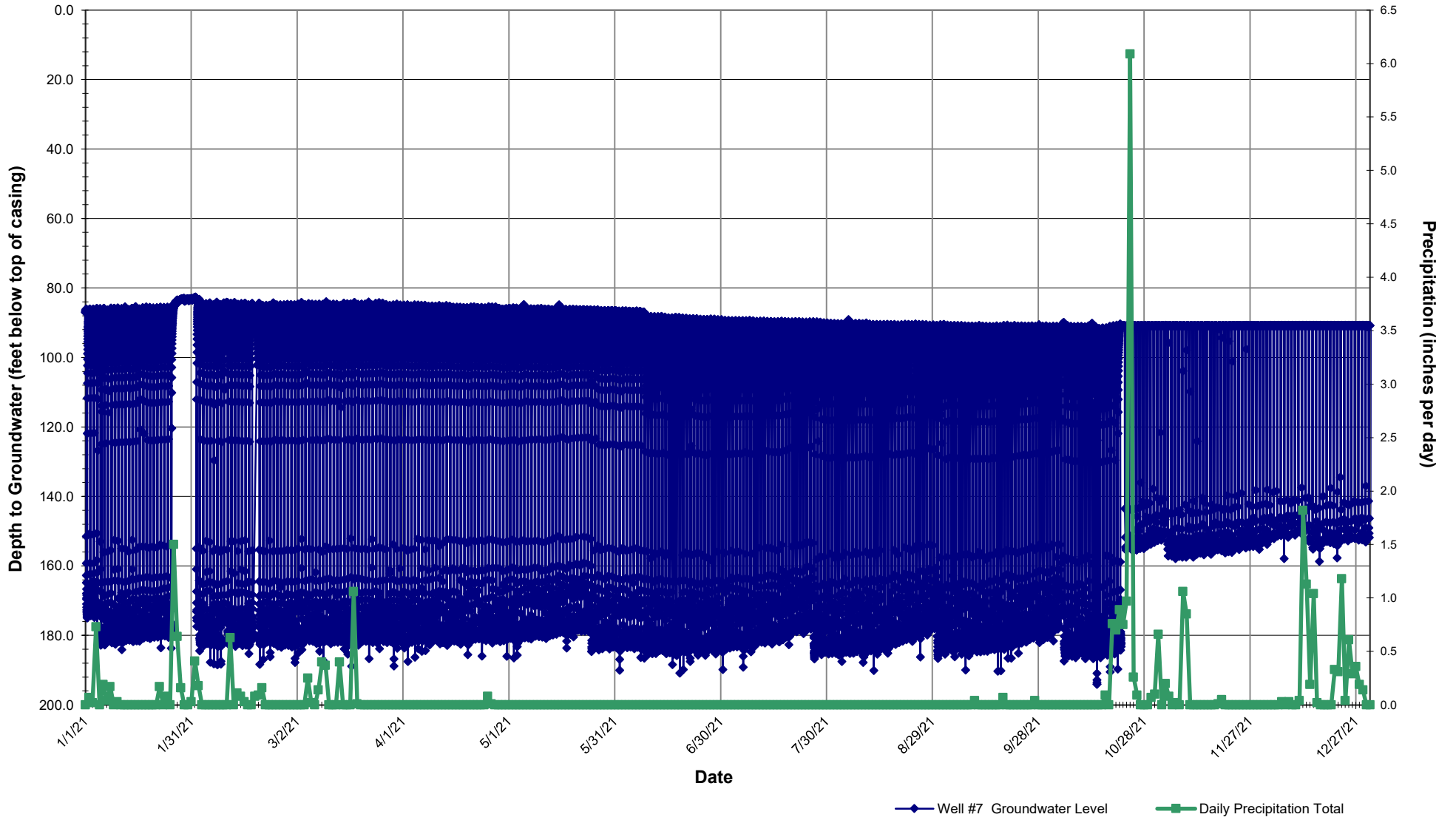


Plate 4
Groundwater Level Hydrograph - Well #7
City of Sebastopol Municipal Wellfield
Sebastopol, California



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Plate 5
Groundwater Level Hydrograph - Well #8
City of Sebastopol Municipal Wellfield
Sebastopol, California

