Groundwater Report

Spring 2015

San Joaquin County
Flood Control and Water Conservation District

San Joaquin County
Flood Control and Water Conservation District

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Copies of the Spring 2015 Groundwater Report may be purchased for $30 and 36”X48” Contour Maps for $25 each from:

San Joaquin County Department of Public Works
P.O. Box 1810
Stockton, California 95201
Make checks payable to: San Joaquin County Department of Public Works

Acknowledgements

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This Groundwater Report is a product of the commitment that the San Joaquin County Flood Control and Water Conservation District together with many other interested agencies made to sustain and enhance the groundwater resources of the Eastern San Joaquin Basin. The District extends thanks to…

California Water Service

City of Lathrop

City of Lodi

City of Manteca

City of Stockton Municipal Utilities Department

East Bay Municipal Utility District

Libby-Owens-Ford, Lathrop

Morada Area Association

Newark Sierra Paperboard Company

Pacific Gas and Electric Company

San Joaquin County Department of Public Works

State of California, Department of Water Resources, Central District

Stockton East Water District

United States Bureau of Reclamation

United States Geological Survey

Most of all, we would like to thank all of the individual well owners, who give us access to their wells and in some cases some of their time.

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San Joaquin County Flood Control and Water Conservation District
Spring 2015 Groundwater Report

Introduction

Since the fall of 1971, the San Joaquin County Flood Control and Water Conservation District has monitored groundwater levels and groundwater quality and has published the data in the Semi-annual Groundwater Report. This report utilizes data from federal, state and local government agencies as well as non-governmental sources.

Water level data is collected on a semi-annual basis, during the months of April and October, to observe groundwater levels before and after peak groundwater pumping conditions. Over 550 wells, of which 270 are measured by County staff, are included in the Monitoring Program. The exact number of wells varies from year to year, depending on circumstances such as destructions, new well construction, well accessibility, and well condition.

Purpose

The purpose of the Semi-annual Groundwater Report is to provide information on groundwater conditions in San Joaquin County and to publish the results of the groundwater monitoring program which consists of the following:

1. Monitor groundwater quality along a North-South line from the north of the City of Stockton to the City of Lathrop.
2. Measure groundwater levels on a County-wide basis.

In general, water quality data is more meaningful after peak production which usually occurs during the summer months. Therefore, groundwater quality data will be published only in the fall report. The groundwater depth and elevation data will be published both in the spring and fall.

Saline intrusion from the west is a continuing concern affecting the quality of groundwater in the Basin. Groundwater quality analysis is completed on an annual basis, from approximately 18 municipal and domestic supply wells (exact number varies from year to year) located in proximity to the saline front.

Procedure

Groundwater quality sampling is conducted on an annual basis during the month of October, along with the Fall Measurements. Approximately 18 wells are currently sampled. The exact number of wells may vary depending on well access and other conditions. Replicate groundwater samples (two) are analyzed for Chloride (Cl^-) using the Thomas Scientific 675 pH/ISE meter in conjunction with the ISE Cl^- Combination Electrode, and analyzed for Electrical Conductivity (EC) using DiST 3 by Hanna Instruments. Total Dissolved Solids (TDS) are calculated using the formula: TDS = 0.64 X EC (umhos). Data is then stored in a database for accessibility and reporting requirements.

Water Level Measurements are performed with the use of either a steel chain or sounder. Data is then immediately recorded in field books and then stored in a database for accessibility and reporting requirements.

Section 1– Annual Rainfall Distribution

Summary of Annual Rainfall Distribution

The groundwater basin in San Joaquin County responds to changes in annual precipitation. There are four total annual precipitation graphs and four monthly precipitation graphs included in this report (Figures 1-1 through 1-8). These graphs reflect three areas located across San Joaquin County and one area in Calaveras County. The station located at the Stockton Fire Station No. 4 as well as the station located in Tracy, has pertinent data beginning in 1940. Lodi and Camp Pardee stations have data from 1949 to 2015.

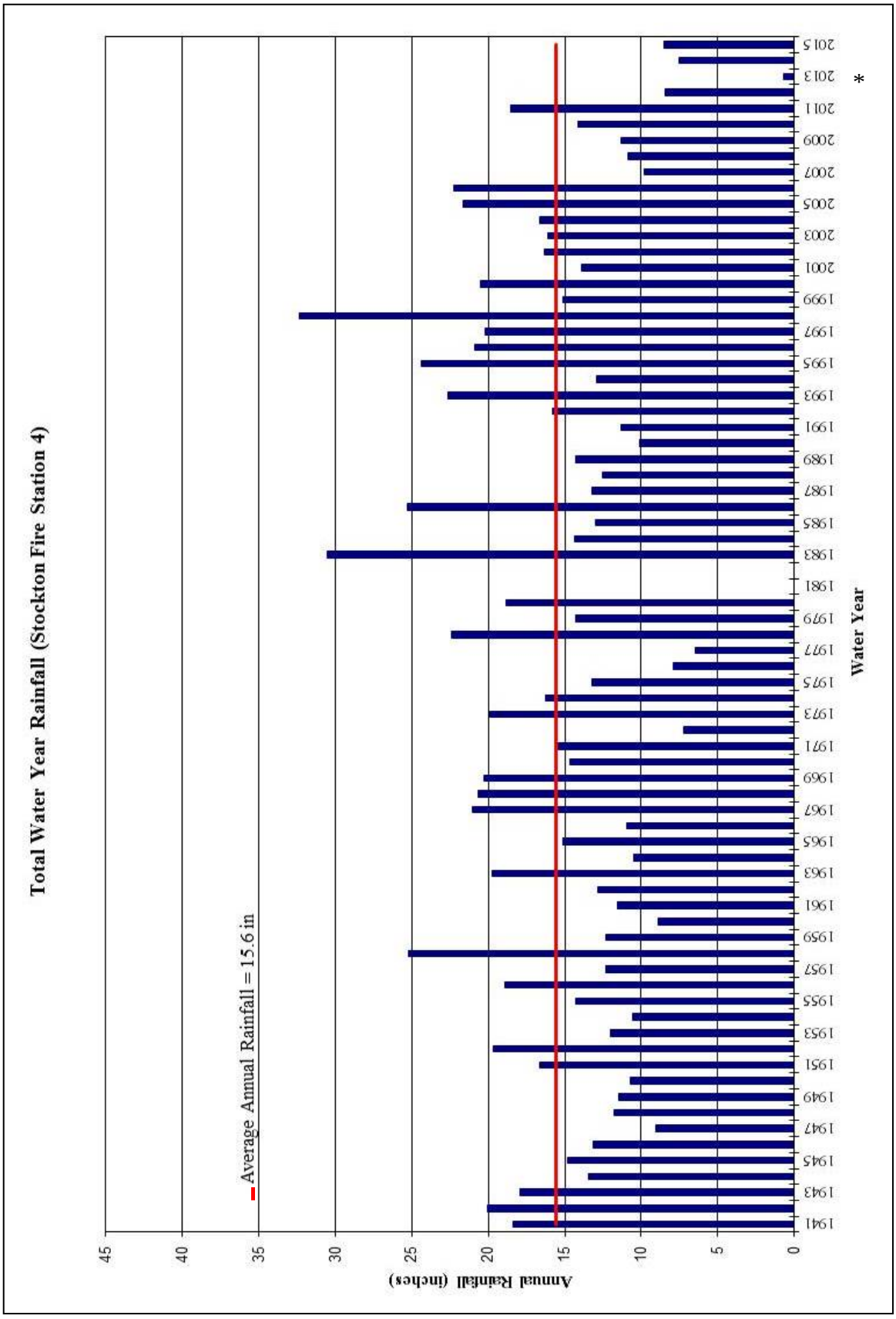

Figure 1-1 Total Annual Rainfall (Stockton Fire Station 4)

* Data for 2012-2013 Water Year is missing. Total in graph does not reflect actual precipitation totals.

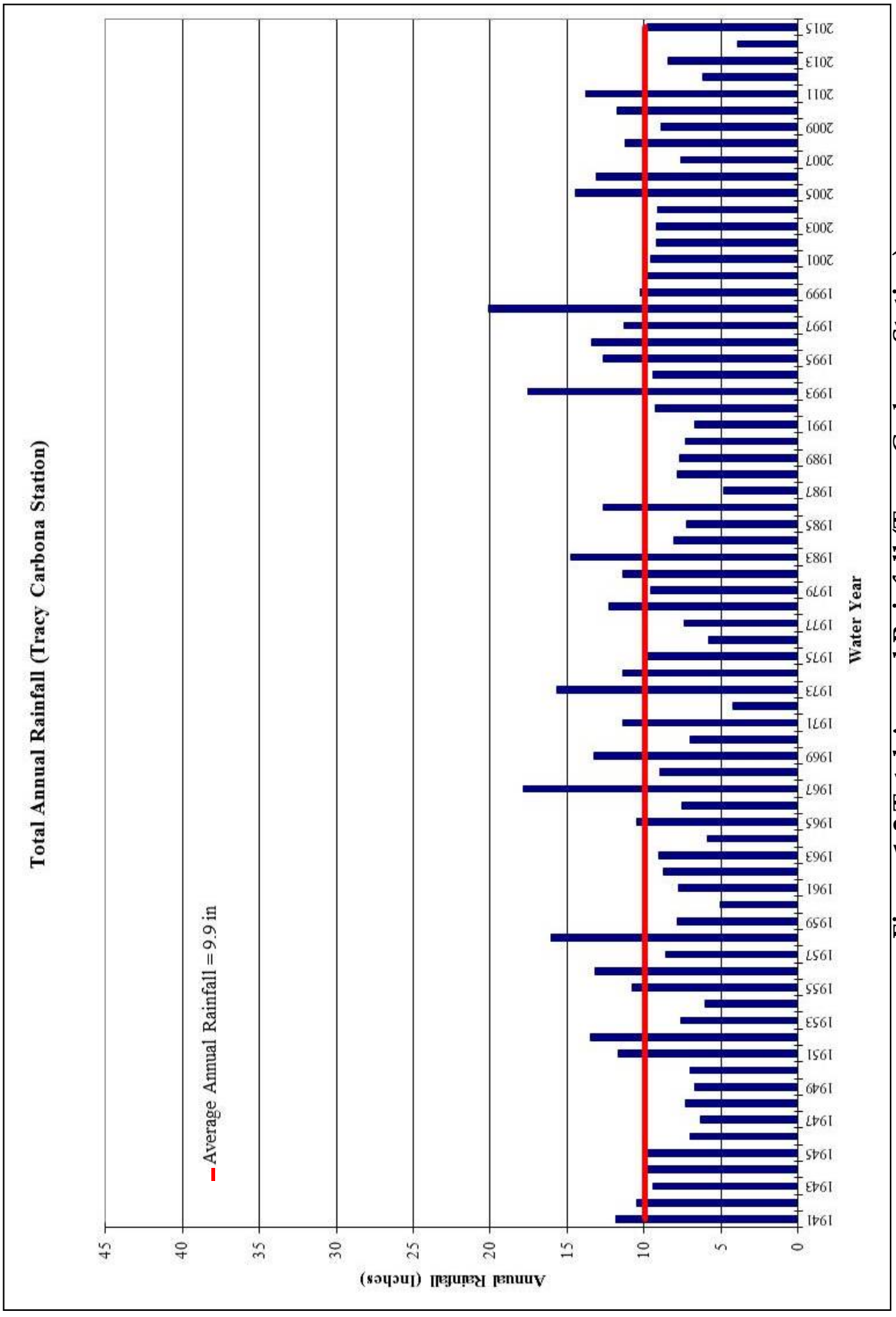

Figure 1-2 Total Annual Rainfall (Tracy Carbona Station)

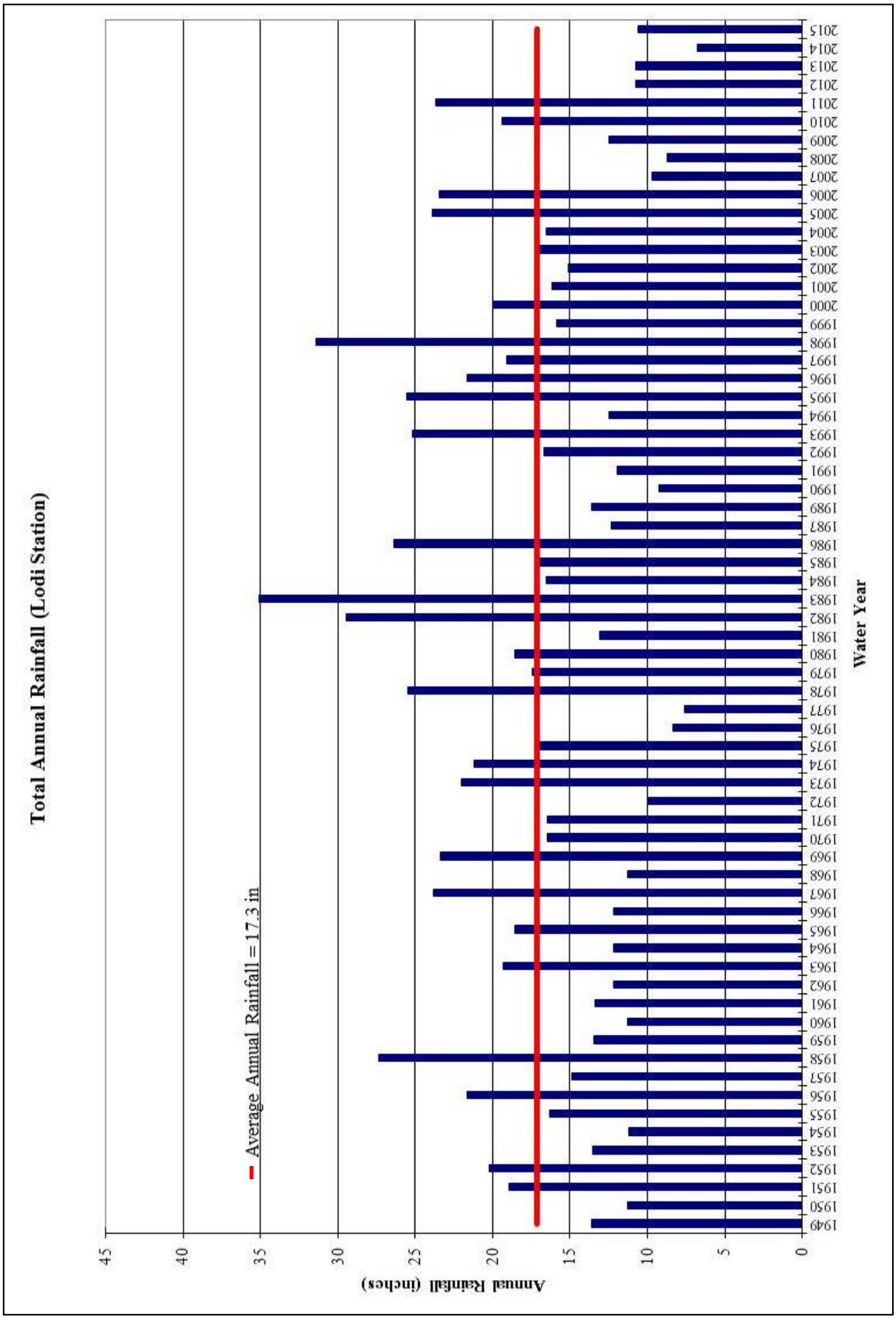

Figure 1-3 Total Annual Rainfall (Lodi Station)

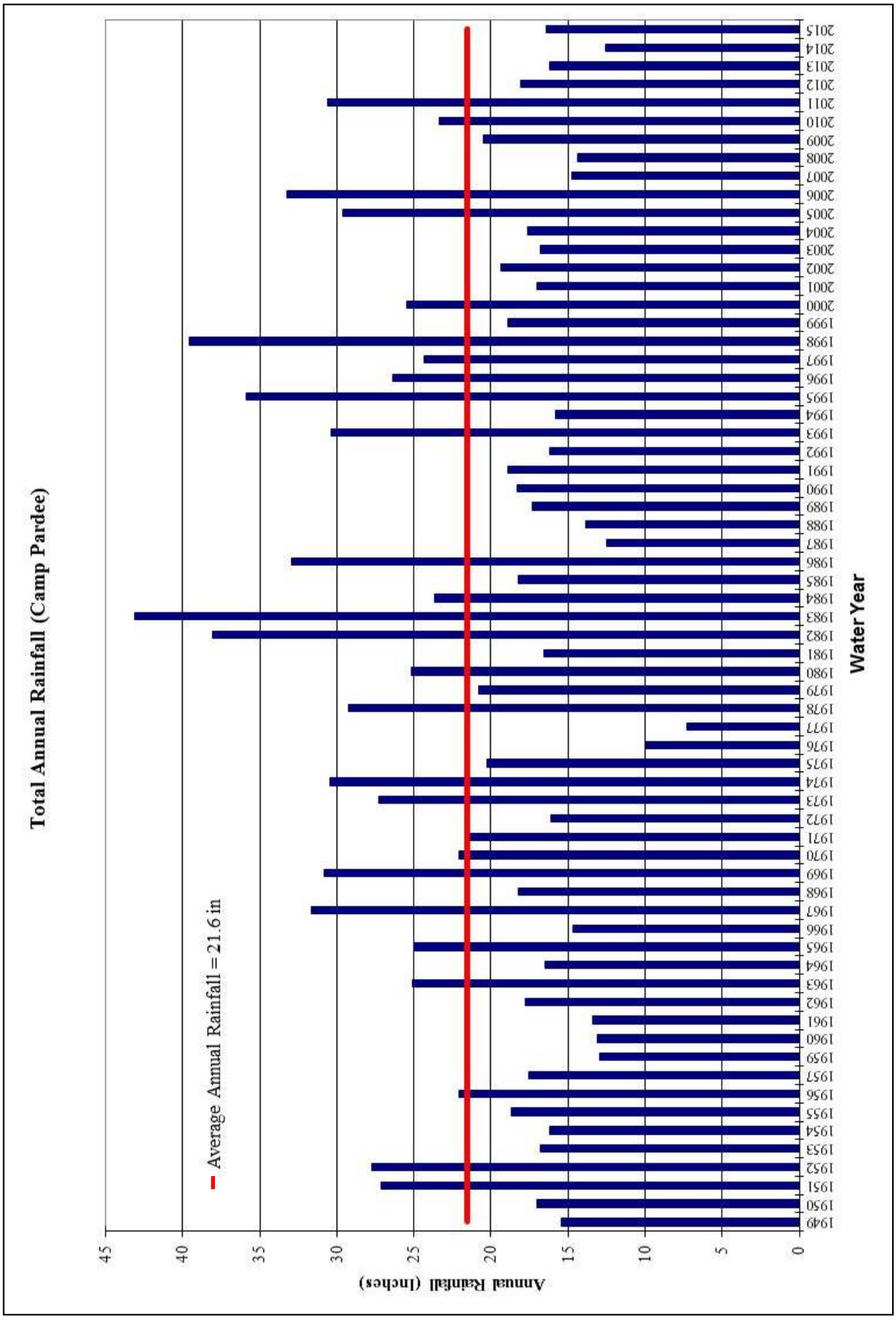

Figure 1-4 Total Annual Rainfall (Camp Pardee)

Monthly Rainfall Distribution

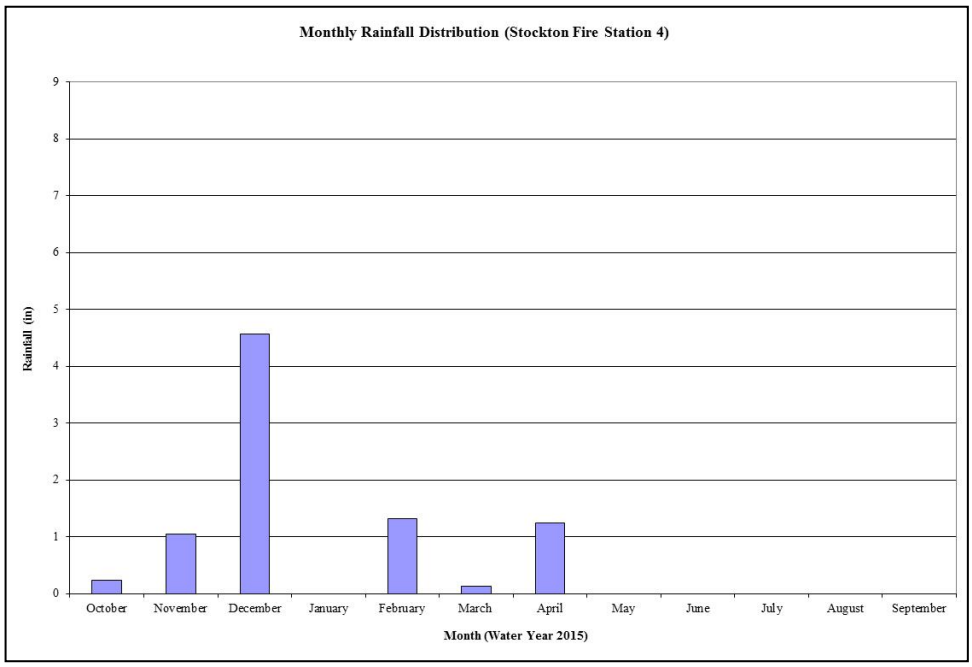

Figure 1-5 Monthly Rainfall Distribution (Stockton Fire Station 4)

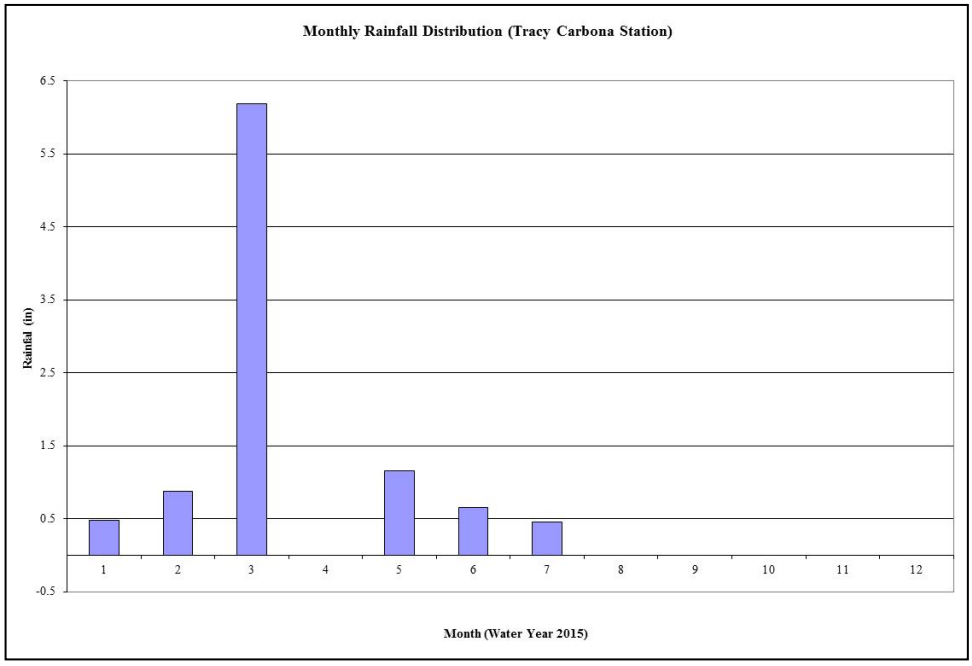

Figure 1-6 Monthly Rainfall Distribution (Tracy Carbona Station)

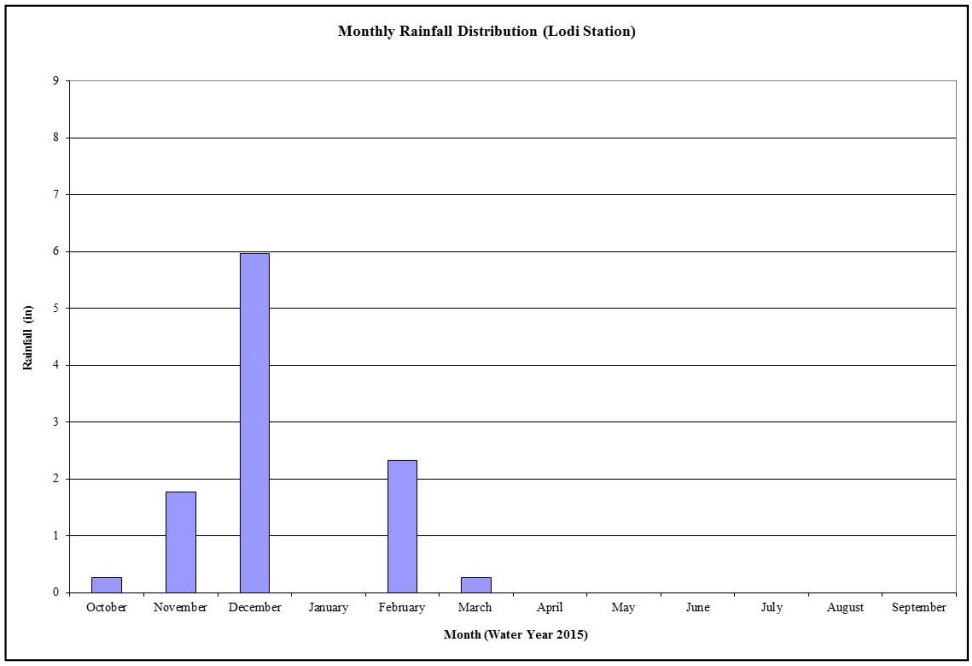

Figure 1-7 Monthly Rainfall Distribution (Lodi Station)

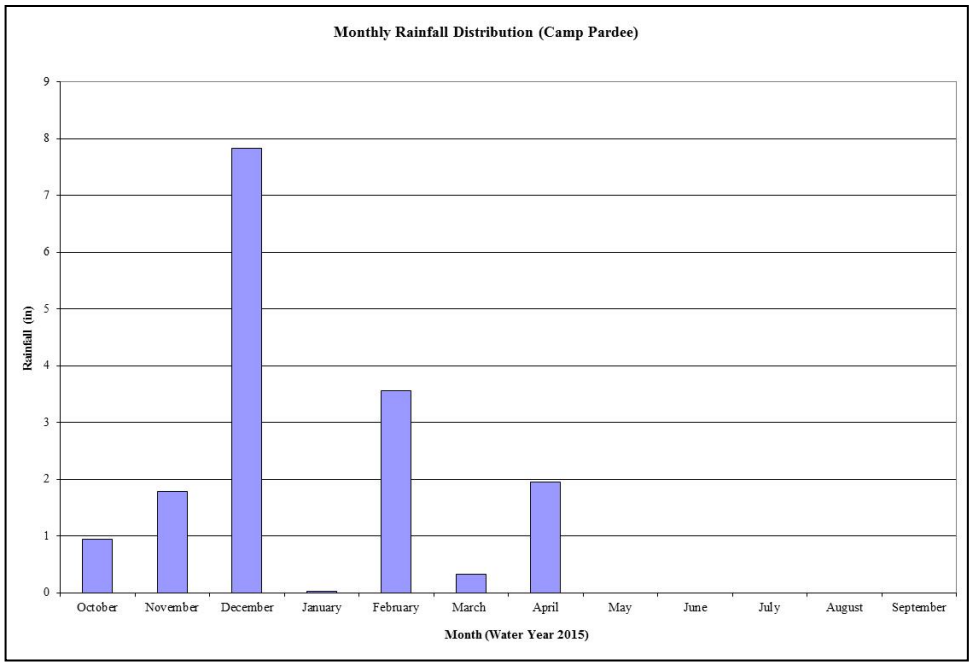

Figure 1-8 Monthly Rainfall Distribution (Camp Pardee)

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Section 2 – Groundwater Elevation Monitoring

Summary of Groundwater Elevations

The information contained in the Spring 2015 Groundwater Report is summarized as follows

GROUNDWATER LEVELS

Central San Joaquin Water Conservation District (CSJWCD) – Sixty-two (62) wells are monitored in CSJWCD. Thirty-seven (37) wells were able to be compared. Thirty-six (36) show decreases in groundwater levels. No change was observed in one (1) well.

North San Joaquin Water Conservation District (NSJWCD) – One-hundred thirty-eight (138) wells are monitored in NSJWCD. One-hundred five (105) wells were able to be compared. Eighty (80) wells decreased in groundwater levels. Twenty-five (25) wells increased in groundwater levels.

Oakdale Irrigation District (OID) – Five (5) wells are monitored in the OID area. No wells were able to be compared.

Stockton East Water District (SEWD) – One-hundred twenty-eight (128) wells are monitored in SEWD. Sixty-nine (69) wells were able to be compared. Fifty-six (56) wells decreased in groundwater levels. Nine (9) wells show increases in groundwater levels. Four (4) wells had no change in groundwater elevations.

South San Joaquin Irrigation District (SSJID) – Forty-one (41) wells are monitored in the SSJID area. Twenty-nine (29) wells were able to be compared. Twenty-three (23) wells show decreases in groundwater levels. Four (4) wells show increases in groundwater levels. No change was observed in two (2) wells.

Southwest County Areas – Thirty-six (36) wells are monitored across the Southwest Area of the County. Thirty (30) wells were able to be compared. Twenty-one (21) wells decreased in groundwater levels. Eight (8) wells increased in groundwater levels.

Woodbridge Irrigation District (WID) – Thirty-four (34) wells are monitored in the WID. Twenty-one (21) wells were able to be compared. Seventeen (17) wells decreased in groundwater levels. Four (4) wells show increases in groundwater levels.

Table 2-1 Comparison of CSJWCD Water Levels

StateWellID	Spring 2015	Spring 2014	Change
01N07E11L001	-48.00	*	*
01N07E11M001	-43.70	-35.40	-8.30
01N07E13J002	*	*	*
01N07E14J002	*	-38.10	*
01N07E15M002	*	*	*
01N07E24A001	*	*	*
01N07E24R001	-50.00	-41.50	-8.50
01N07E26H003	*	-36.30	*
01N07E32A001	-20.39	-17.59	-2.80
01N08E07M001	*	-50.20	*
01N08E09L001	-64.06	-54.06	-10.00
01N08E11L001	-60.50	-52.00	-8.50
01N08E13J001	-38.20	*	*
01N08E15J001	-39.93	-39.43	-0.50
01N08E16G001	-49.70	-42.50	-7.20
01N08E16H002	-46.50	-41.00	-5.50
01N08E16P001	-41.45	*	*
01N08E18A002	-55.00	-42.10	-12.90
01N08E22J001	-48.00	-39.00	-9.00
01N08E26A002	*	-37.30	*
01N08E27R002	-41.50	-31.70	-9.80
01N08E29M002	-43.00	-43.00	0.00
01N08E35F001	*	-30.50	*
01N08E35R002	-33.00	-28.90	-4.10
01N08E36F001	-35.00	-20.40	-14.60
01N09E01C001	-4.70	13.80	-18.50
01N09E05J001	-20.50	-15.50	-5.00
01N09E06N001	*	-36.50	*
01N09E13D001	0.00	14.00	-14.00
01N09E15B002	-4.70	*	*
01N09E17D001	-33.50	-23.20	-10.30
01N09E17M001	-35.50	-23.20	-12.30
01N09E19C001	-34.00	-27.50	-6.50
01N09E21J001	-2.66	*	*
01N09E22G002	-2.90	*	*
01N09E26A001	2.67	6.37	-3.70
01N09E29R001	-13.50	-8.00	-5.50
01N09E30C005	-18.70	-16.70	-2.00
01N09E31J001	-29.95	*	*
01N09E35K001	3.18	5.18	-2.00

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
01S07E01J001	-27.60	-26.30	-1.30
01S07E02J001	*	-28.90	*
01S07E12H001	*	*	*
01S07E13J001	*	*	*
01S08E04R001	-37.50	-25.40	-12.10
01S08E05A001	*	-27.80	----
01S08E05R001	-39.30	*	*
01S08E06D001	-31.10	-28.00	-3.10
01S08E09Q001	-18.90	-17.30	-1.60
01S08E11F001	-22.90	-16.70	-6.20
01S08E12B001	-13.20	-10.75	-2.45
01S08E14B001	-8.70	-6.70	-2.00
01S08E15P001	*	*	*
01S08E20B001	-19.20	*	*
01S08E23A001	-5.50	*	*
01S09E02R001	*	29.00	*
01S09E05H002	-6.50	0.60	-7.10
01S09E07A001	-7.30	-4.20	-3.10
01S09E07N001	-8.30	-0.40	-7.90
01S09E09R001	2.80	13.30	-10.50
01S09E11J002	*	34.60	*
01S09E18R003	8.00	9.90	-1.90
01S09E19Q002	12.00	14.50	-2.50

Total Number of Wells	**62**
Total Number of Comparable Wells	**37**
Number of Wells with Decrease	**36**
Number of Wells with Increase	**0**
Number of Wells with No Change	**1**
Range of Change	**-18.5 to 0.0**
Average Change	**-6.57**

Table 2-2 Comparison of NSJWCD Water Levels

StateWellID	Spring 2015	Spring 2014	Change
03N06E04C001	-1.24	-1.04	-0.20
03N06E23A003	-27.27	-26.87	-0.40
03N06E24M003	-34.12	-36.62	2.50
03N06E25C001	-34.55	-32.45	-2.10
03N06E25H015	*	*	*
03N06E36N001	*	*	*
03N07E03R001	*	*	*

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
03N07E05D005	19.37	18.17	1.20
03N07E08B012	-19.05	-23.60	4.55
03N07E08E002	-35.00	-24.30	-10.70
03N07E09C001	-28.20	-24.40	-3.80
03N07E09C003	-22.18	-19.68	-2.50
03N07E09P002	-31.58	-35.70	4.12
03N07E10L004	*	-37.30	*
03N07E12P001	-57.45	-41.65	-15.80
03N07E15C004	-48.50	-34.60	-13.90
03N07E17A006	-30.36	-35.10	4.74
03N07E17D003	-30.93	-25.13	-5.80
03N07E17D004	-30.90	-27.40	-3.50
03N07E17K002	-39.50	-41.00	1.50
03N07E18D012	-30.50	-29.60	-0.90
03N07E18M002	-32.93	-36.70	3.77
03N07E19J004	-51.00	-49.20	-1.80
03N07E19Q012	-37.78	-36.28	-1.50
03N07E20C012	-37.34	-36.14	-1.20
03N07E21L003	*	-38.60	*
03N07E22C011	-42.50	-40.60	-1.90
03N07E23C002	-49.50	*	*
03N07E23K011	-46.74	-44.94	-1.80
03N07E25G001	*	*	*
03N07E26G012	-48.67	-45.77	-2.90
03N07E32Q012	-46.15	-43.65	-2.50
03N07E33G002	*	-42.20	*
03N08E04Q001	-39.17	-44.40	5.23
03N08E05K011	-38.37	*	*
03N08E07J001	-46.30	*	*
03N08E17B001	-44.47	-48.10	3.63
03N08E17Q011	-47.67	-45.57	-2.10
03N08E19C001	*	*	*
03N08E19M003	-47.97	-52.80	4.83
03N08E22A001	-48.70	-46.90	-1.80
04N06E02R011	*	*	*
04N06E03A012	-8.50	-9.10	0.60
04N06E06N012	-12.60	*	*
04N06E12C004	-35.00	-31.50	-3.50
04N06E12N002	-38.30	*	*
04N06E15B002	-15.70	-12.90	-2.80
04N06E16A011	-8.76	-6.86	-1.90

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
04N06E16C001	-0.78	0.22	-1.00
04N06E16K011	1.94	2.84	-0.90
04N06E23D004	-16.91	-28.60	11.69
04N06E23K00	-12.50	-6.00	-6.50
04N06E24D012	-16.80	-15.40	-1.40
04N06E24F001	-28.00	-17.50	-10.50
04N06E25B001	-12.00	-10.80	-1.20
04N06E25R001	-10.00	-5.00	-5.00
04N06E27D002	4.20	13.70	-9.50
04N06E27Q012	15.48	15.98	-0.50
04N06E35D011	17.39	15.19	2.20
04N06E36J012	8.30	4.40	3.90
04N07E01B011	*	*	*
04N07E02R001	-37.54	-47.14	9.60
04N07E04B012	-44.15	-39.95	-4.20
04N07E04Q012	-40.41	*	*
04N07E07A001	*	*	*
04N07E07H011	-36.84	-35.64	-1.20
04N07E11D012	-43.33	-37.53	-5.80
04N07E12E001	*	*	*
04N07E12G012	-35.14	-39.10	3.96
04N07E14P011	-33.31	-30.71	-2.60
04N07E15B012	-36.89	*	*
04N07E16D001	-36.84	*	*
04N07E17J013	*	*	*
04N07E17N001	-41.30	-31.30	-10.00
04N07E19K001	-23.10	-21.20	-1.90
04N07E19R011	-19.91	-18.31	-1.60
04N07E20H003	*	-95.40	----
04N07E21F001	-28.80	-27.50	-1.30
04N07E23J012	-27.53	-26.43	-1.10
04N07E24N002	-27.73	-25.03	-2.70
04N07E25G015	-23.74	-21.34	-2.40
04N07E27C002	-29.50	-21.30	-8.20
04N07E28J002	-21.70	-29.70	8.00
04N07E28P011	7.63	8.13	-0.50
04N07E29H001	-20.64	*	*
04N07E29N012	-6.42	-5.42	-1.00
04N07E31Q031	17.09	16.80	0.29
04N07E32F011	4.47	5.17	-0.70
04N07E33H001	24.00	24.20	-0.20
04N07E34K011	-10.83	-9.13	-1.70

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
04N07E34K011	-10.83	-9.13	-1.70
04N07E35C002	-15.53	-13.93	-1.60
04N07E35E013	-15.03	-14.43	-0.60
04N07E36L001	-27.60	-25.70	-1.90
04N08E01K001	48.93	49.13	-0.20
04N08E02E011	-9.37	-8.47	-0.90
04N08E04P014	-35.07	-25.77	-9.30
04N08E06C002	*	-37.67	*
04N08E06N002	-40.70	-38.10	-2.60
04N08E11M012	-7.37	-6.77	-0.60
04N08E12A011	74.33	76.83	-2.50
04N08E12B011	49.63	50.30	-0.67
04N08E12N001	23.23	23.93	-0.70
04N08E14B011	-1.37	-3.67	2.30
04N08E14K001	*	-5.20	*
04N08E15D011	-19.47	-19.40	-0.07
04N08E15J011	-13.87	-11.87	-2.00
04N08E17A001	-26.30	*	*
04N08E17J001	*	-28.40	*
04N08E21M001	-35.10	-32.30	-2.80
04N08E22C015	-19.37	*	*
04N08E26A012	-9.77	-8.70	-1.07
04N08E27J011	-19.17	-18.47	-0.70
04N08E28E001	-32.56	-30.26	-2.30
04N08E32N001	-38.60	-36.60	-2.00
04N08E34Q011	-32.96	-31.16	-1.80
04N09E06L011	112.73	114.03	-1.30
04N09E07D012	82.13	84.13	-2.00
04N09E07E011	89.43	91.03	-1.60
04N09E16Q002	157.13	166.43	-9.30
04N09E17E001	136.13	138.50	-2.37
04N09E18A011	*	*	*
04N09E18D002	53.53	51.00	2.53
04N09E18N011	26.33	25.83	0.50
04N09E20M001	111.84	116.44	-4.60
04N09E21A001	168.14	171.34	-3.20
04N09E28C002	187.34	186.14	1.20
05N06E36R001	-38.80	*	*
05N07E31J001	-53.00	*	*
05N07E31Q001	*	*	*
05N07E34G001	*	-46.80	*
05N07E34Q001	-50.40	-57.90	7.50

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
05N08E24Q011	47.53	54.63	-7.10
05N08E25P011	50.33	52.90	-2.57
05N08E32R011	-33.97	*	*
05N08E35K012	1.73	2.60	-0.87
05N09E30C011	157.93	161.20	-3.27
05N09E30M011	145.03	144.63	0.40
05N09E31L011	126.73	126.53	0.20

Total Number of Wells	**138**
Total Number of Comparable Wells	**105**
Number of Wells with Decrease	**80**
Number of Wells with Increase	**25**
Number of Wells with No Change	**0**
Range of Change	**-15.8 to11.7**
Average Change	**-1.45**

Table 2-3 Comparison of OID Water Levels

StateWellID	Spring 2015	Spring 2014	Change
01S09E14K001	*	*	*
01S09E21J002	31.50	*	*
01S09E23N001	*	*	*
01S09E24R001	*	*	*
01S09E28M002	*	*	*

Total Number of Wells	**5.00**
Total Number of Comparable Wells	**0.00**
Number of Wells with Decrease	*
Number of Wells with Increase	*
Number of Wells with No Change	*
Range of Change	*
Average Change	*

Table 2-4 Comparison of SEWD Water Levels

StateWellID	Spring 2015	Spring 2014	Change
01N06E01J001	-27.50	-25.50	-2.00
01N06E01M001	-36.00	-28.00	-8.00
01N06E02C001	-19.43	-23.53	4.10
01N06E02Q001	-25.00	-18.00	-7.00
01N06E05H001	-6.89	-5.79	-1.10
01N06E05M004	*	*	*

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
01N06E12A001	-22.00	-19.00	-3.00
01N06E12F001	-47.00	-47.00	0.00
01N06E12G001	-24.80	-20.80	-4.00
01N06E12K003	-19.00	-10.00	-9.00
01N06E23J001	*	*	*
01N06E27R002	-6.20	-6.60	0.40
01N07E01A002	*	*	*
01N07E01M002	-54.50	-50.50	-4.00
01N07E02G001	-48.50	-43.90	-4.60
01N07E03L001	*	*	*
01N07E03M001	*	*	*
01N07E04R001	-27.00	-16.50	-10.50
01N07E08B001	*	*	*
01N07E08P001	-23.50	-26.50	3.00
01N07E09E004	-27.00	-22.70	-4.30
01N07E09H001	-32.50	*	*
01N07E09Q003	-38.50	-30.30	-8.20
01N07E10D001	-38.00	-23.80	-14.20
01N07E10G001	*	*	*
01N07E16M001	-35.00	-28.00	-7.00
01N07E17D001	-27.50	-16.50	-11.00
01N07E17D002	-26.50	-15.50	-11.00
01N07E18B001	-26.00	-37.00	11.00
01N07E18D001	-24.00	-17.00	-7.00
01N07E18E002	-20.00	-19.00	-1.00
01N07E18E003	-21.00	-18.00	-3.00
01N07E18L001	-24.00	-24.00	0.00
01N07E19G001	*	*	*
01N07E20G001	*	-30.80	*
01N07E21R001	*	-34.00	*
01N08E03P001	*	*	*
01S06E01C002	-5.00	-4.90	-0.10
01S06E02D004	-4.79	*	*
01S06E02G002	-4.67	-4.67	0.00
01S06E10G001	-3.80	-4.60	0.80
01S07E06M002	*	-6.20	*
01S07E08J002	*	-5.13	*
02N06E03A003	-34.80	*	*
02N06E06C002	*	-13.40	*
02N06E13R002	*	-37.50	*
02N06E17G001	-22.70	-18.70	-4.00

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
02N06E22B001	-38.00	-26.00	-12.00
02N06E22E001	-28.00	-24.00	-4.00
02N06E22Q002	-42.00	-28.00	-14.00
02N06E24F001	-38.50	-33.80	-4.70
02N06E24J002	----	*	*
02N06E27L001	*	-24.00	*
02N06E27P001	*	-23.00	*
02N06E32G001	-9.59	-8.39	-1.20
02N06E34C001	-36.00	-25.00	-11.00
02N06E36F001	-38.50	-27.50	-11.00
02N06E36R003	-34.00	-24.00	-10.00
02N07E03D001	-59.00	-50.70	-8.30
02N07E06P002	-49.80	-40.80	-9.00
02N07E08D001	-51.20	-48.80	-2.40
02N07E08K003	-60.00	*	*
02N07E08R002	-54.24	-51.04	-3.20
02N07E10F002	*	-53.40	*
02N07E11F001	-73.50	*	*
02N07E11R002	-59.00	-53.50	-5.50
02N07E12A003	-51.85	-48.55	-3.30
02N07E15C001	-61.30	-58.30	-3.00
02N07E16F002	-67.44	-68.44	1.00
02N07E16L001	-61.30	-53.50	-7.80
02N07E18H002	-59.70	-46.70	-13.00
02N07E20N002	-44.00	-39.80	-4.20
02N07E21A002	-60.81	-57.81	-3.00
02N07E21K002	-55.00	*	*
02N07E21N001	*	*	*
02N07E23B001	-64.00	-74.50	10.50
02N07E24B001	*	-55.50	*
02N07E24Q001	*	-64.50	*
02N07E26H003	-61.00	-68.20	7.20
02N07E26N001	*	-53.90	*
02N07E28K002	-60.00	*	*
02N07E28N004	-43.00	-42.80	-0.20
02N07E28P001	*	*	*
02N07E29B001	-58.50	-49.70	-8.80
02N07E29M002	-43.00	-37.80	-5.20
02N07E30E001	-40.50	*	*
02N07E30H001	*	*	*
02N07E31M001	*	-23.80	*
02N07E32J002	-38.00	-32.80	-5.20

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
02N07E32M002	-35.00	-30.70	-4.30
02N07E32R001	-28.60	*	*
02N07E33L001	-40.00	*	*
02N07E34R001	-45.00	-31.50	-13.50
02N07E35L001	*	*	*
02N07E36H001	-63.70	-57.90	-5.80
02N08E03G002	-46.70	*	*
02N08E04C001	-53.50	*	*
02N08E05C001	-62.50	*	*
02N08E08N001	*	*	*
02N08E09G002	*	*	*
02N08E10H002	-53.10	-48.40	-4.70
02N08E13K001	*	-45.10	*
02N08E14C001	-48.00	-47.00	-1.00
02N08E15M002	*	-51.00	*
02N08E16D001	-54.10	-52.10	-2.00
02N08E18C001	-58.70	*	*
02N08E20F001	*	-56.80	*
02N08E24J001	*	*	*
02N08E24P001	-35.40	-40.20	4.80
02N08E28H002	-54.60	-54.60	0.00
02N08E32L002	*	-54.10	*
02N08E33E001	-60.60	-51.30	-9.30
02N09E03A001	56.40	57.90	-1.50
02N09E04H001	*	48.20	*
02N09E05H001	-9.30	*	*
02N09E05N001	-22.49	-20.09	-2.40
02N09E08N001	*	*	*
02N09E09D001	-10.80	-9.80	-1.00
02N09E18Q001	*	-41.10	*
02N09E22D001	*	*	*
02N09E28N001	*	-12.10	*
03N07E28K012	-48.16	*	*
03N07E35C002	-53.80	-50.80	-3.00
03N07E35L001	-68.50	*	*
03N07E36J001	-53.30	-48.60	-4.70
03N08E27R001	*	*	*
03N09E25R001	*	82.70	*
03N09E36G001	*	*	*

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

Total Number of Wells	**128**
Total Number of Comparable Wells	**69**
Number of Wells with Decrease	**56**
Number of Wells with Increase	**9**
Number of Wells with No Change	**4**
Range of Change	**-14.2 to 11.0**
Average Change	**-4.12**

Table 2-5 Comparison of SSJID Water Levels

StateWellID	Spring 2015	Spring 2014	Change
01S07E09Q001	-2.67	-2.17	-0.50
01S07E14M001	-4.10	-1.20	-2.90
01S07E14P003	*	*	*
01S07E15F002	-5.60	*	*
01S07E18L001	1.27	2.87	-1.60
01S07E21G001	8.05	10.25	-2.20
01S07E25E001	5.00	8.00	-3.00
01S07E25R001	10.15	12.65	-2.50
01S07E26G001	----	7.60	*
01S07E27K001	6.70	7.90	-1.20
01S07E30R001	9.56	6.36	3.20
01S07E36D001	18.75	16.05	2.70
01S08E19R001	*	*	*
01S08E25Q001	*	*	*
01S08E29K001	1.50	5.00	-3.50
01S08E30C002	2.00	3.70	-1.70
01S08E34Q001	15.16	18.36	-3.20
01S08E35R002	22.87	24.87	-2.00
01S09E29M002	27.00	28.60	-1.60
01S09E33J002	49.92	52.52	-2.60
01S09E33P001	45.71	49.01	-3.30
01S09E34A001	*	53.50	*
02S07E07D002	9.00	9.00	0.00
02S07E07Q001	23.06	24.16	-1.10
02S07E08R001	26.26	26.26	0.00
02S07E10B002	24.76	24.26	0.50
02S07E11N002	32.00	32.05	-0.05
02S07E12R001	21.05	25.35	-4.30
02S07E19H001	20.00	19.30	0.70
02S07E22N002	15.35	26.85	-11.50

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
02S07E26B001	*	28.60	*
02S08E04M001	*	20.20	*
02S08E06J001	16.00	19.80	-3.80
02S08E07R001	*	29.30	*
02S08E08A001	*	23.90	*
02S08E08E001	*	23.20	*
02S08E09J001	31.06	33.16	-2.10
02S08E12D001	33.97	37.07	-3.10
02S09E03K001	*	*	*
02S09E07D001	*	36.39	*
02S09E12R001	66.85	70.75	-3.90
02S09E19B002	56.30	56.50	-0.20

Total Number of Wells	**41**
Total Number of Comparable Wells	**29**
Number of Wells with Decrease	**23**
Number of Wells with Increase	**4**
Number of Wells with No Change	**2**
Range of Change	**-11.5 to 3.2**
Average Change	**-1.89**

Table 2-6 Comparison of South West County Area Water Levels

StateWellID	Spring 2015	Spring 2014	Change
01S05E31R002	0.70	1.40	-0.70
01S06E04J001	-1.00	*	*
01S06E14F001	2.40	-1.60	4.00
01S06E15F001	1.71	2.31	-0.60
01S06E23C003	4.83	2.83	2.00
01S06E26K001	3.04	*	*
02S04E15R001	54.00	53.60	0.40
02S05E08B001	-0.30	-3.20	2.90
02S05E13N001	*	*	*
02S06E10K001	3.00	3.00	0.00
02S06E25J001	15.30	14.50	0.80
02S06E26B001	*	6.80	*
02S06E27E001	9.00	8.30	0.70
02S06E31N001	53.30	53.00	0.30
02S07E31N001	12.30	13.60	-1.30
03S05E04H001	*	*	*
03S06E03F002	*	12.50	*
03S06E23C001	-1.20	-2.20	1.00
03S06E27N001	*	71.20	*

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
MW-1A	-11.619	-8.84	-2.78
MW-1B	-22.616	-18.09	-4.53
MW-1C	-21.527	-14.36	-7.17
MW-2A	-22.334	-16.01	-6.32
MW-2B	-30.905	-21.17	-9.74
MW-2C	-32.447	-22.79	-9.66
MW-3A	-25.151	-17.86	-7.29
MW-3B	-34.600	-23.14	-11.46
MW-3C	-41.120	-27.69	-13.43
MW-4A	-20.711	-14.05	-6.66
MW-4B	-29.417	-19.18	-10.24
MW-4C	-30.000	-19.55	-10.45
MW-5A	-17.856	-15.12	-2.74
MW-5B	-21.176	-15.74	-5.44
MW-5C	-20.998	-12.96	-8.04
MW-6A	-15.560	-14.96	-0.60
MW-6B	-18.877	-13.74	-5.14
MW-6C	-19.511	-11.11	-8.40

Total Number of Wells	**36**
Total Number of Comparable Wells	**30**
Number of Wells with Decrease	**21**
Number of Wells with Increase	**8**
Number of Wells with No Change	**1**
Range of Change	**-13.43 to 4.0**
Average Change	**-4.02**

Table 2-7 Comparison of WID Water Levels

StateWellID	Spring 2015	Spring 2014	Change
03N05E13L001	*	*	*
03N05E14C001	-5.10	-5.00	-0.10
03N06E04P012	-8.26	-7.76	-0.50
03N06E05N003	*	-12.00	*
03N06E07D013	-7.58	-6.88	-0.70
03N06E07H003	-16.00	-14.70	*
03N06E09N011	*	-16.38	*
03N06E10D001	*	-6.60	*
03N06E15C004	*	-19.20	*
03N06E17A004	*	*	*
03N06E18M003	-15.10	*	*
03N06E20D002	-18.50	*	*

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

StateWellID	Spring 2015	Spring 2014	Change
03N06E26P002	-33.70	-31.70	-2.00
03N06E27E001	*	*	*
03N06E29C001	-29.30	-27.90	-1.40
03N06E30R001	*	-25.00	*
03N06E32R001	*	-23.20	*
04N05E10K001	-5.00	-5.60	0.60
04N05E13C012	-2.83	-2.23	-0.60
04N05E13H001	-5.50	-4.80	-0.70
04N05E13R004	-7.00	*	*
04N05E14B002	-14.90	-3.90	-11.00
04N05E14P001	-2.00	-2.20	0.20
04N05E22H001	-7.50	*	*
04N05E24J004	-4.60	-3.10	-1.50
04N05E26F001	-0.30	*	*
04N05E36C004	-0.19	-0.09	-0.10
04N05E36H003	-5.50	-4.80	-0.70
04N06E17G004	-2.50	-1.50	-1.00
04N06E18R012	-2.40	-1.10	-1.30
04N06E19R012	-2.48	-0.58	-1.90
04N06E29N002	-7.40	-9.60	2.20
04N06E30E001	-3.30	-1.30	-2.00
04N06E34J002	21.40	20.20	1.20
05N05E28L003	-2.50	-2.20	-0.30

Total Number of Wells	**34**
Total Number of Comparable Wells	**21**
Number of Wells with Decrease	**17**
Number of Wells with Increase	**4**
Number of Wells with No Change	**0**
Range of Change	**-11.0 to 2.2**
Average Change	**-1.09**

*Measurement wasn't able to be completed due to one or more of the following reasons: pumping, pump house locked, unable to get tape in casing, insects or dogs.

HYDROGRAPHS

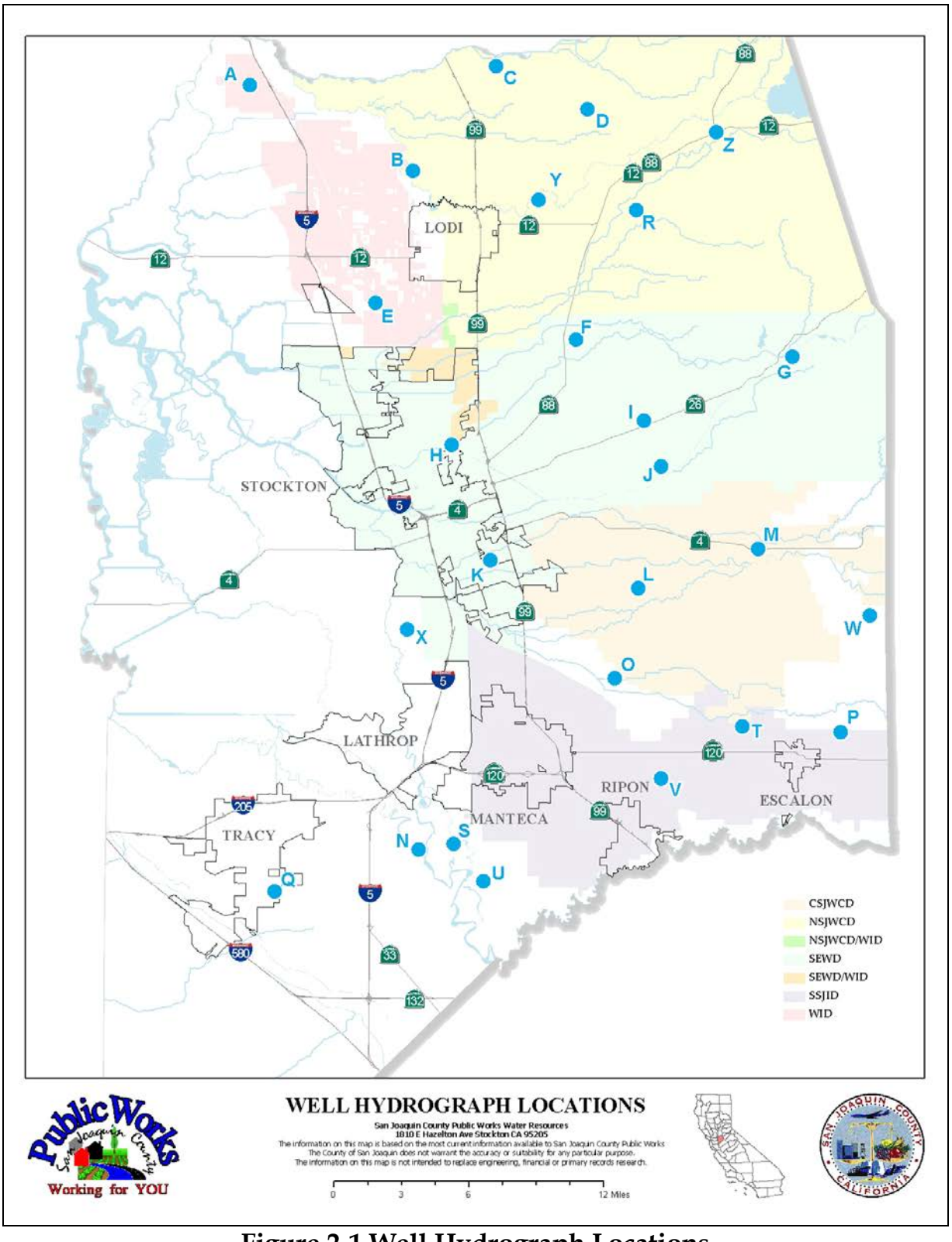

Figure 2-1 Well Hydrograph Locations

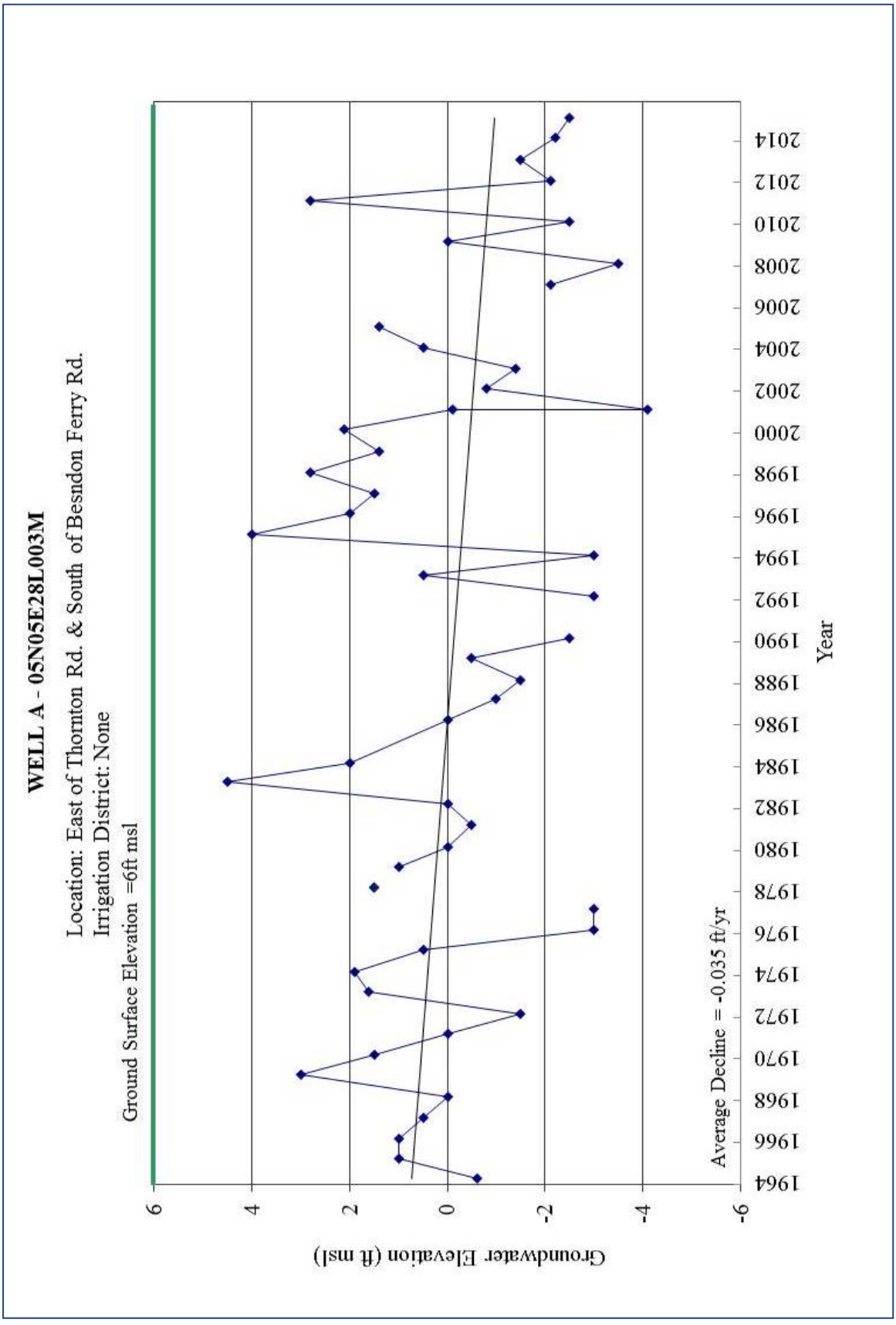

Figure 2-2 Spring Hydrograph Well A

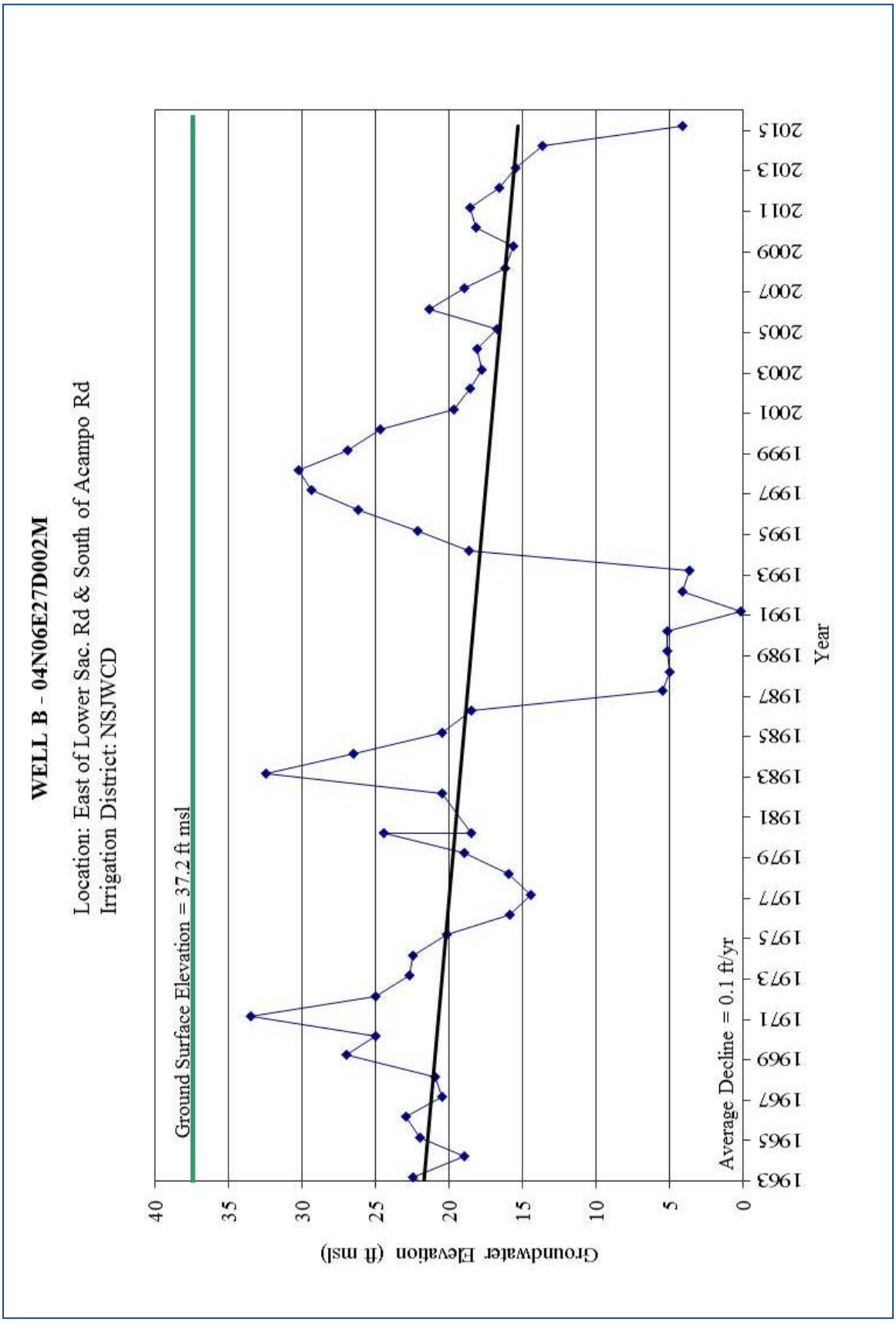

Figure 2-3 Spring Hydrograph Well B

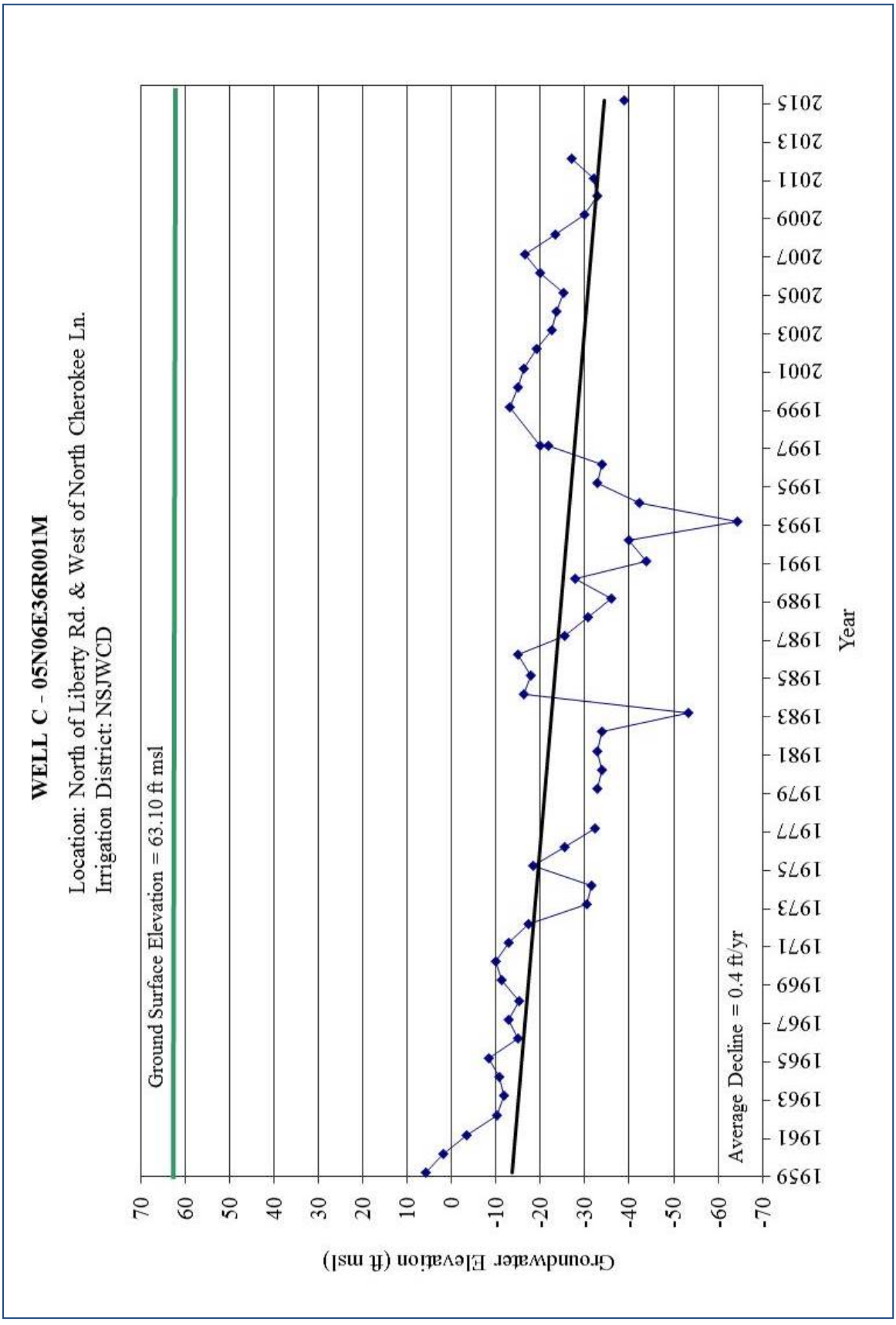

Figure 2-4 Spring Hydrograph Well C

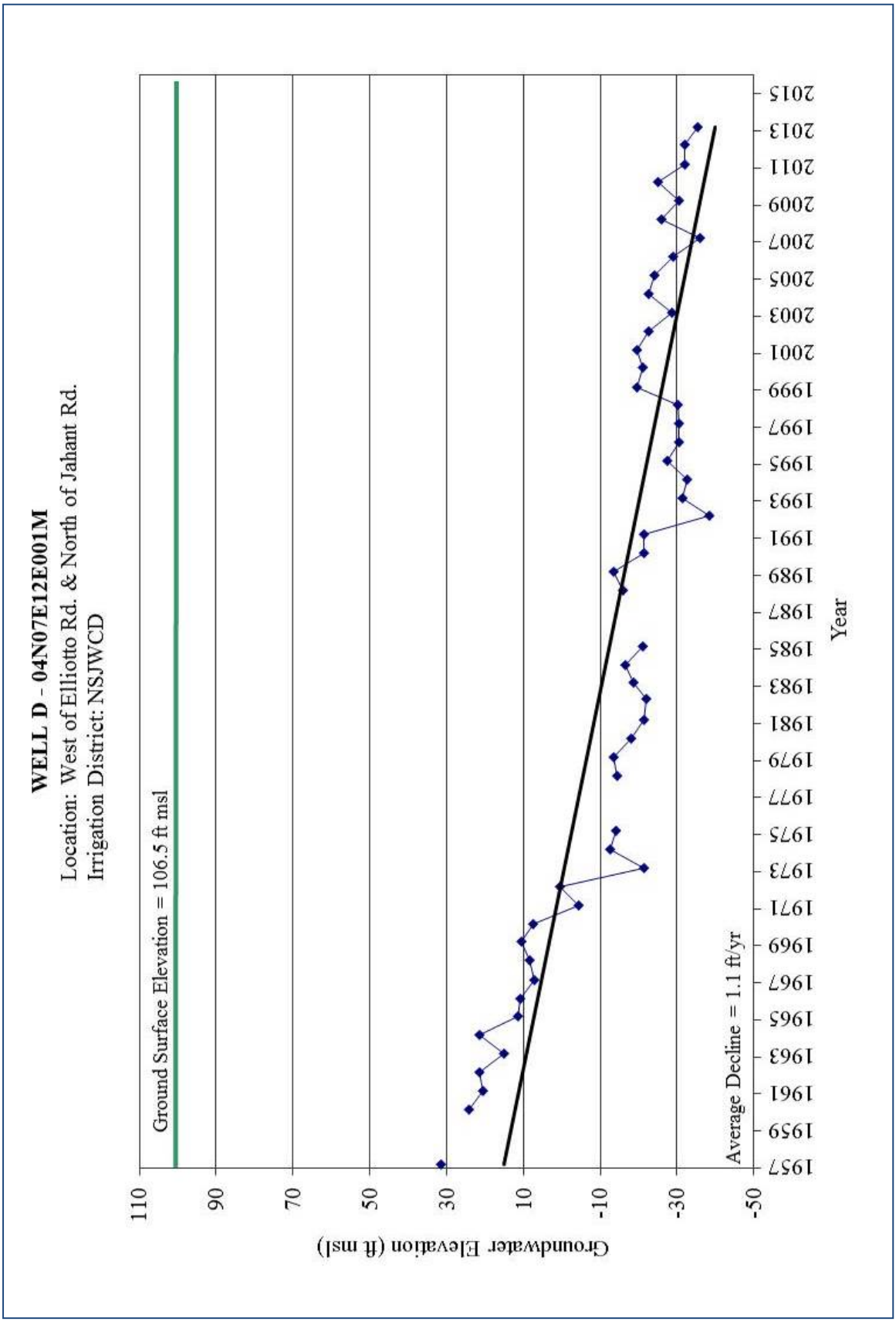

Figure 2-5 Spring Hydrograph Well D

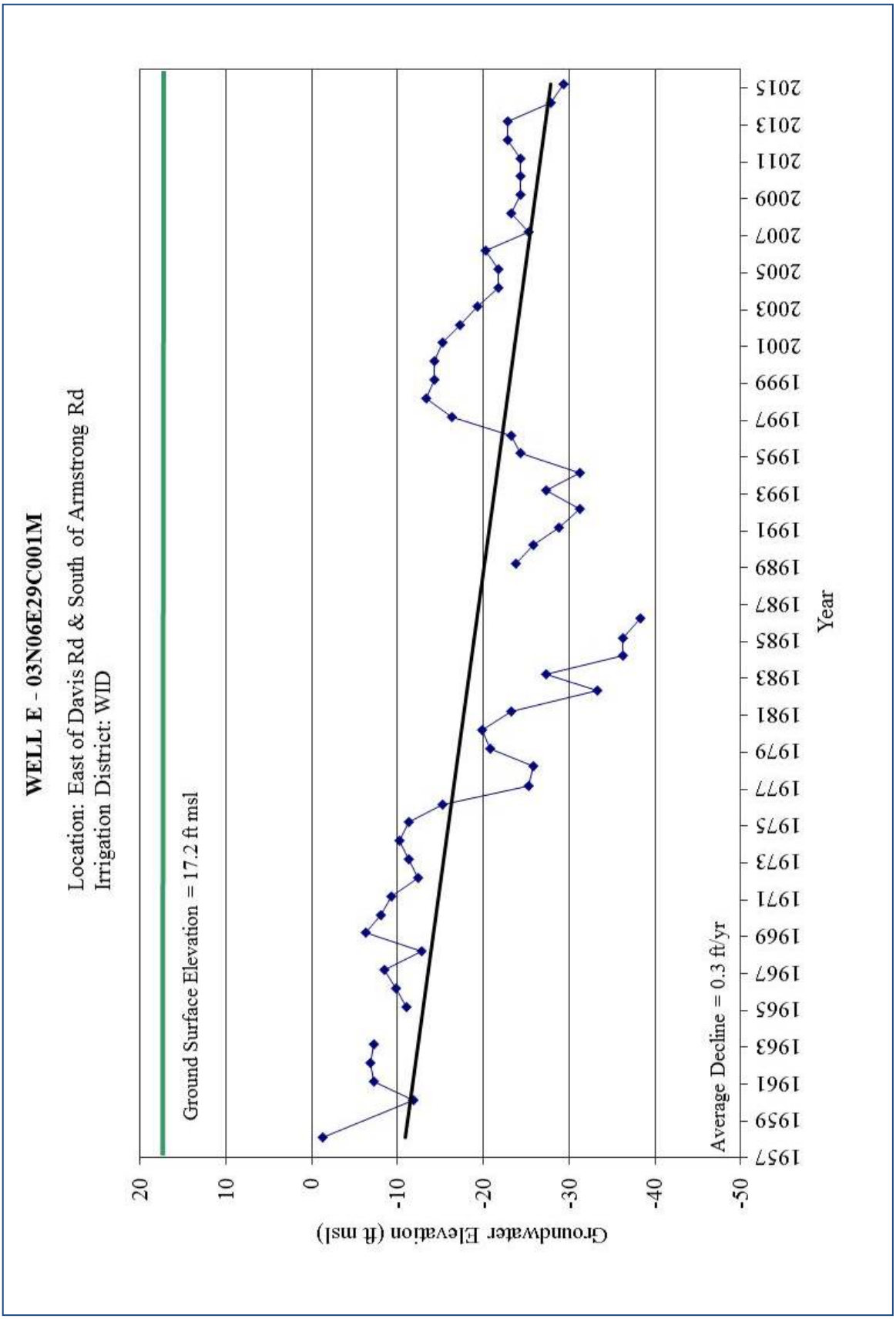

Figure 2-6 Spring Hydrograph Well E

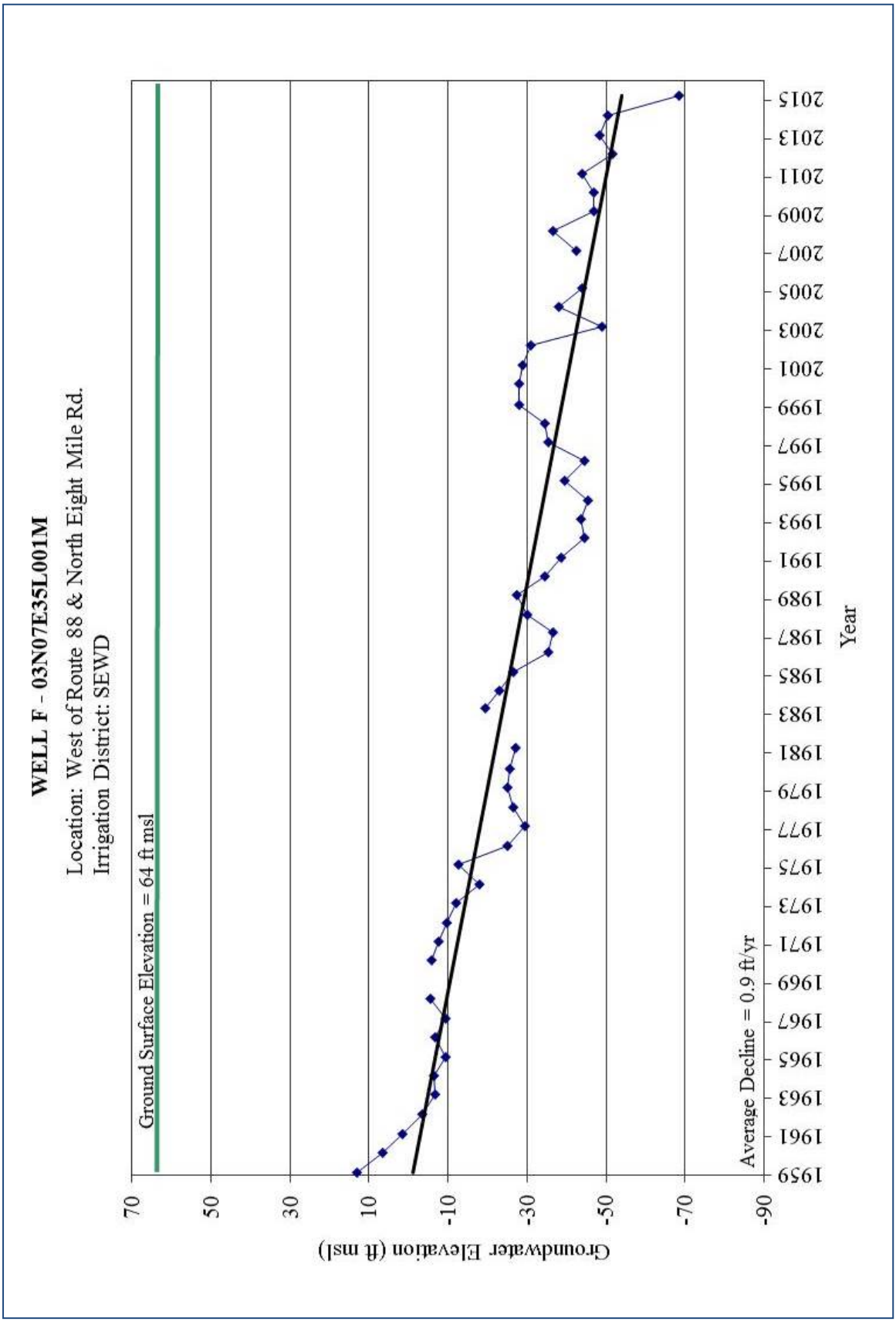

Figure 2-7 Spring Hydrograph Well F

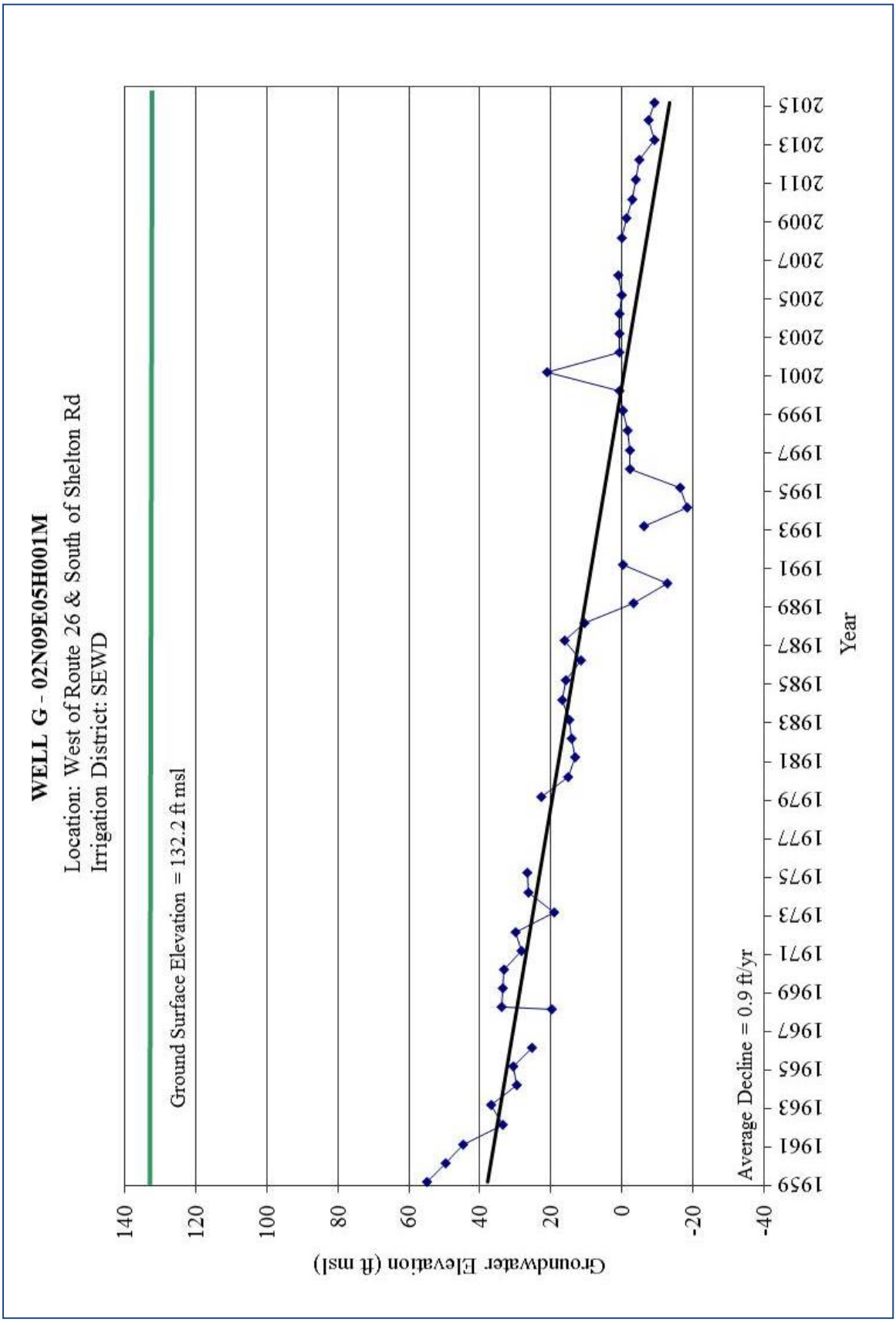

Figure 2-8 Spring Hydrograph Well G

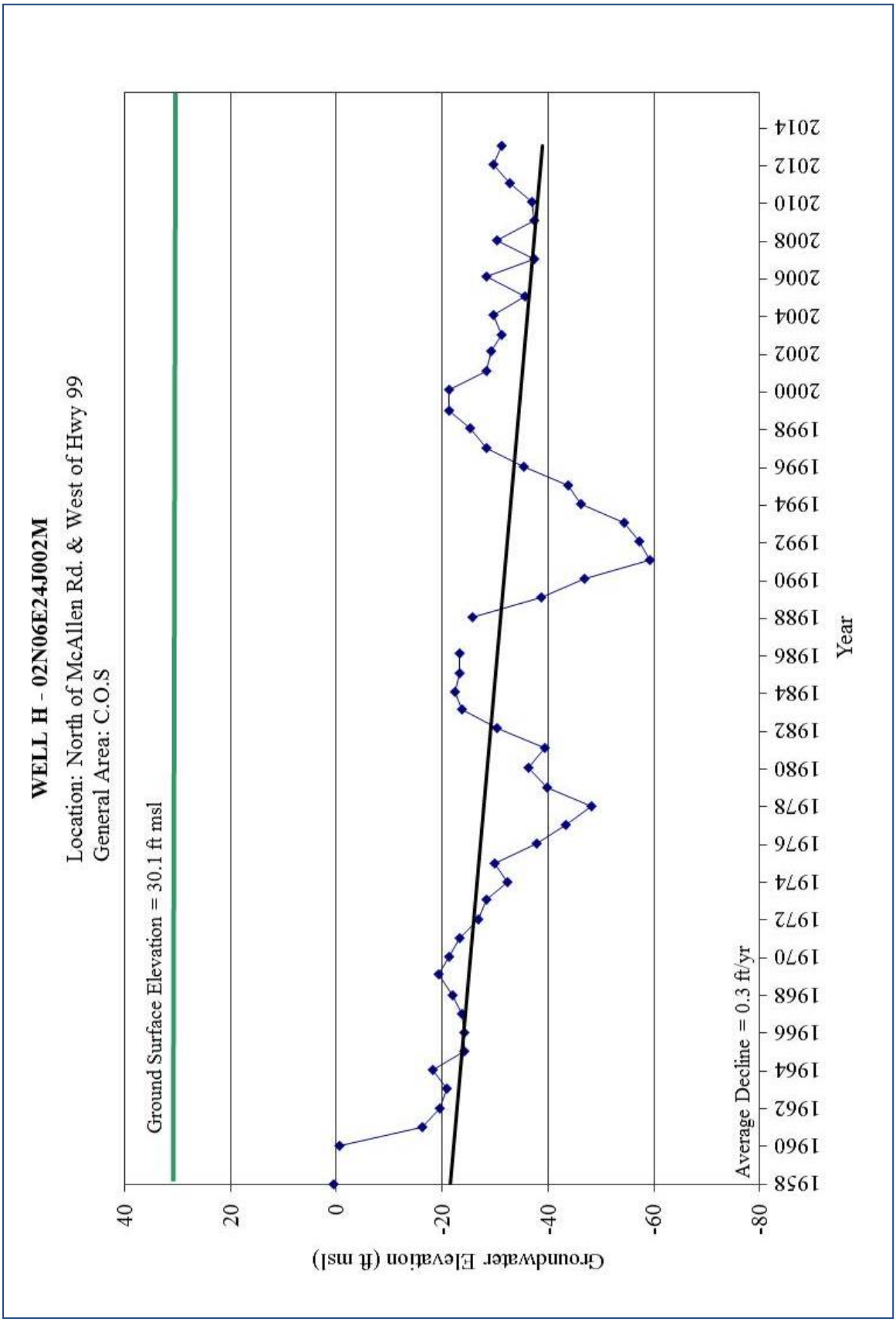

Figure 2-9 Spring Hydrograph Well H

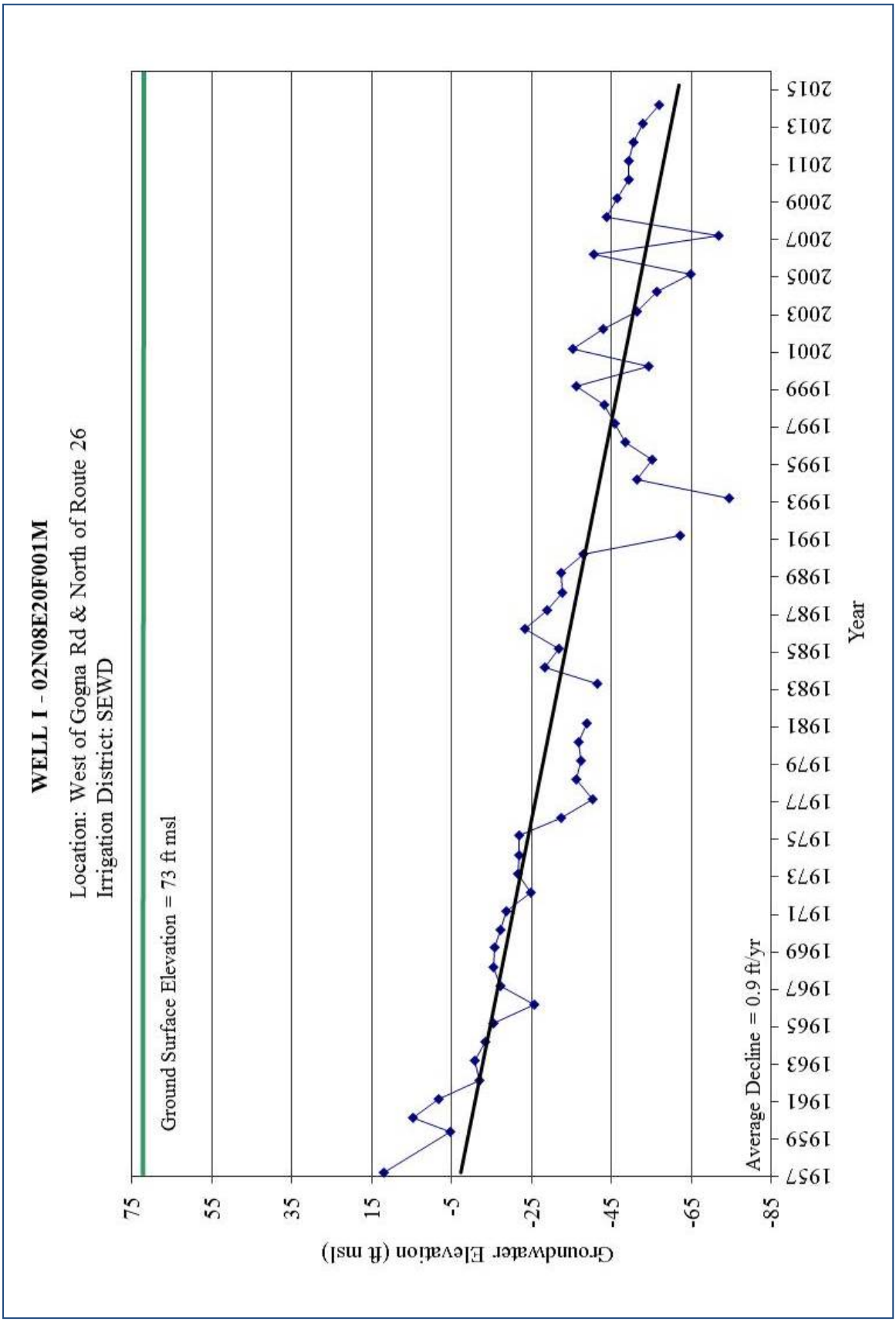

Figure 2-10 Spring Hydrograph Well I

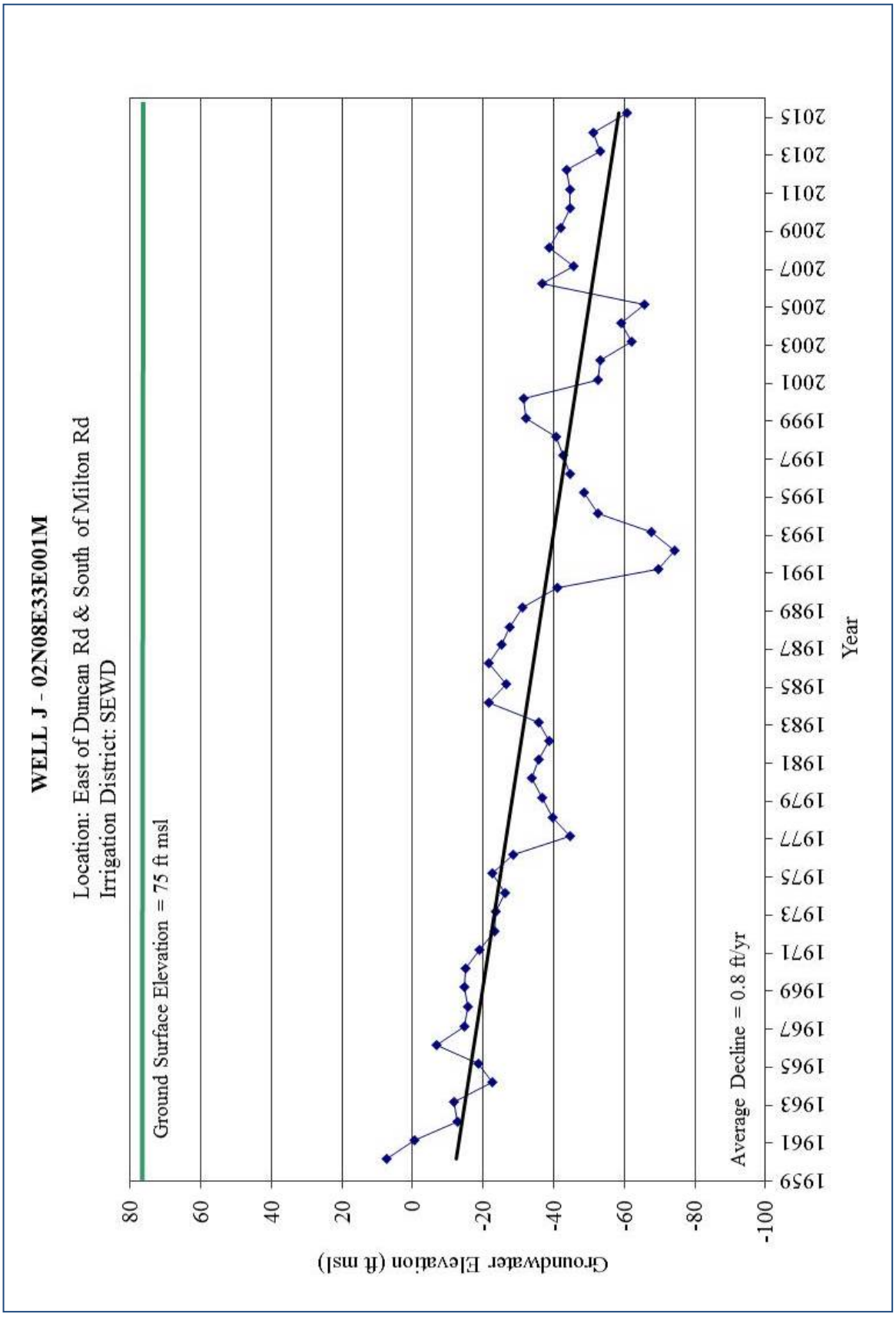

Figure 2-11 Spring Hydrograph Well J

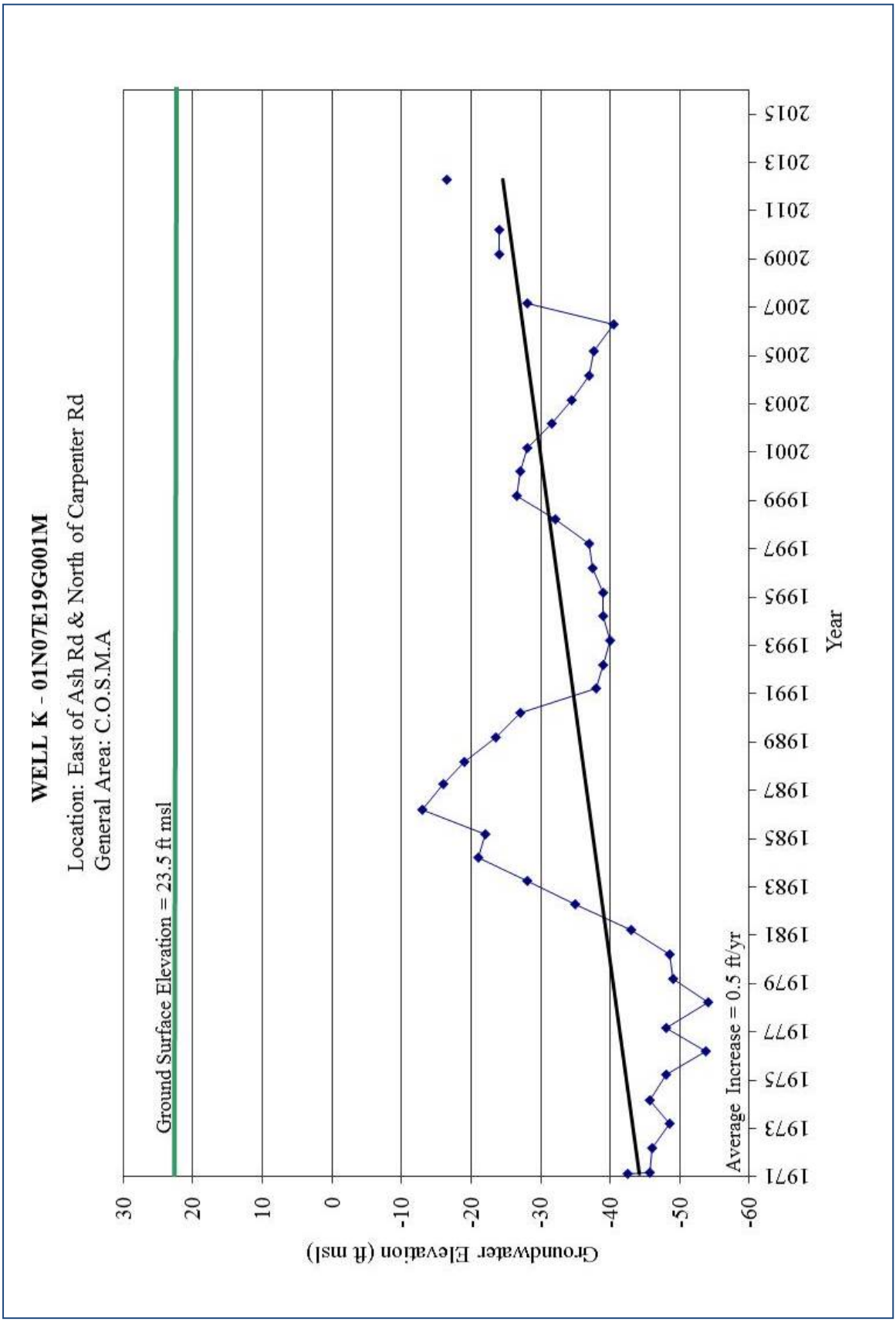

Figure 2-12 Spring Hydrograph Well K

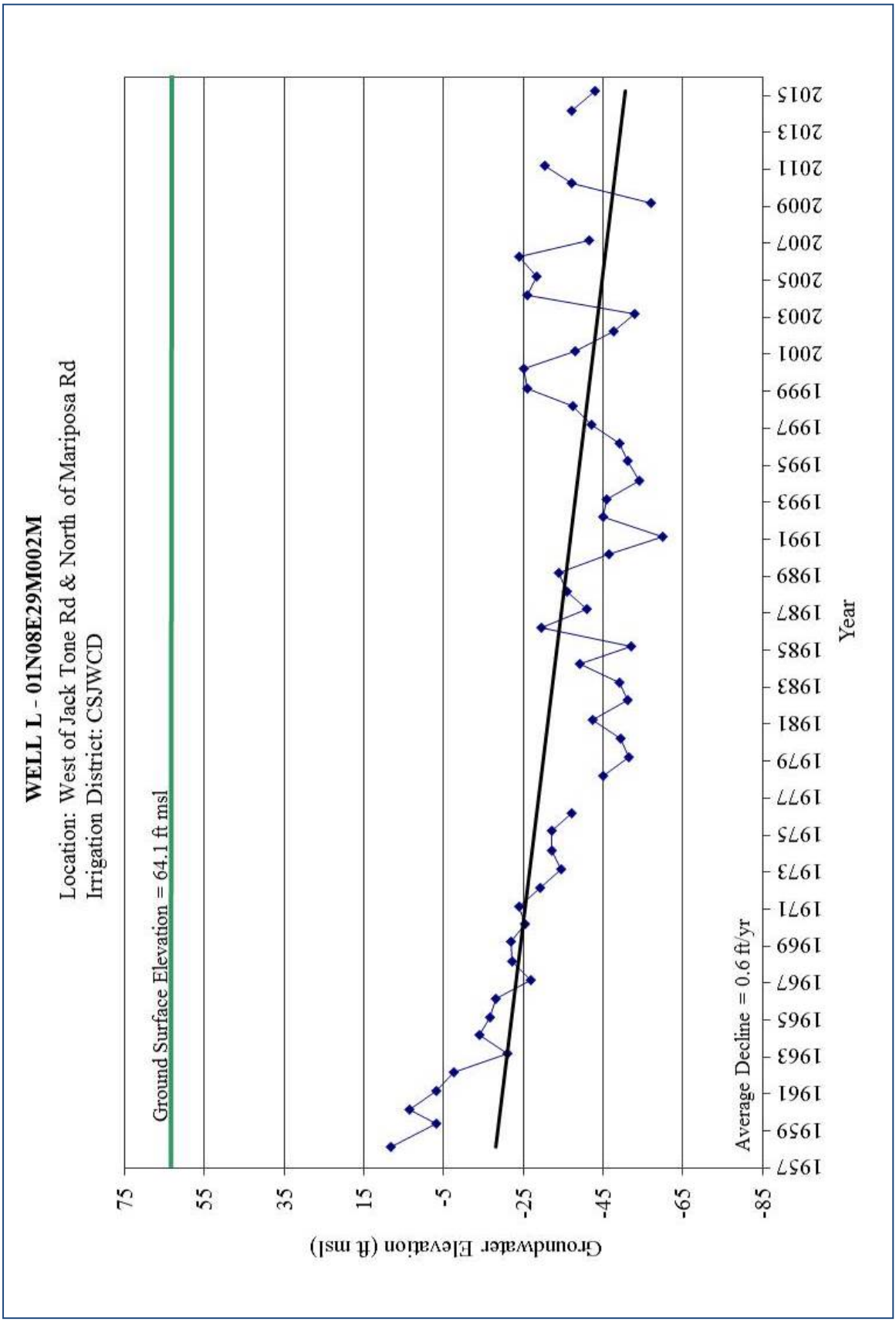

Figure 2-13 Spring Hydrograph Well L

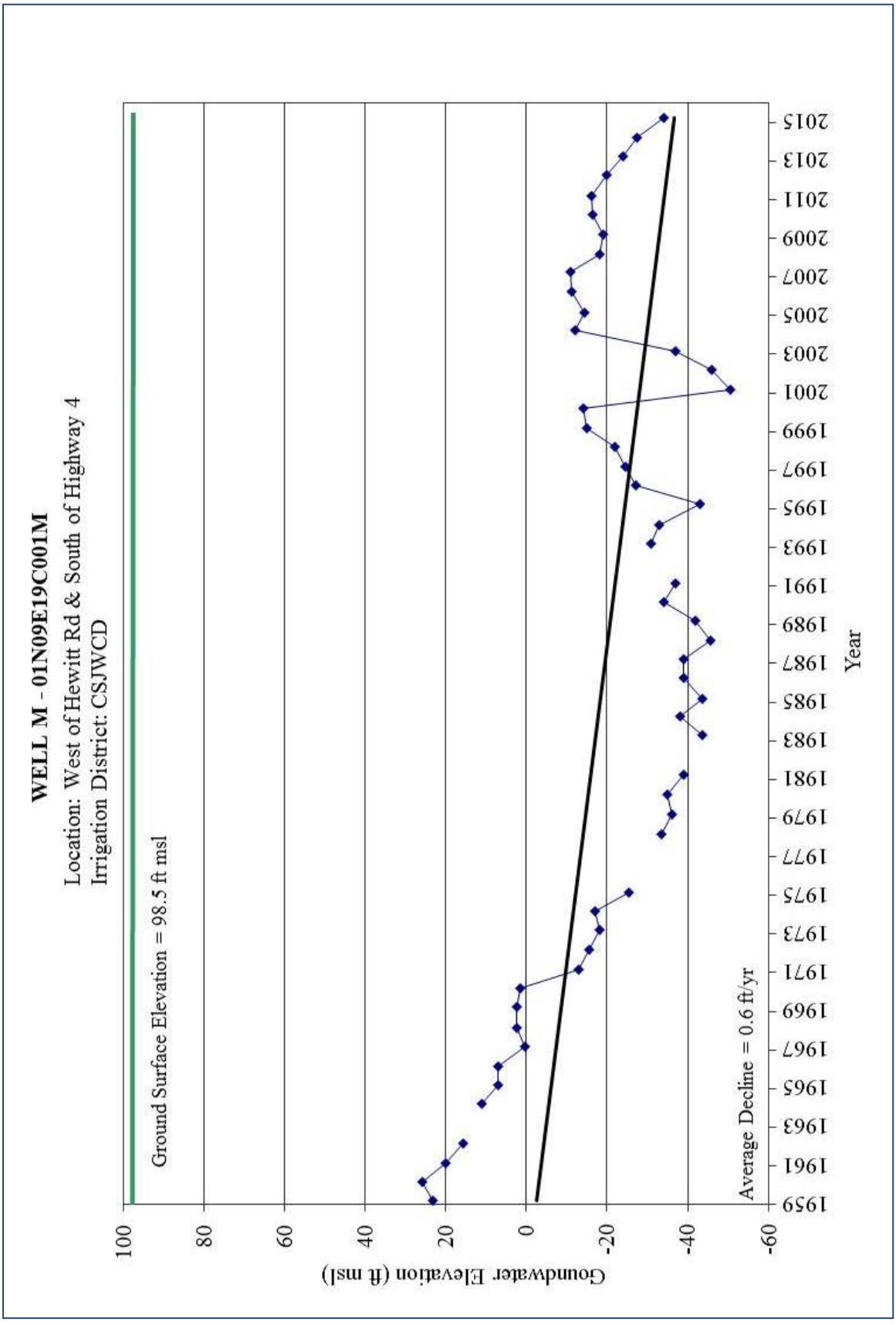

Figure 2-14 Spring Hydrograph Well M

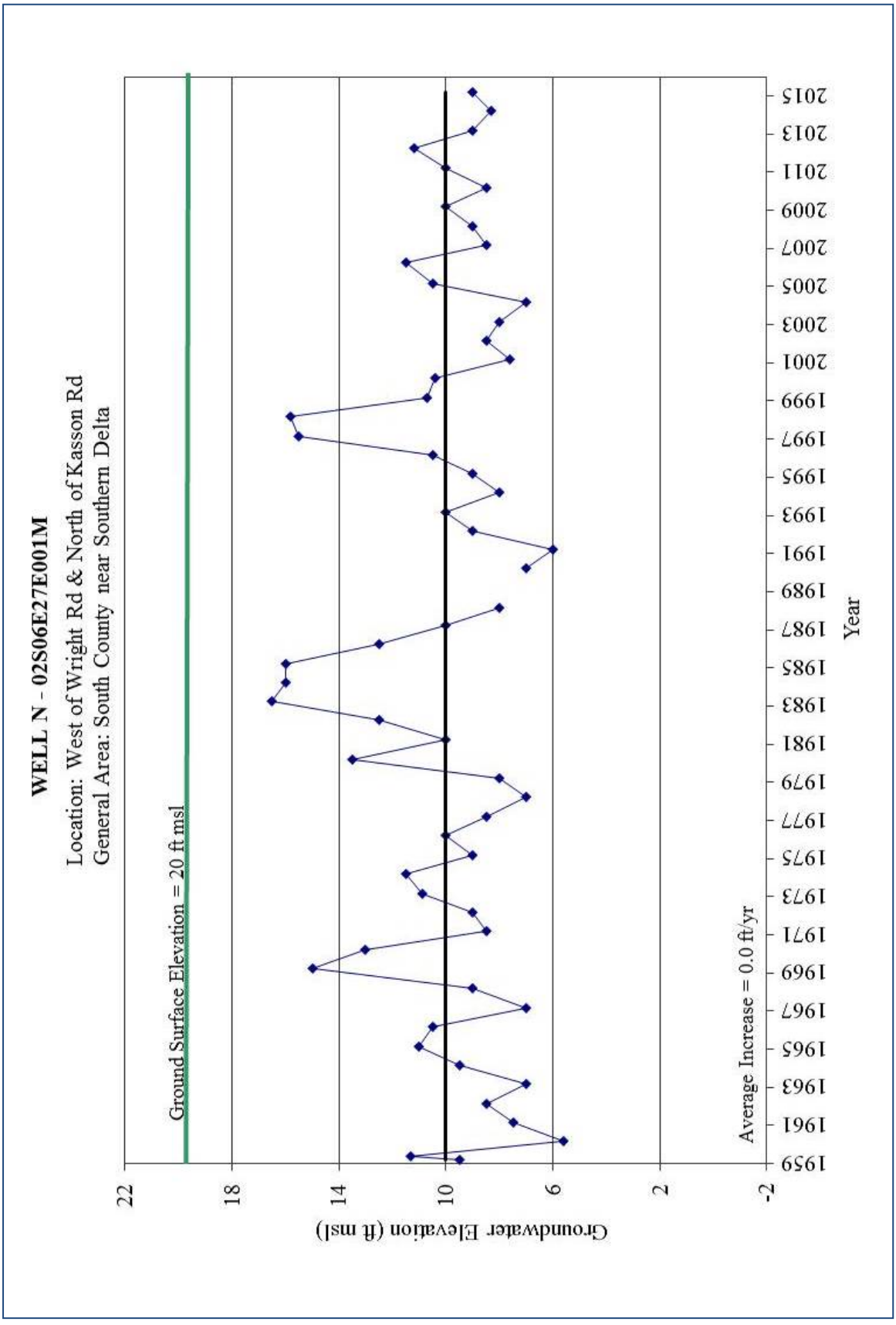

Figure 2-15 Spring Hydrograph Well N

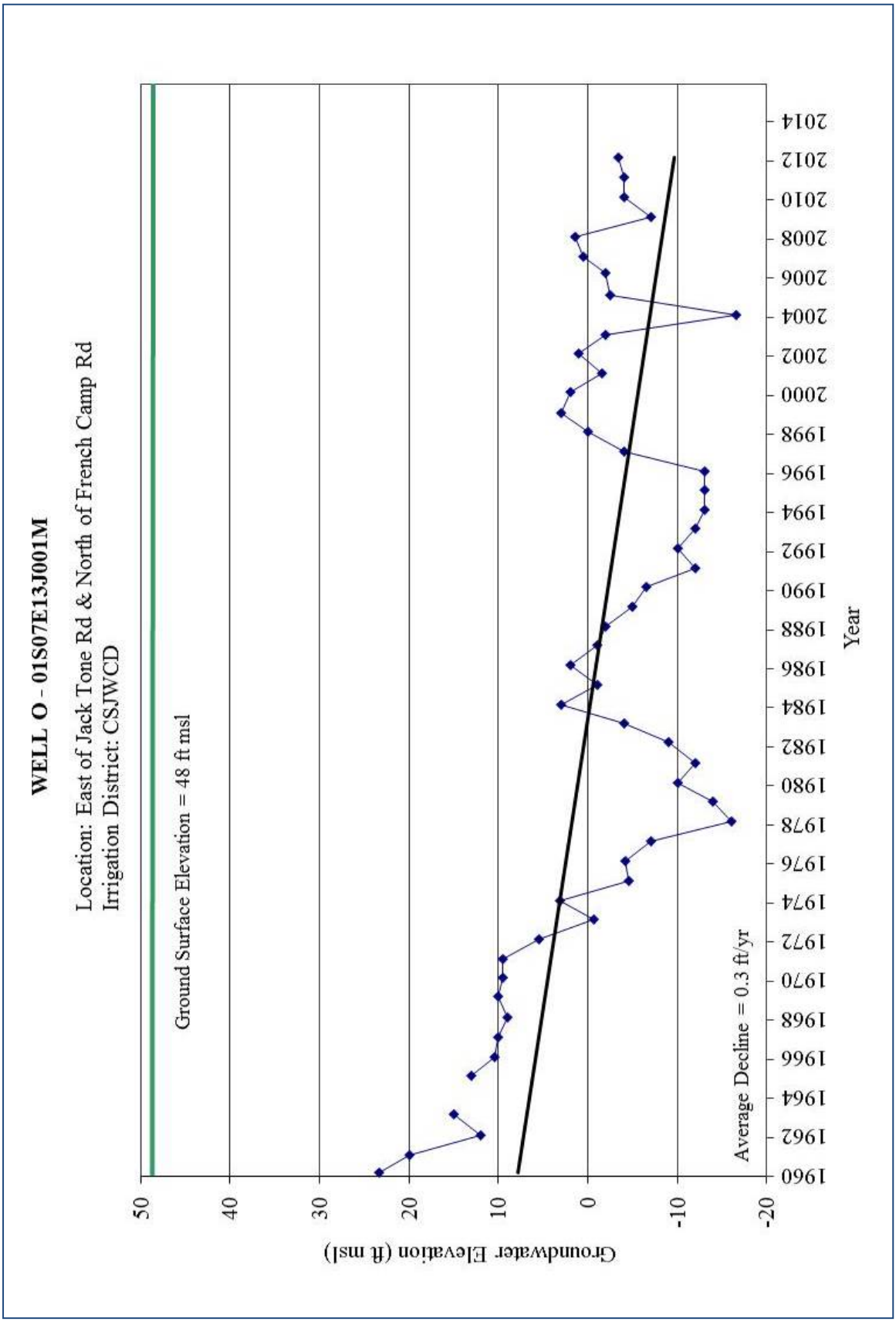

Figure 2-16 Spring Hydrograph Well O

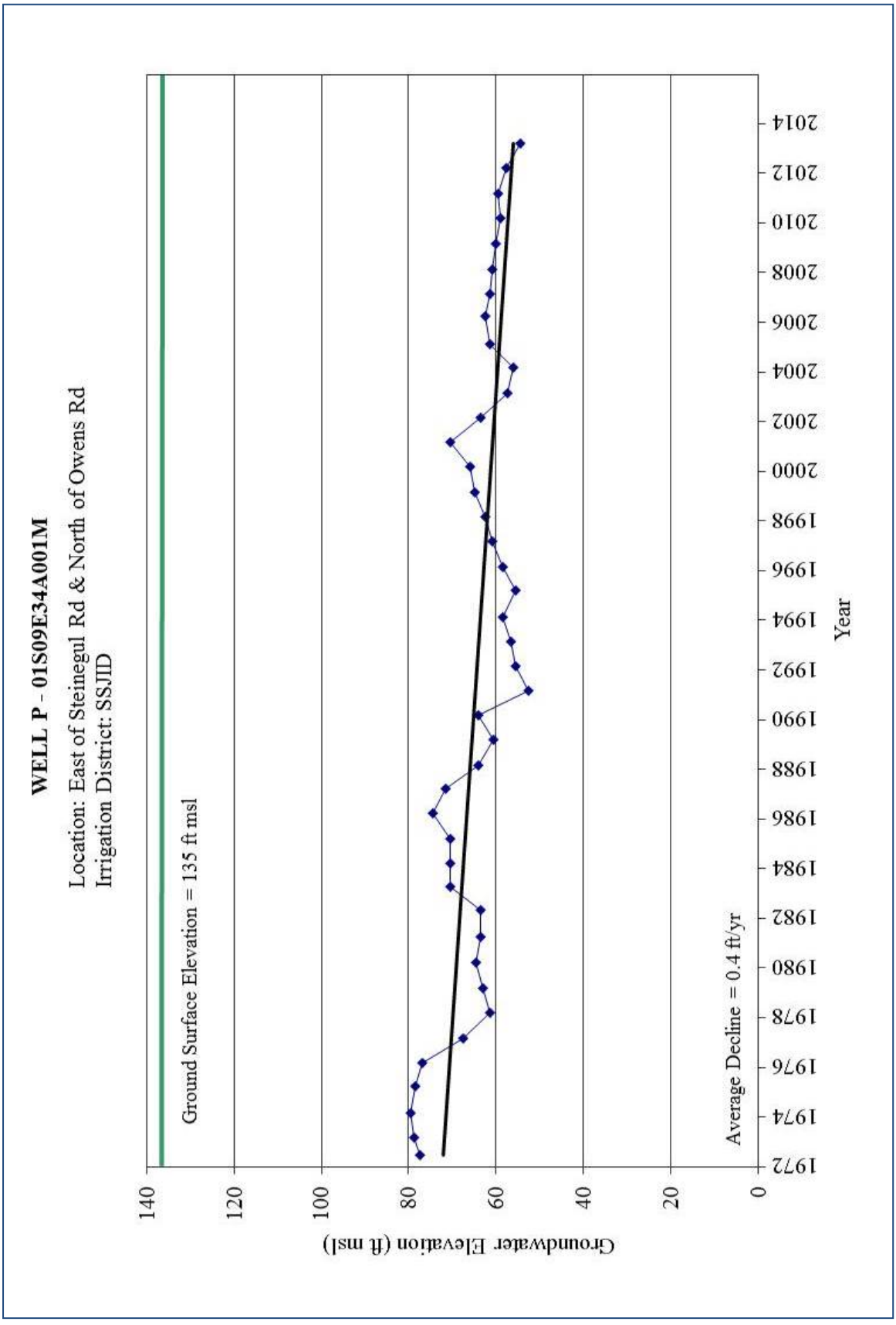

Figure 2-17 Spring Hydrograph Well P

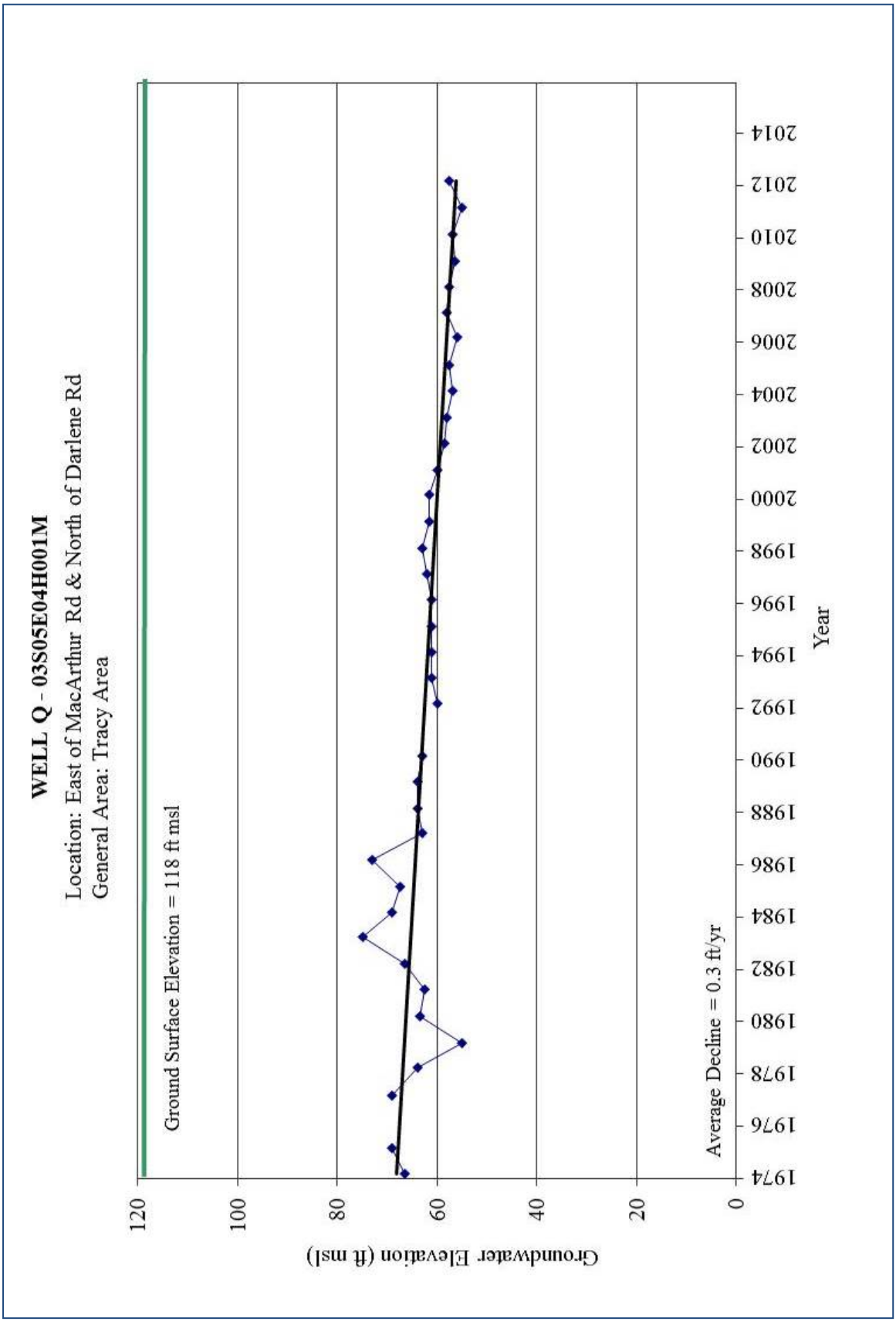

Figure 2-18 Spring Hydrograph Well Q

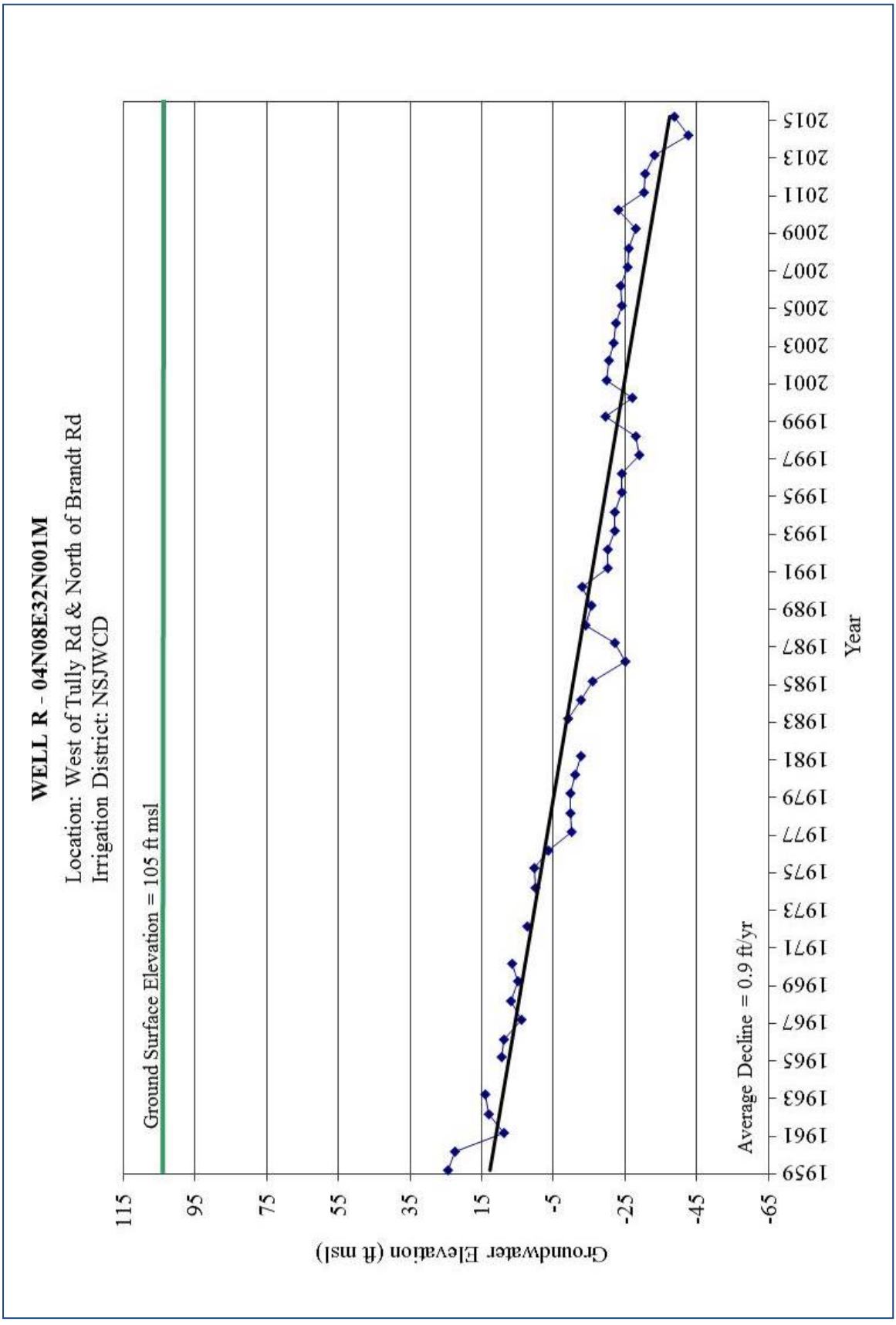

Figure 2-19 Spring Hydrograph Well R

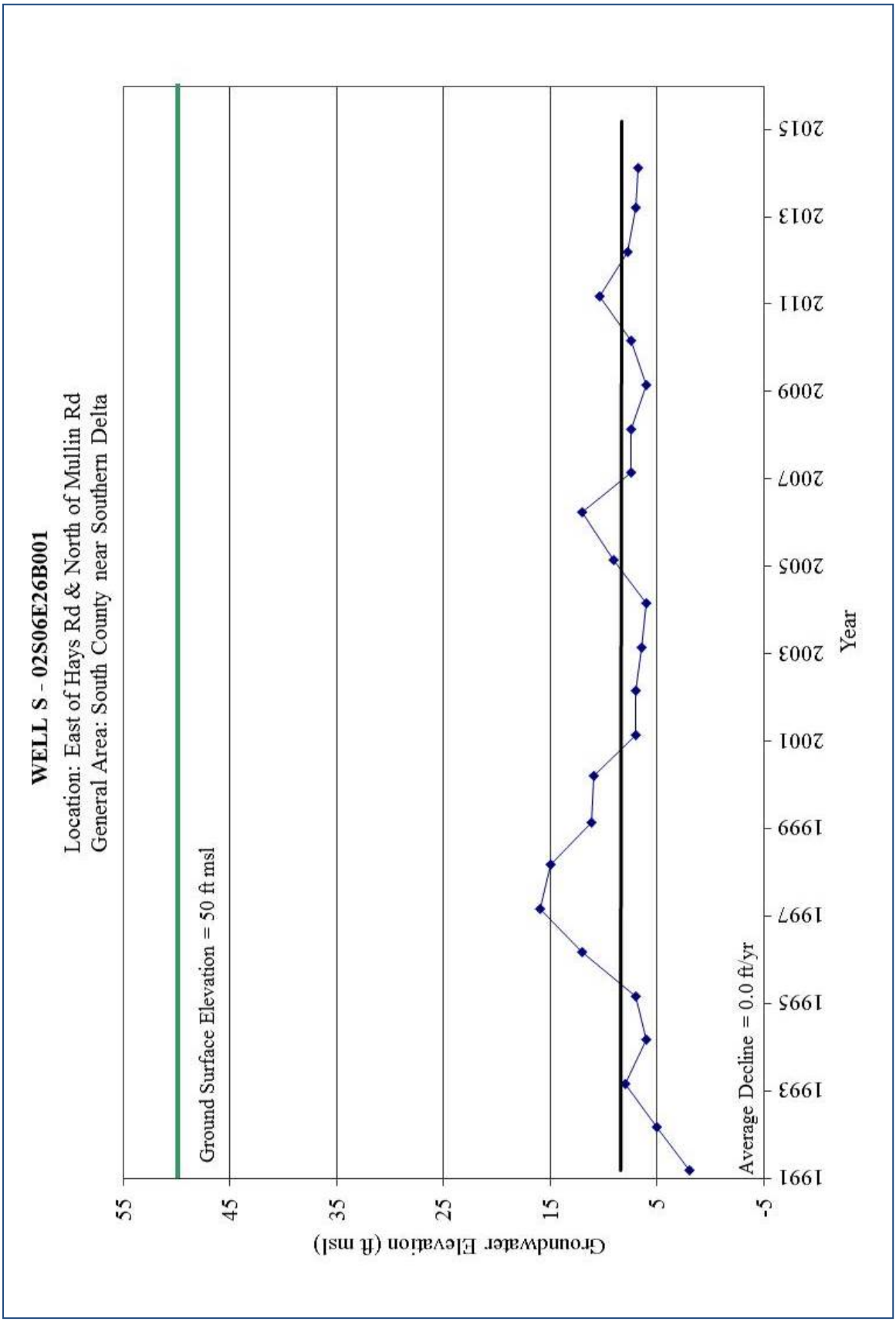

Figure 2-20 Spring Hydrograph Well S

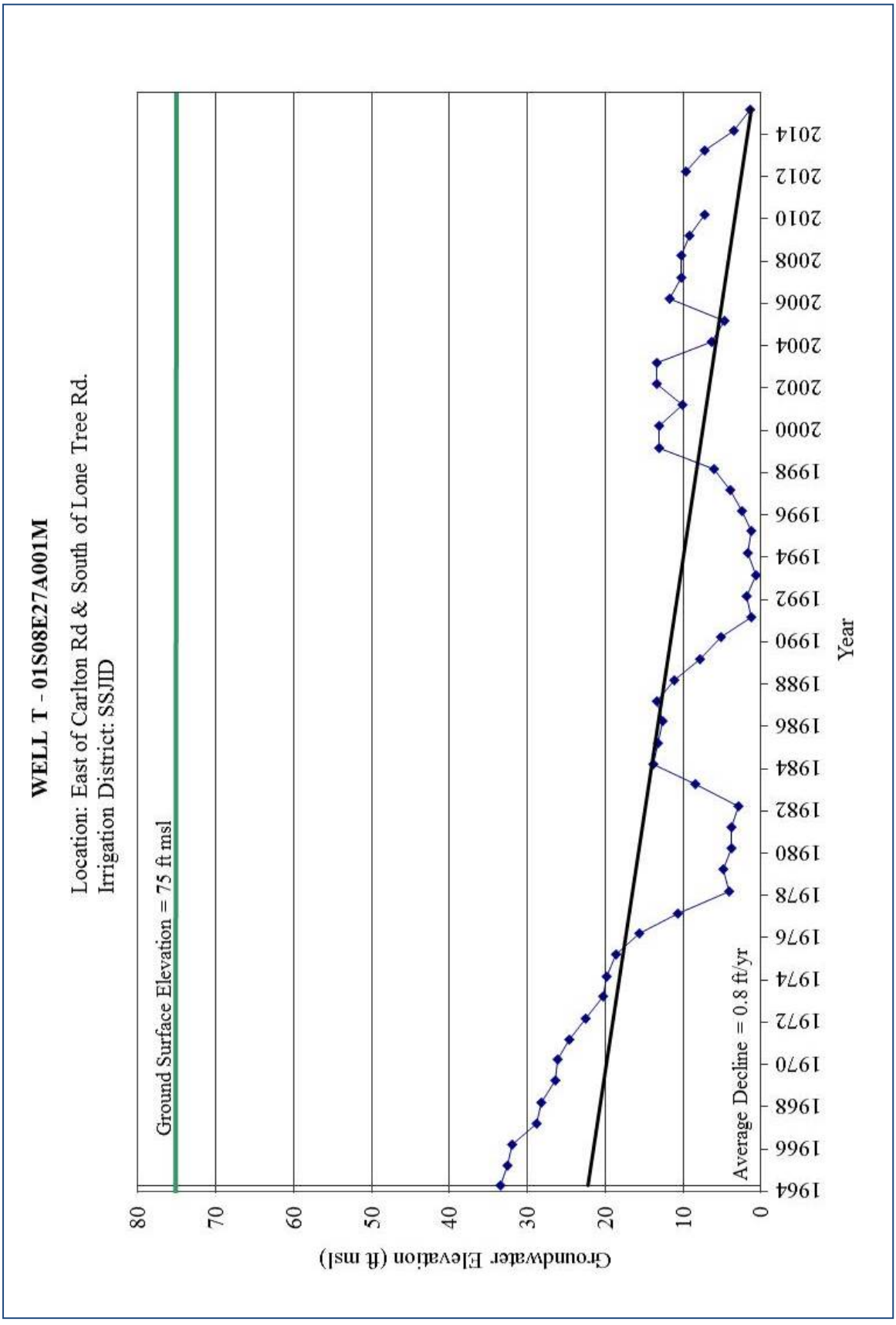

Figure 2-21 Spring Hydrograph Well T

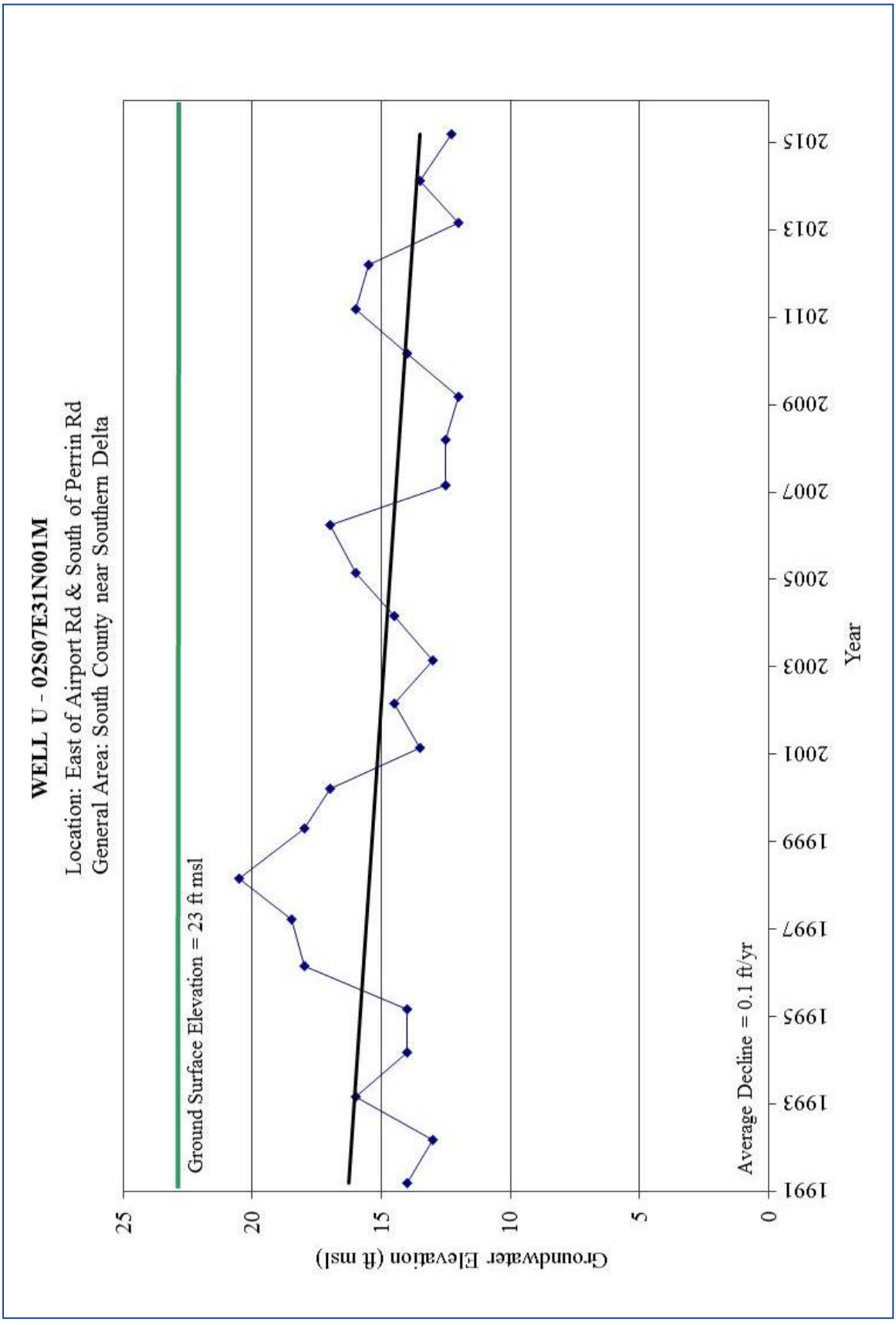

Figure 2-22 Spring Hydrograph Well U

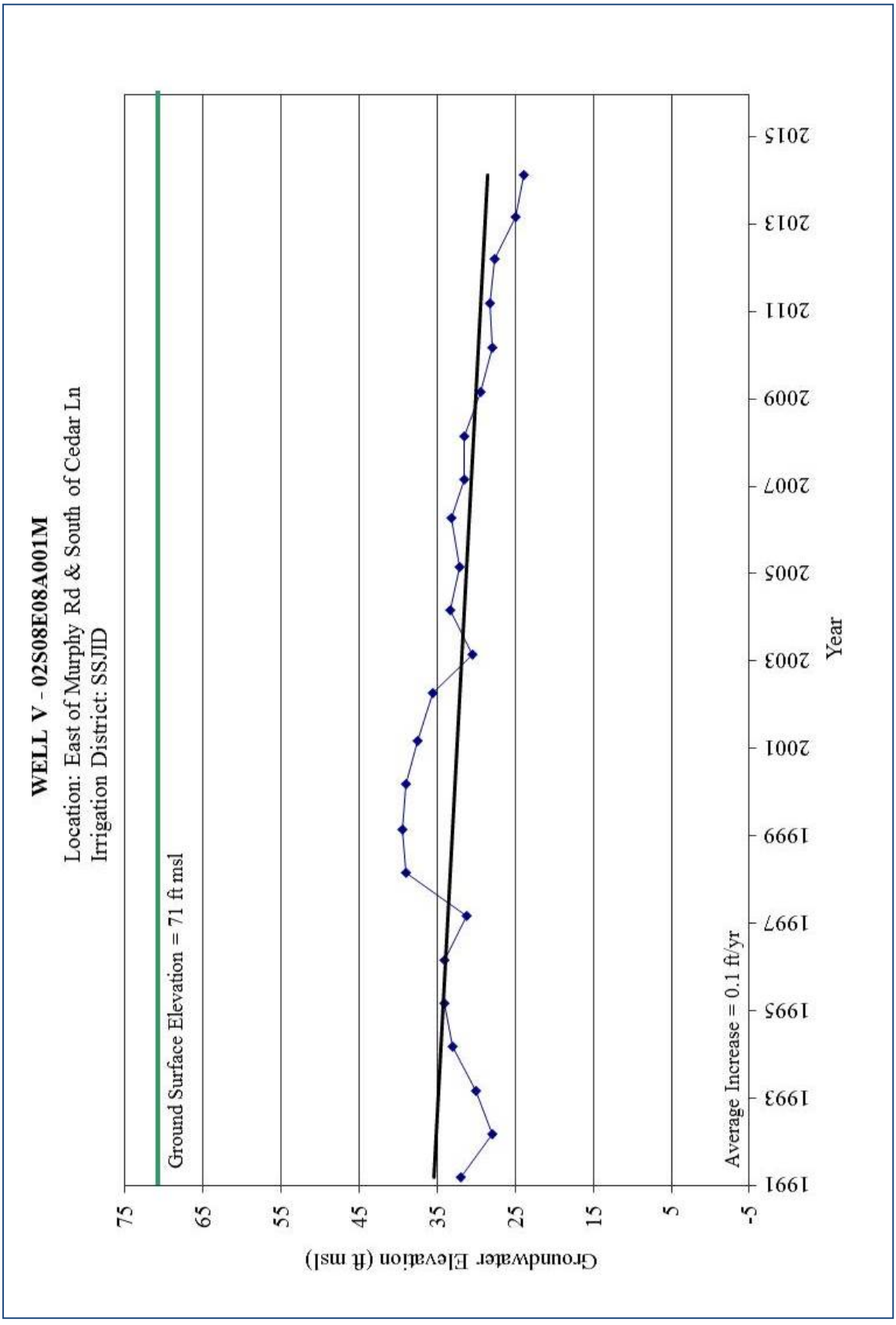

Figure 2-23 Spring Hydrograph Well V

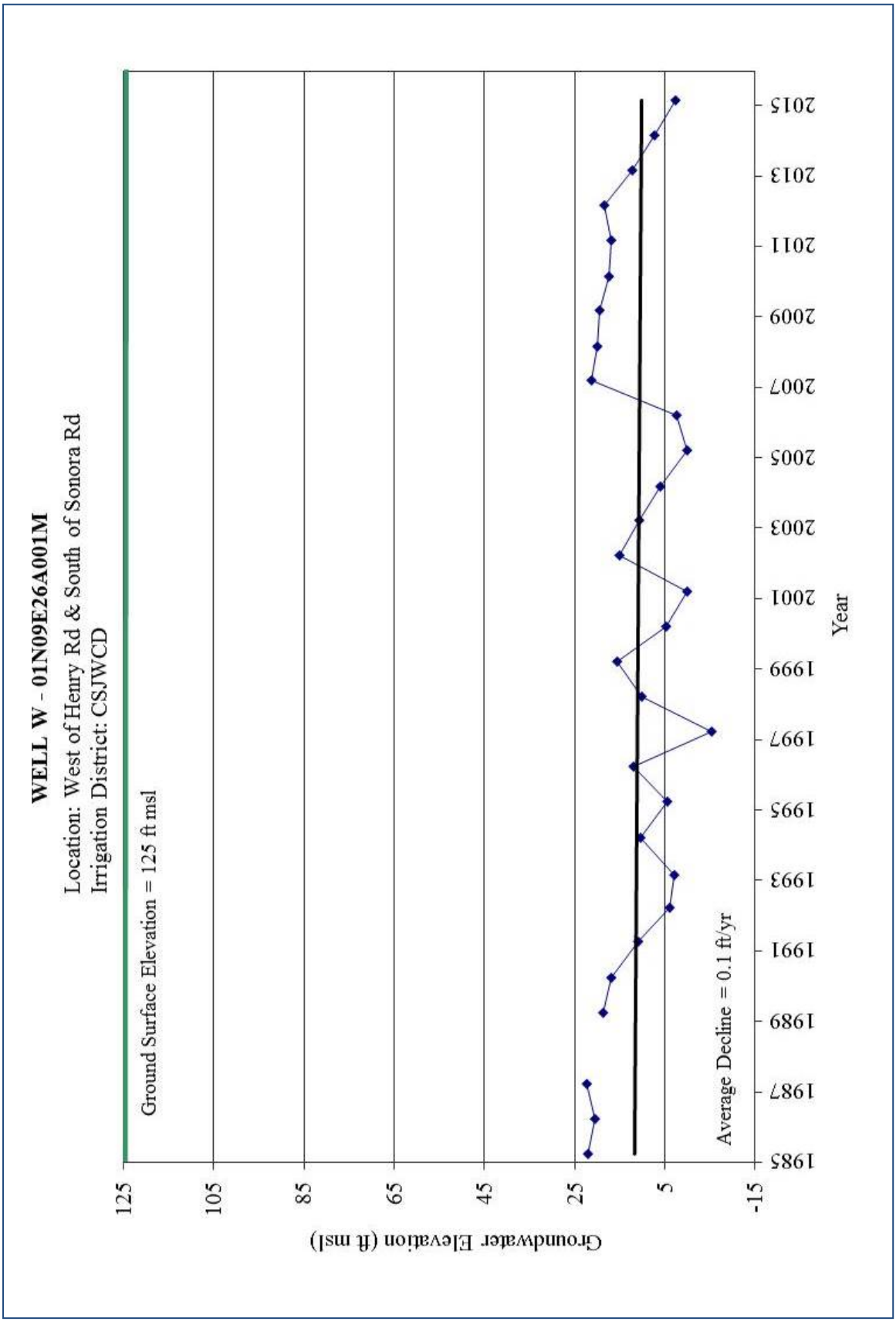

Figure 2-24 Spring Hydrograph Well W

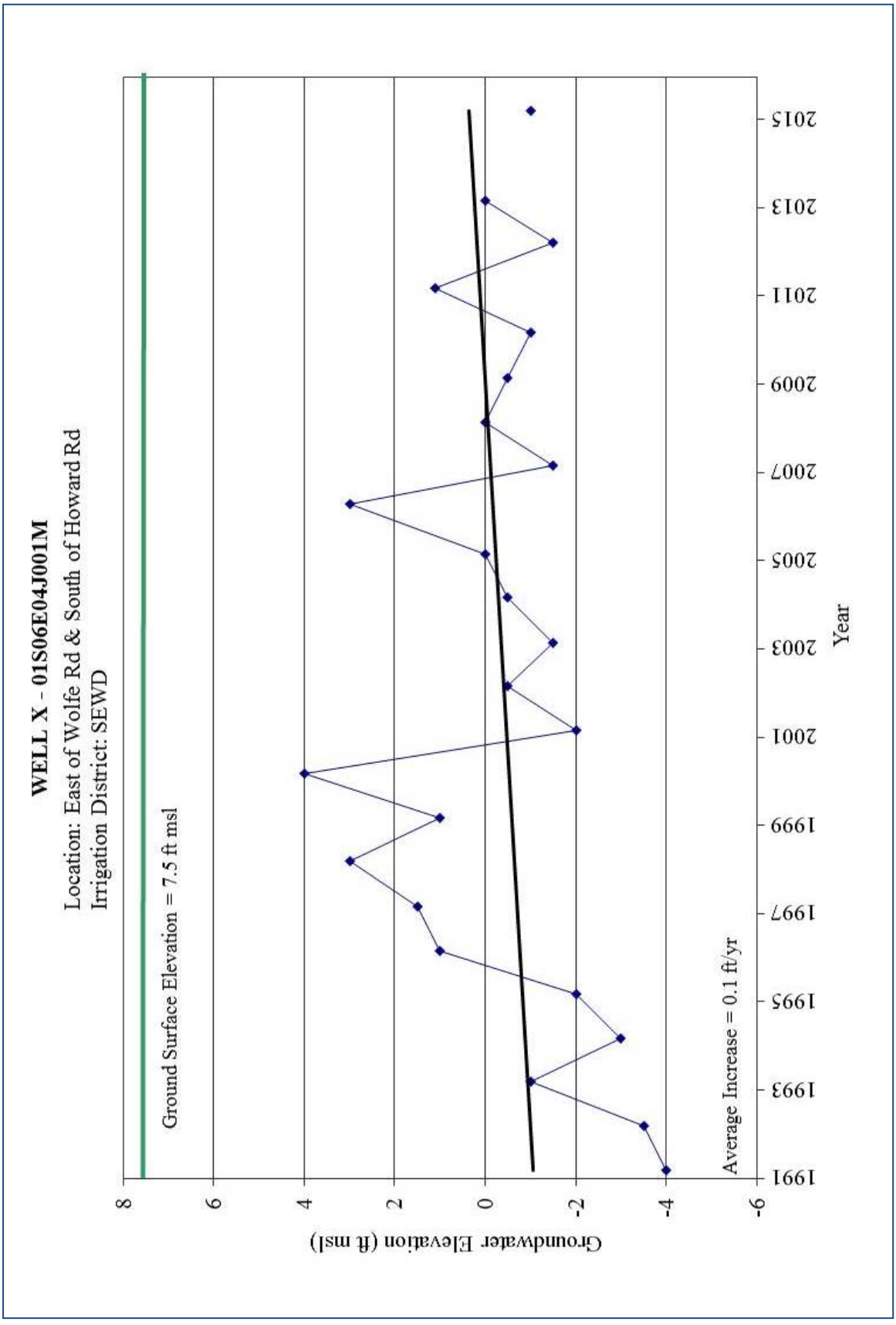

Figure 2-25 Spring Hydrograph Well X

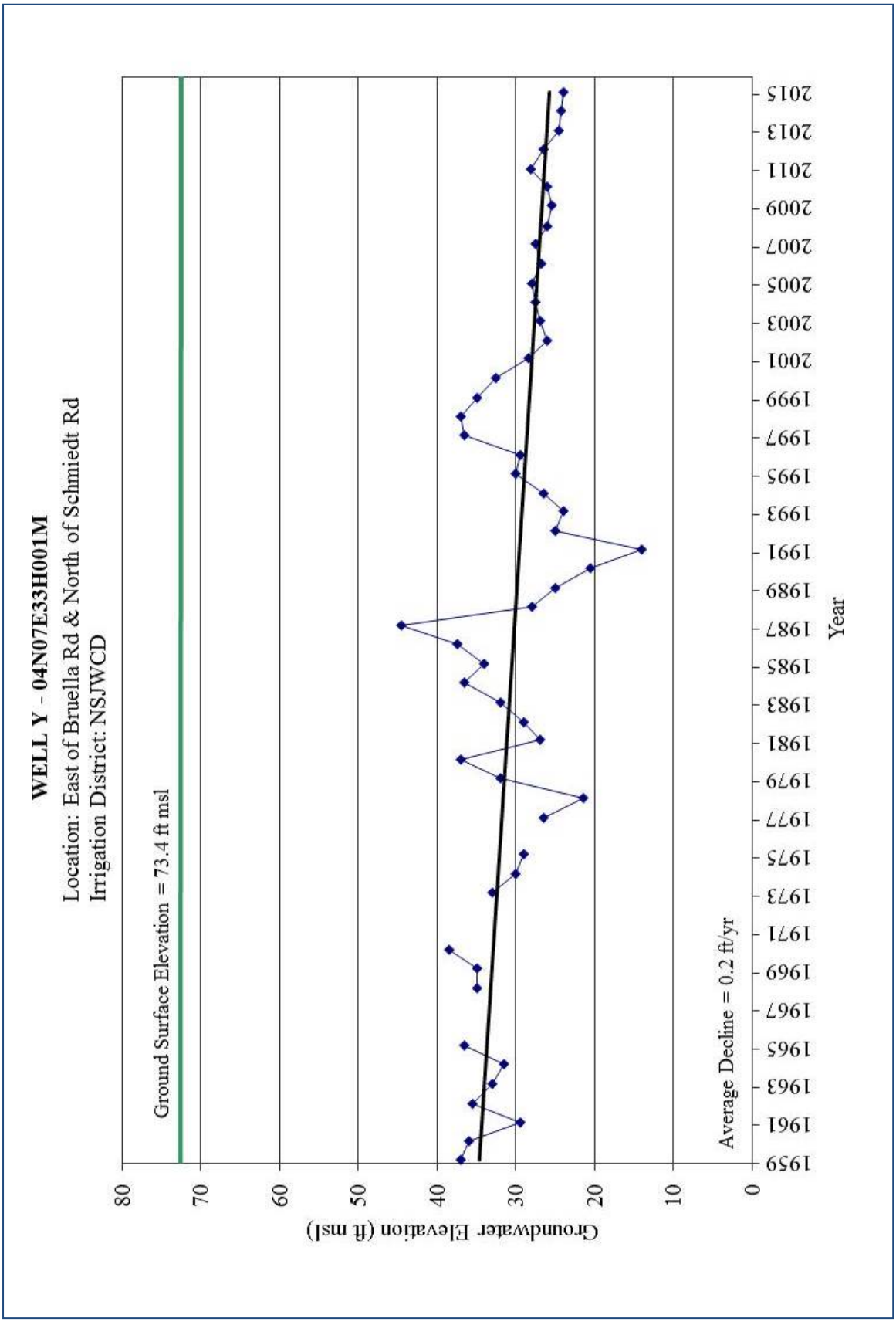

Figure 2-26 Spring Hydrograph Well Y

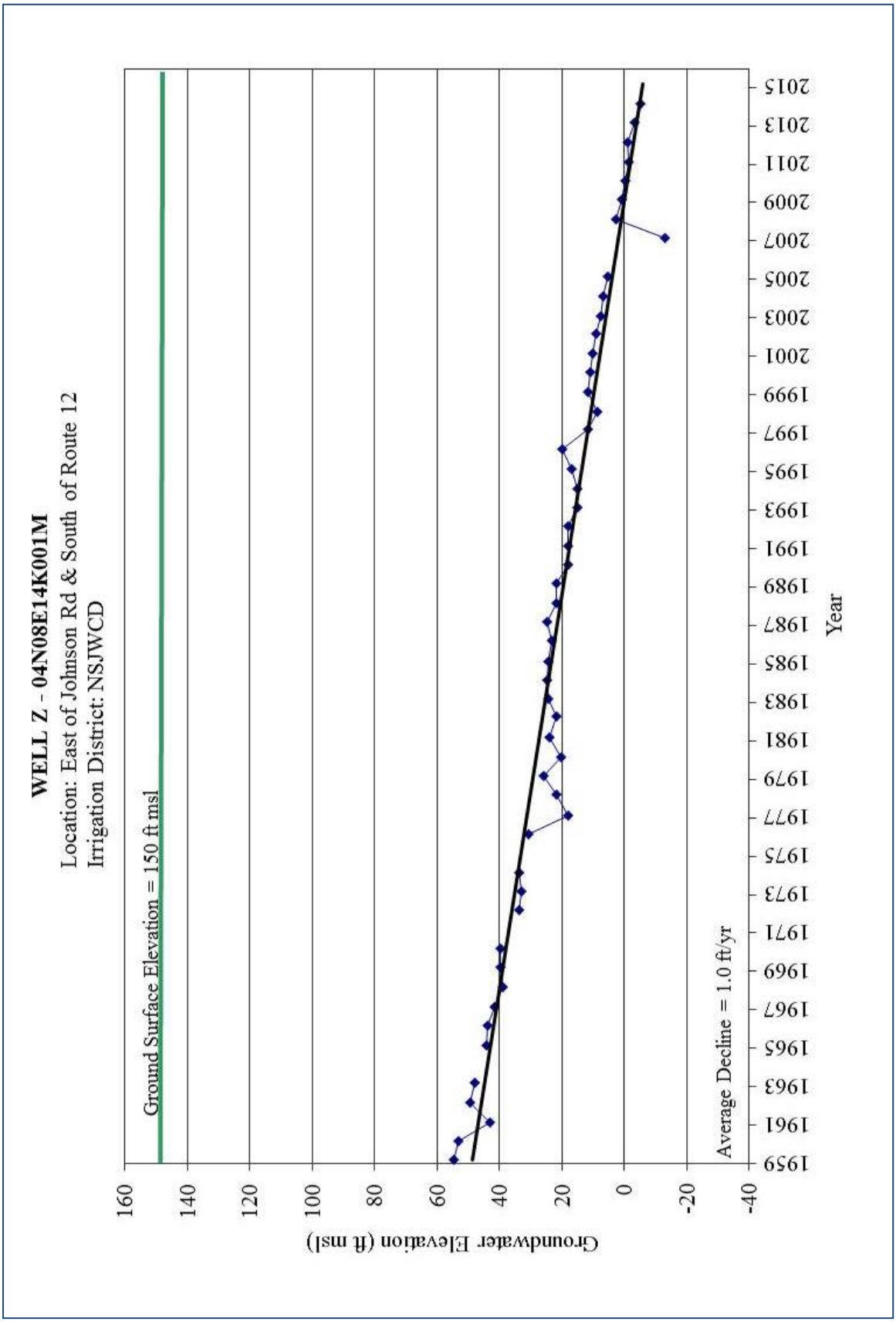

Figure 2-27 Spring Hydrograph Well Z

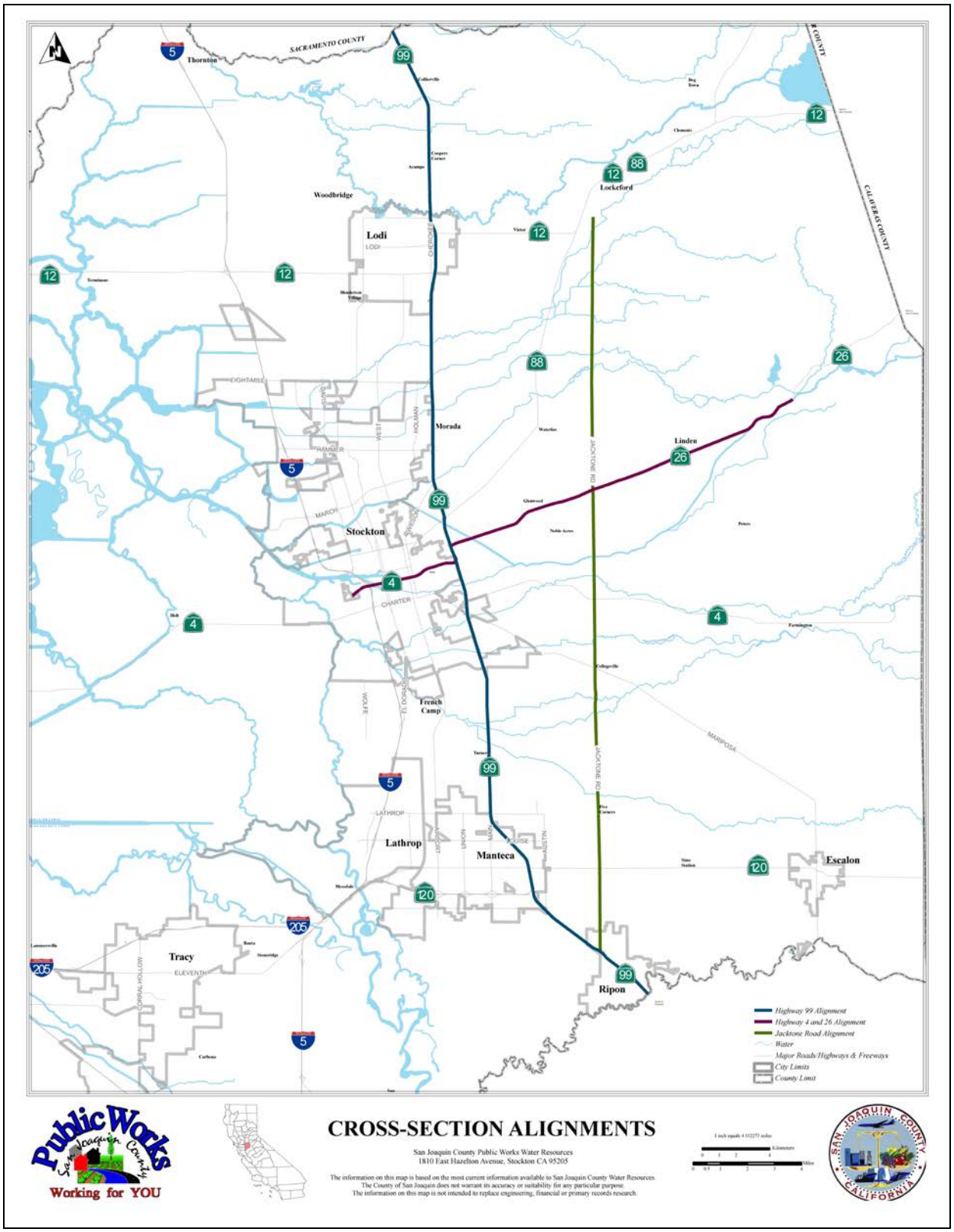

Figure 2-28 Cross Section Alignments

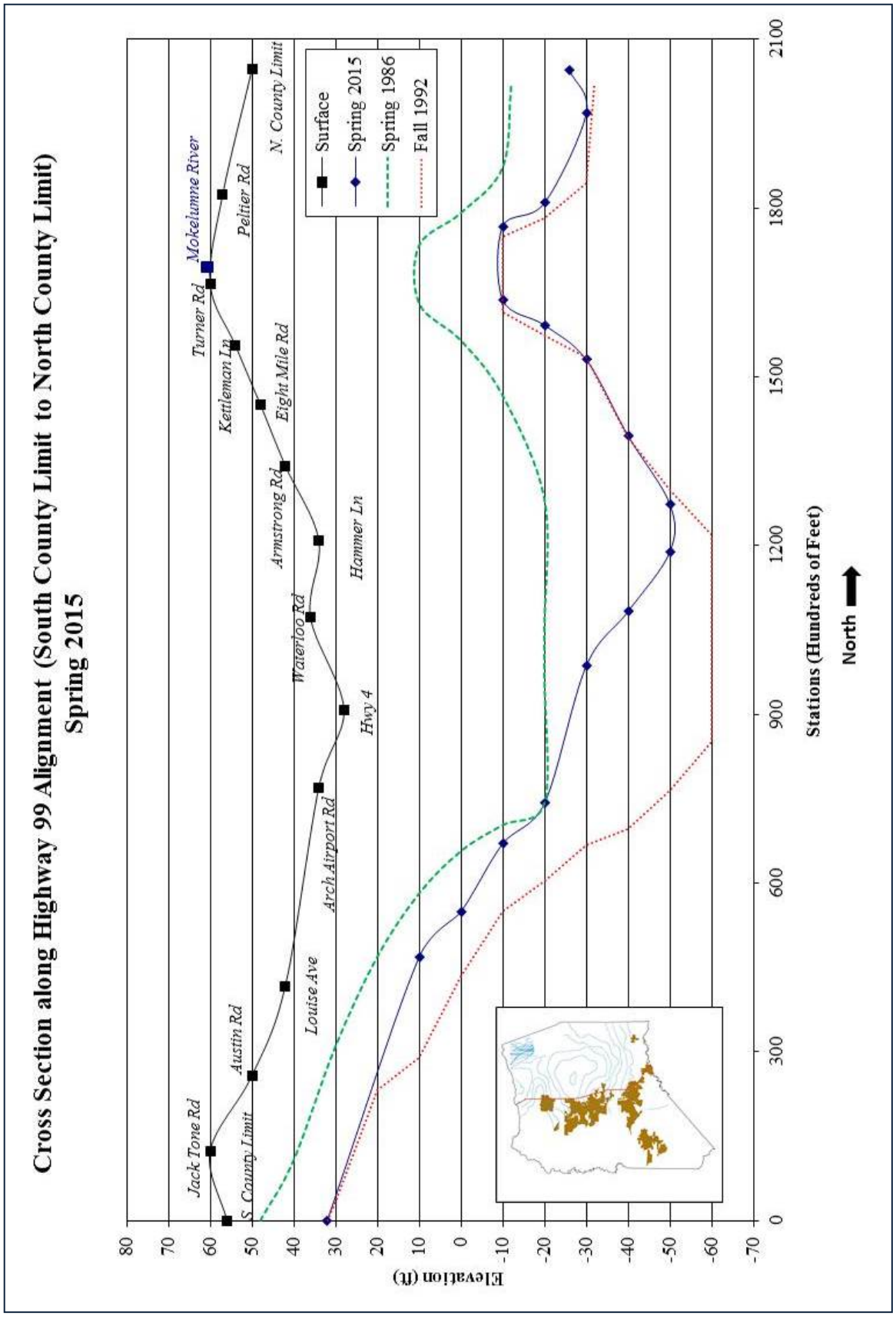

Figure 2-29 Highway 99 Cross Section Spring 2015

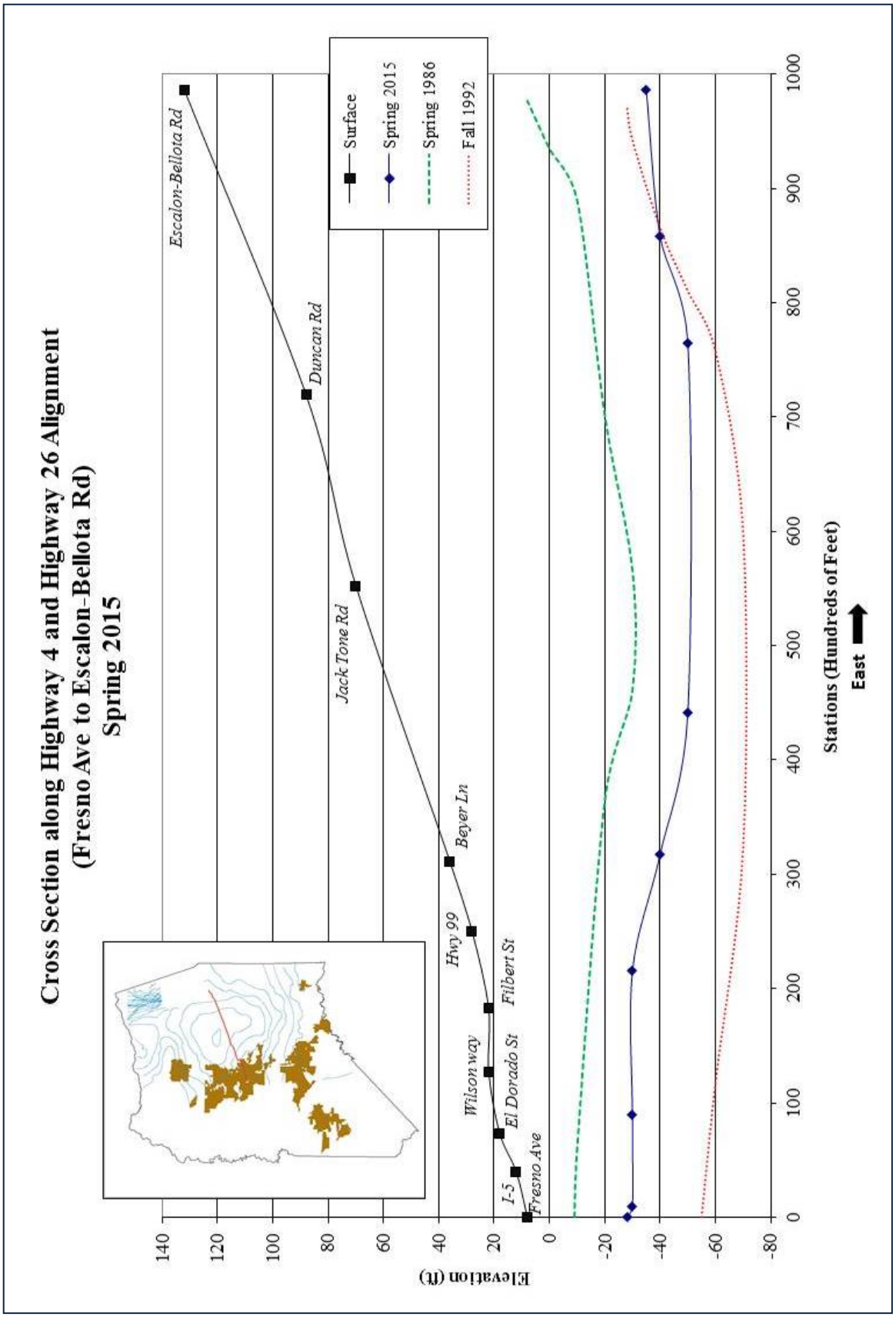

Figure 2-30 Highway 4 & Highway 26 Cross Section Spring 2015

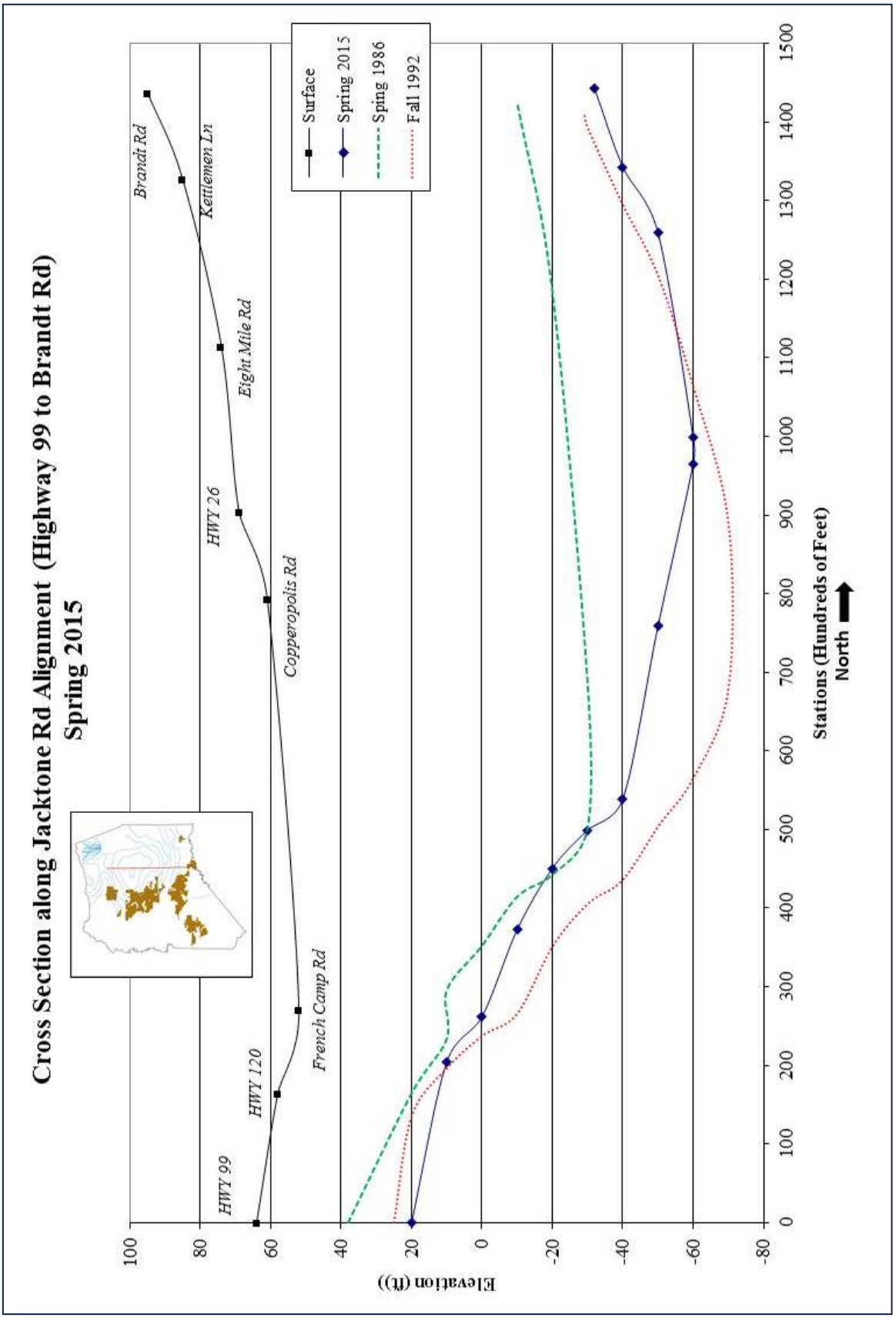

Figure 2-31 Jacktone Rd Cross Section Spring 2015

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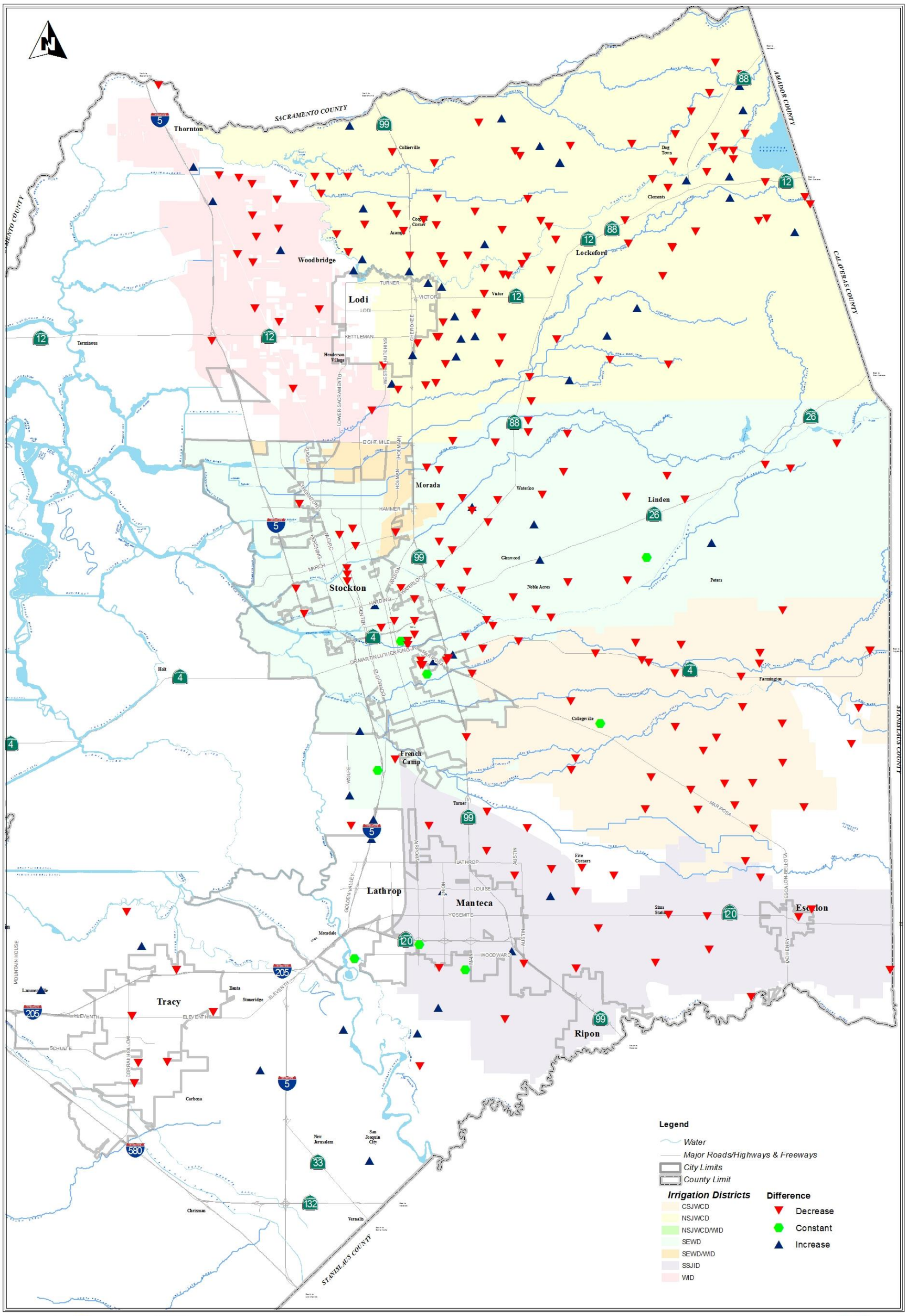

Figure 2-32 Differences in Groundwater Elevations Spring 2015 (Spring 2015 and Spring 2014 Comparisons)

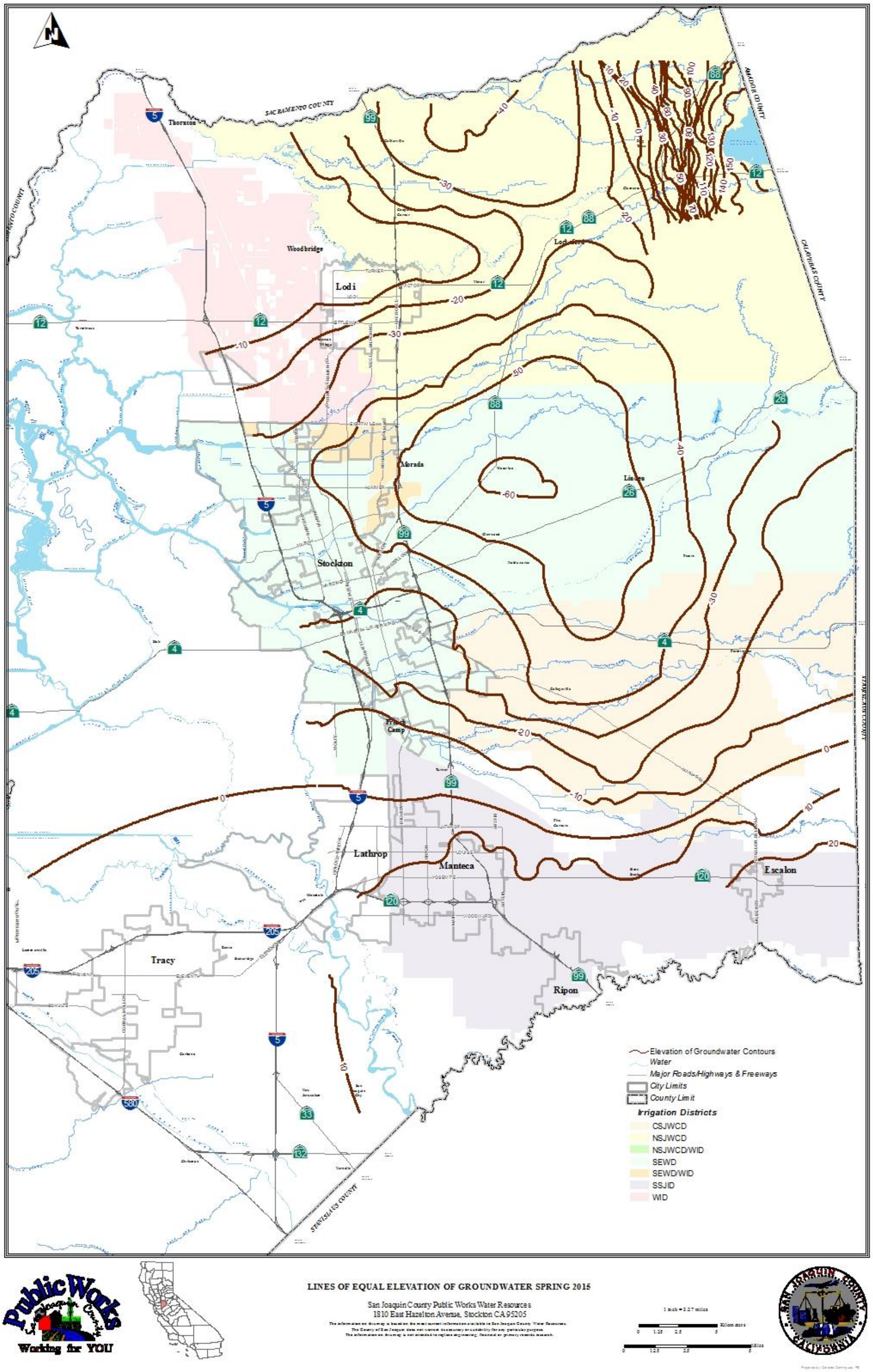

Figure 2-33 Lines of Equal Elevation of Groundwater Spring 2015

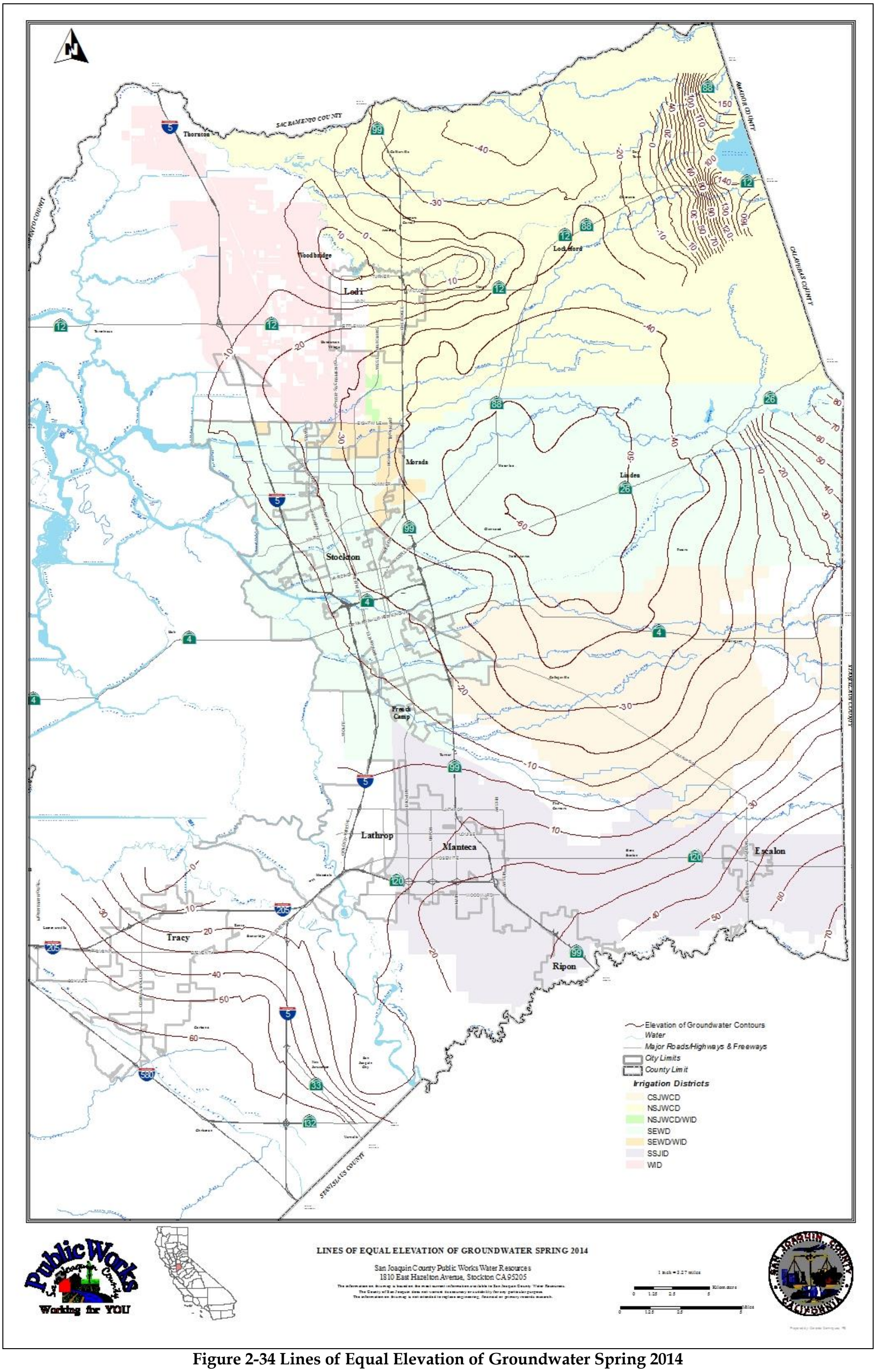

Figure 2-34 Lines of Equal Elevation of Groundwater Spring 2014

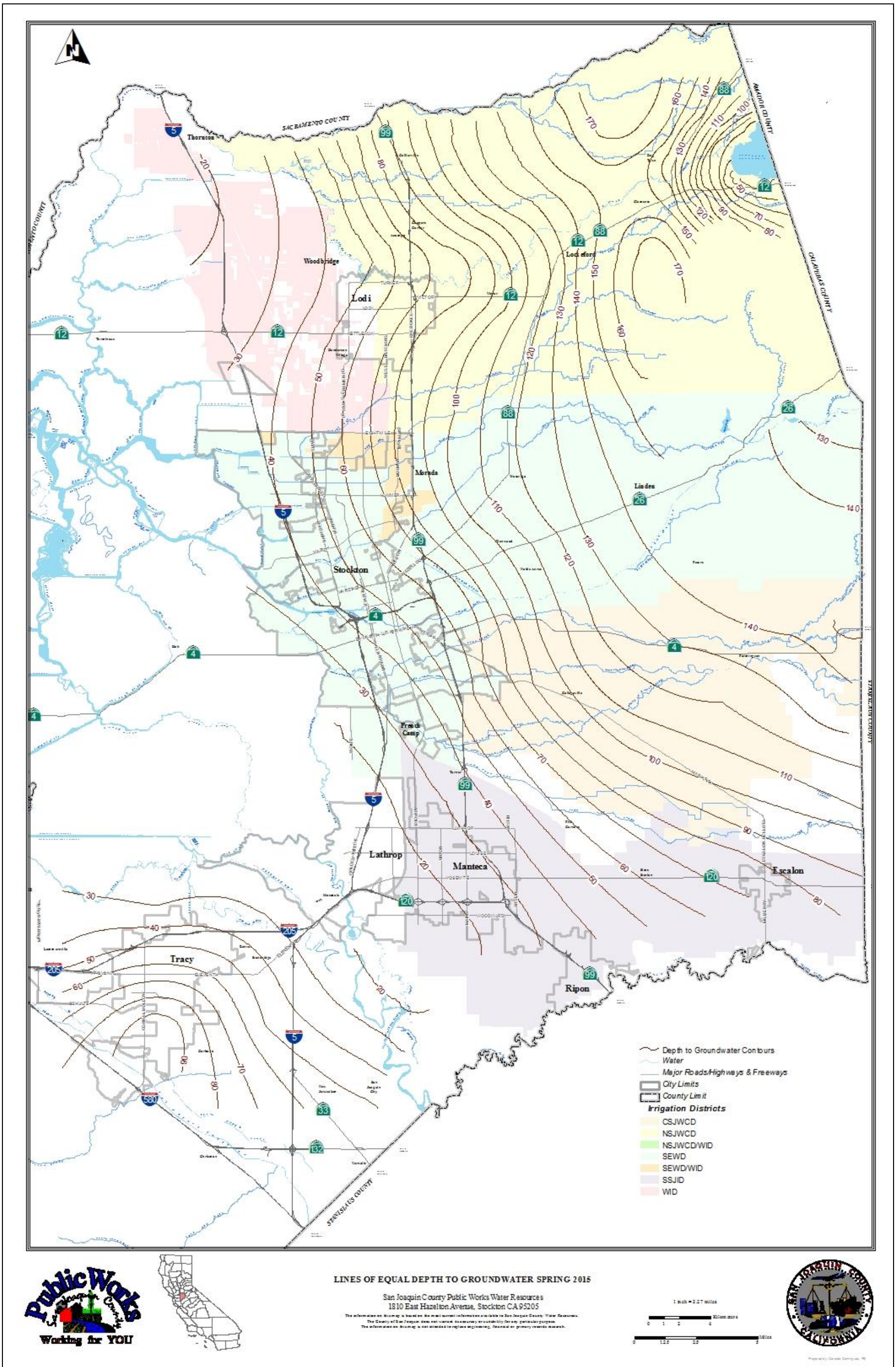

Figure 2-35 Lines of Equal Depth to Groundwater Spring 2015

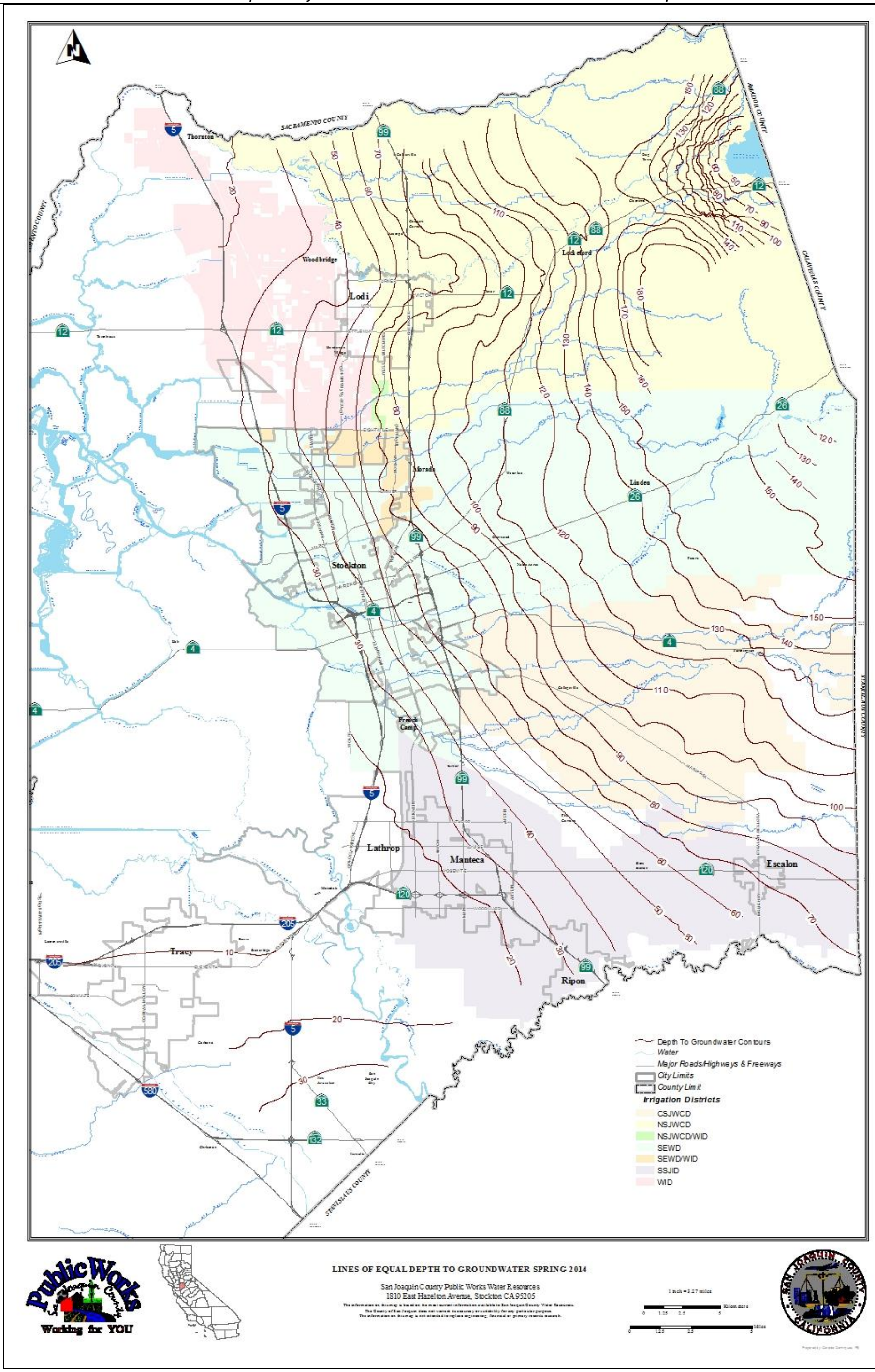

Figure 2-36 Lines of Equal Depth to Groundwater Spring 2014