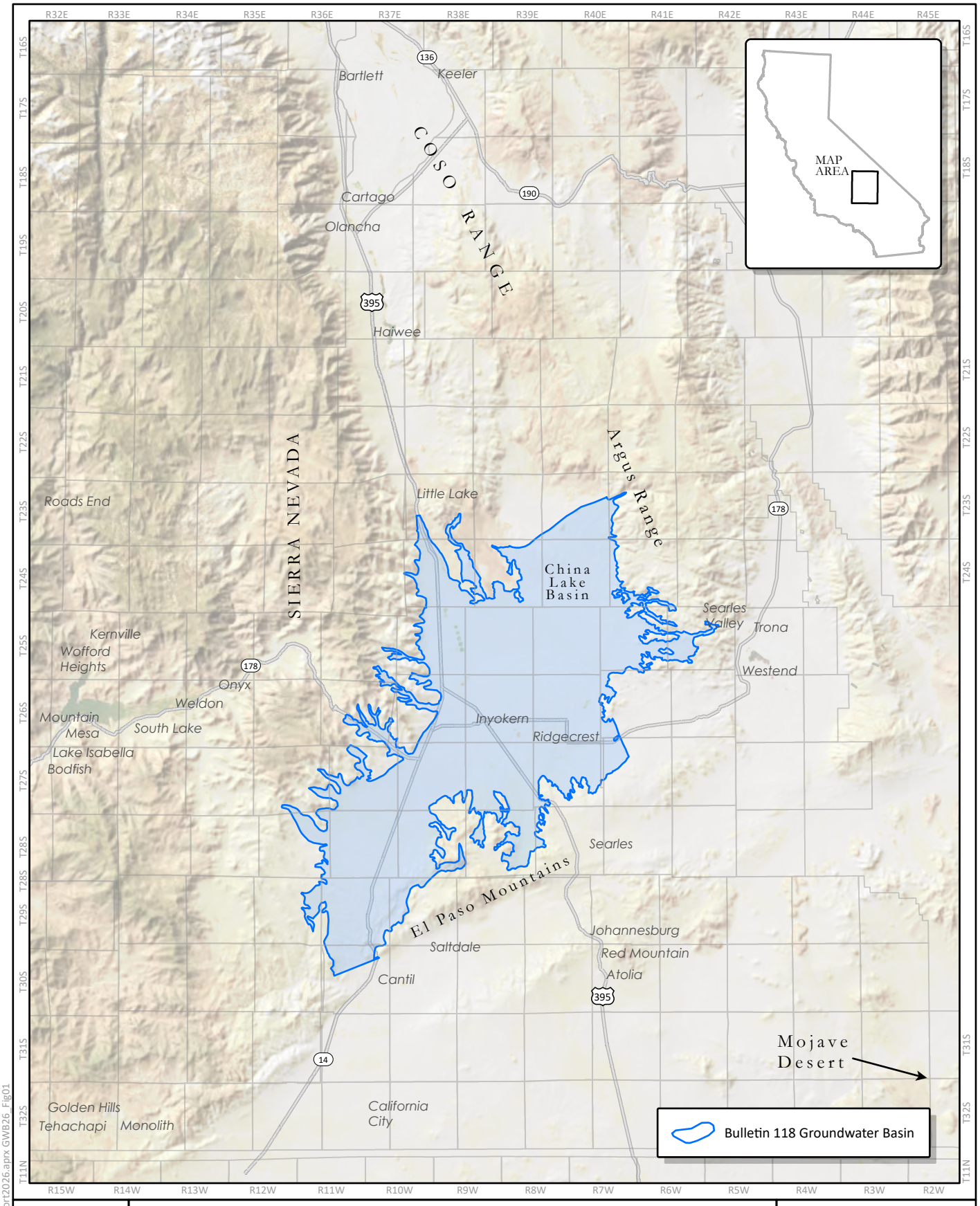
FIGURE 1



STETSON ENGINEERS INC.

GENERAL BASIN SETTING
INDIAN WELLS VALLEY GROUNDWATER BASIN
(DWR BULLETIN 118 BASIN NO. 6-054)

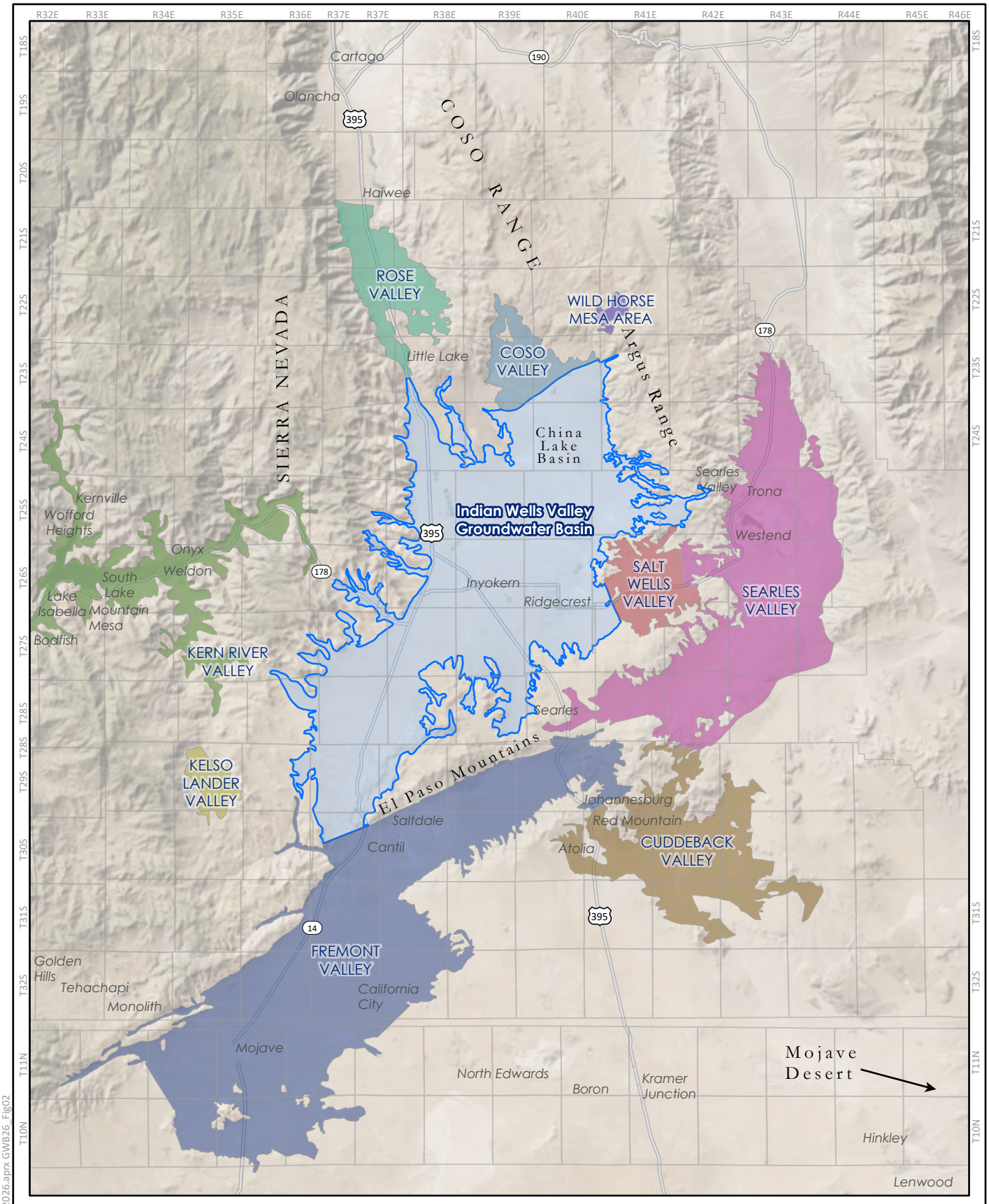
DRAFT
4/27/2026

N

0 6 12
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig01

FIGURE 2



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STETSON ENGINEERS INC.

ADJACENT AND NEIGHBORING GROUNDWATER BASINS

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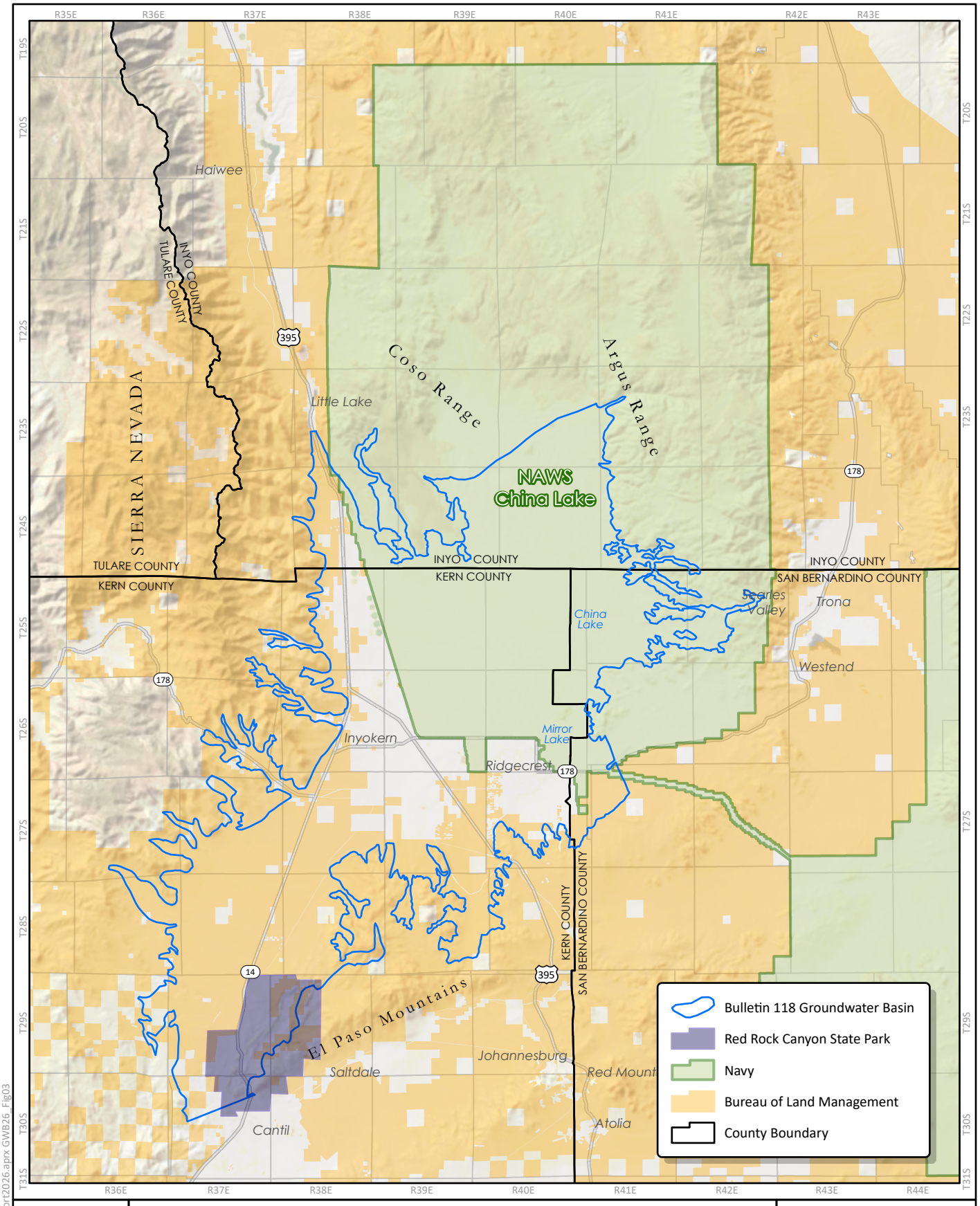
0 6 12
Miles

FIGURE 3



STETSON ENGINEERS INC.

JURISDICTIONS AND BOUNDARIES

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0 4 8
Miles

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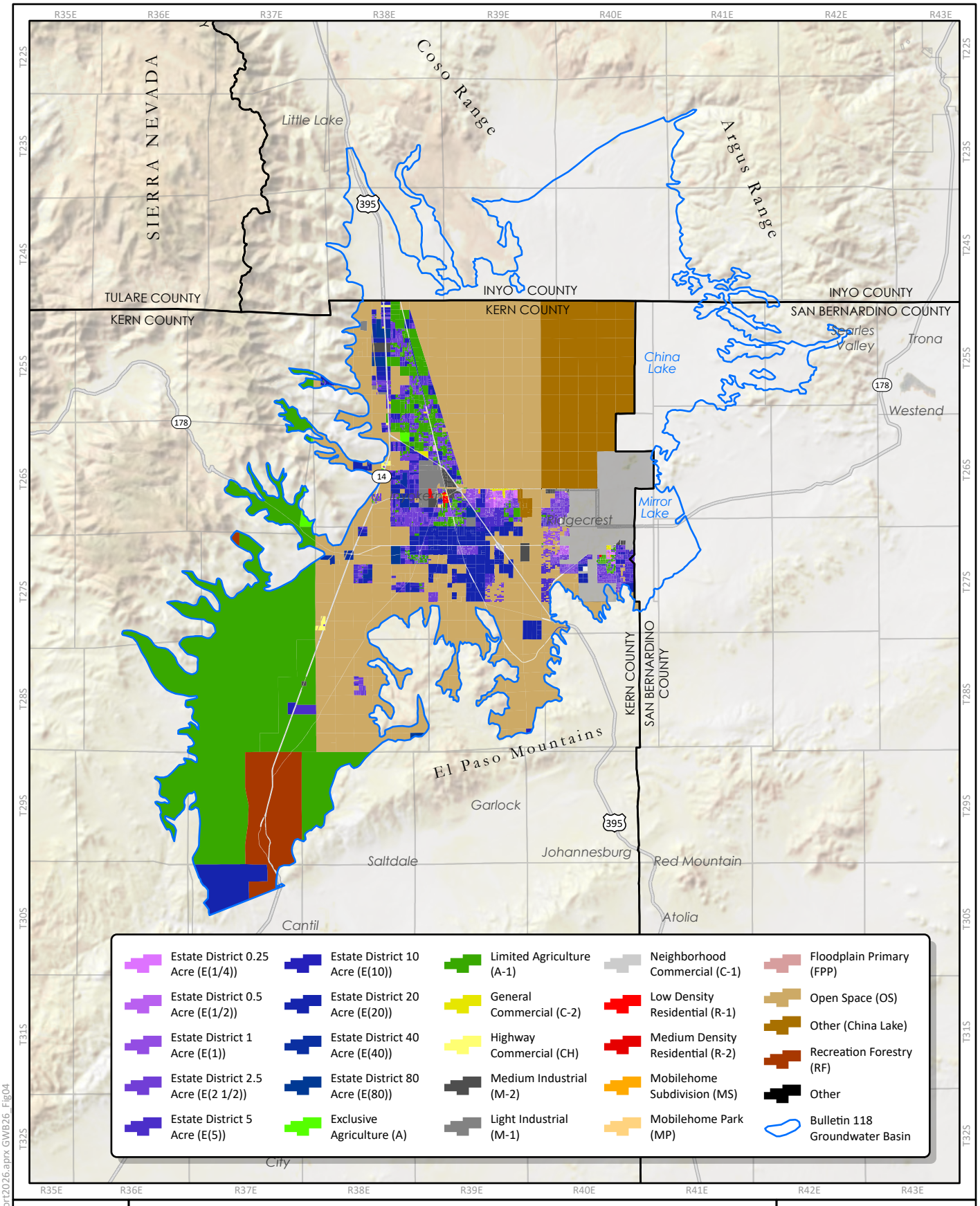
FIGURE 4



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STETSON ENGINEERS INC.

ZONING DISTRICTS (KERN COUNTY)

DRAFT
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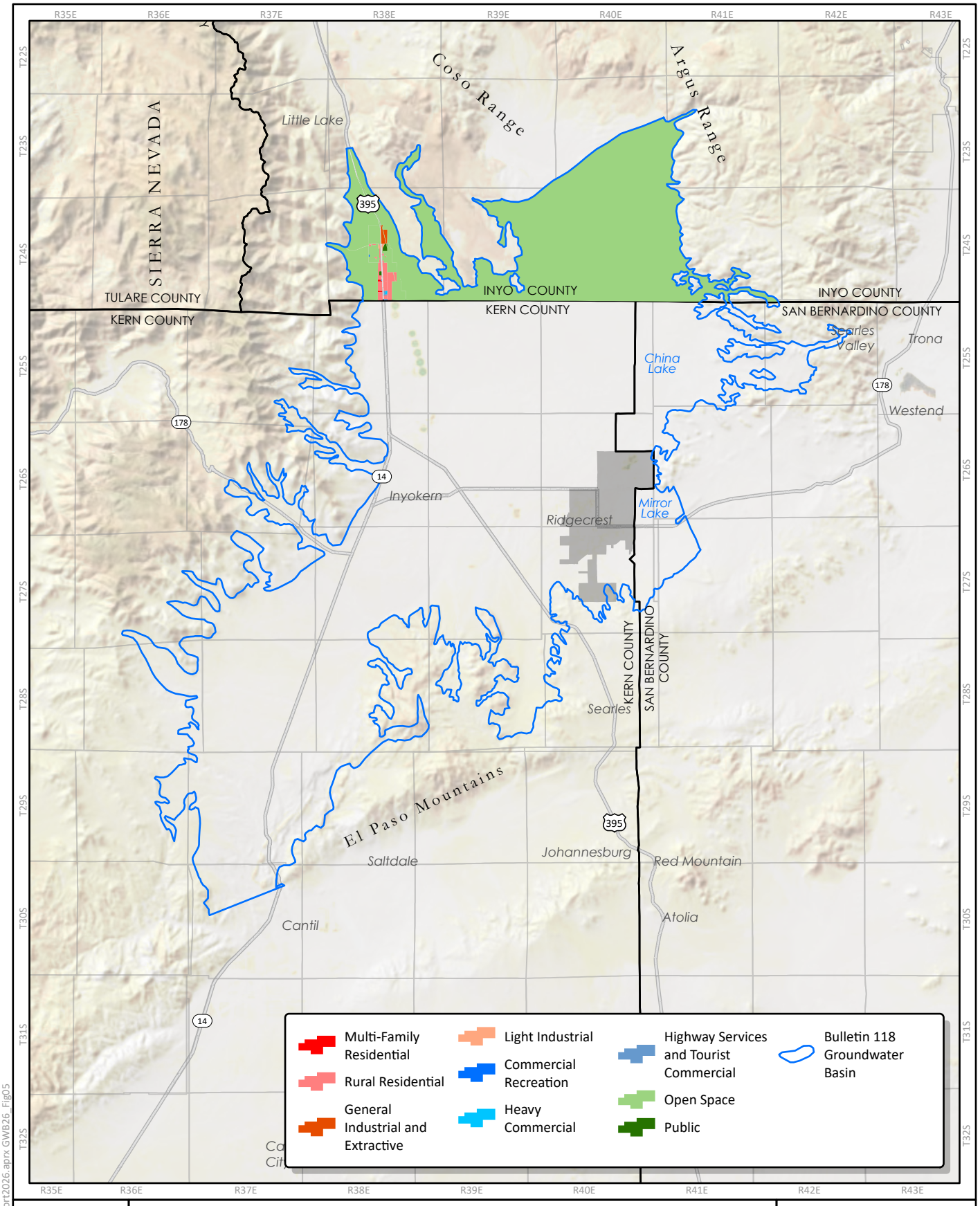
N

0 4 8
Miles

FIGURE 5



STETSON ENGINEERS INC.

ZONING DISTRICTS (INYO COUNTY)

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N

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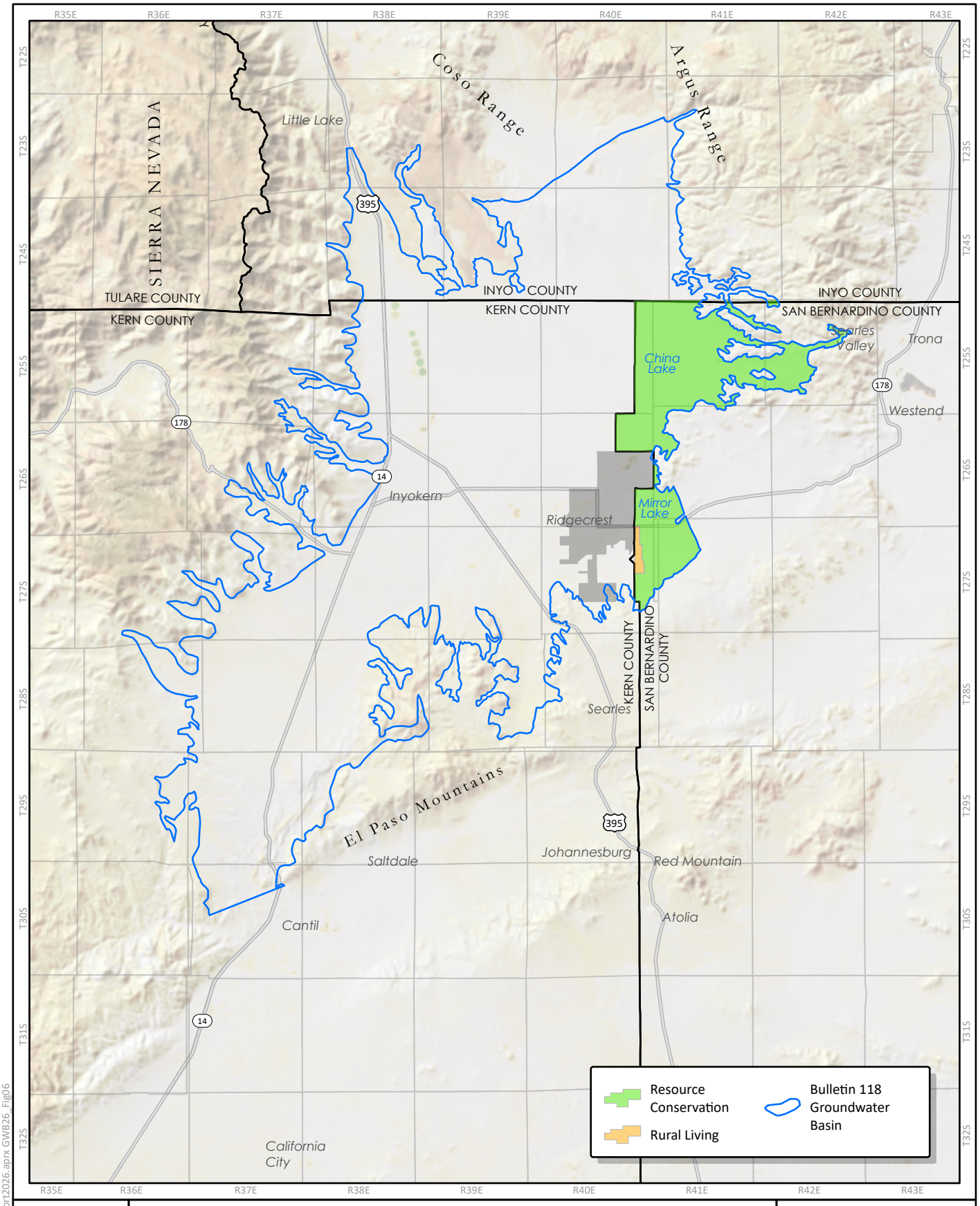
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig05

FIGURE 6



ZONING DISTRICTS (SAN BERNARDINO COUNTY)

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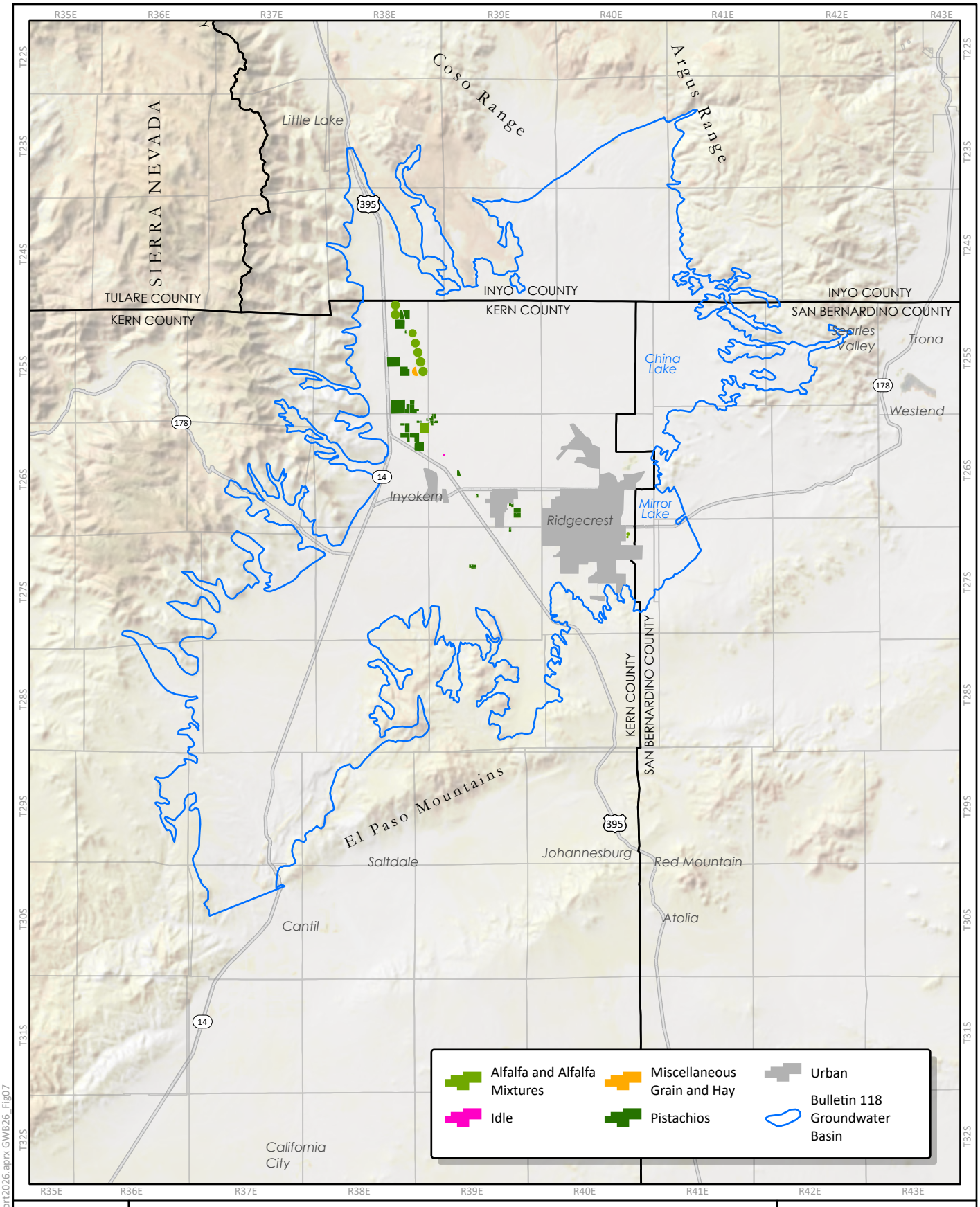
N

0 4 8
Miles

STETSON ENGINEERS INC.

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig06

FIGURE 7



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STETSON ENGINEERS INC.

ACTIVE AGRICULTURAL LANDS

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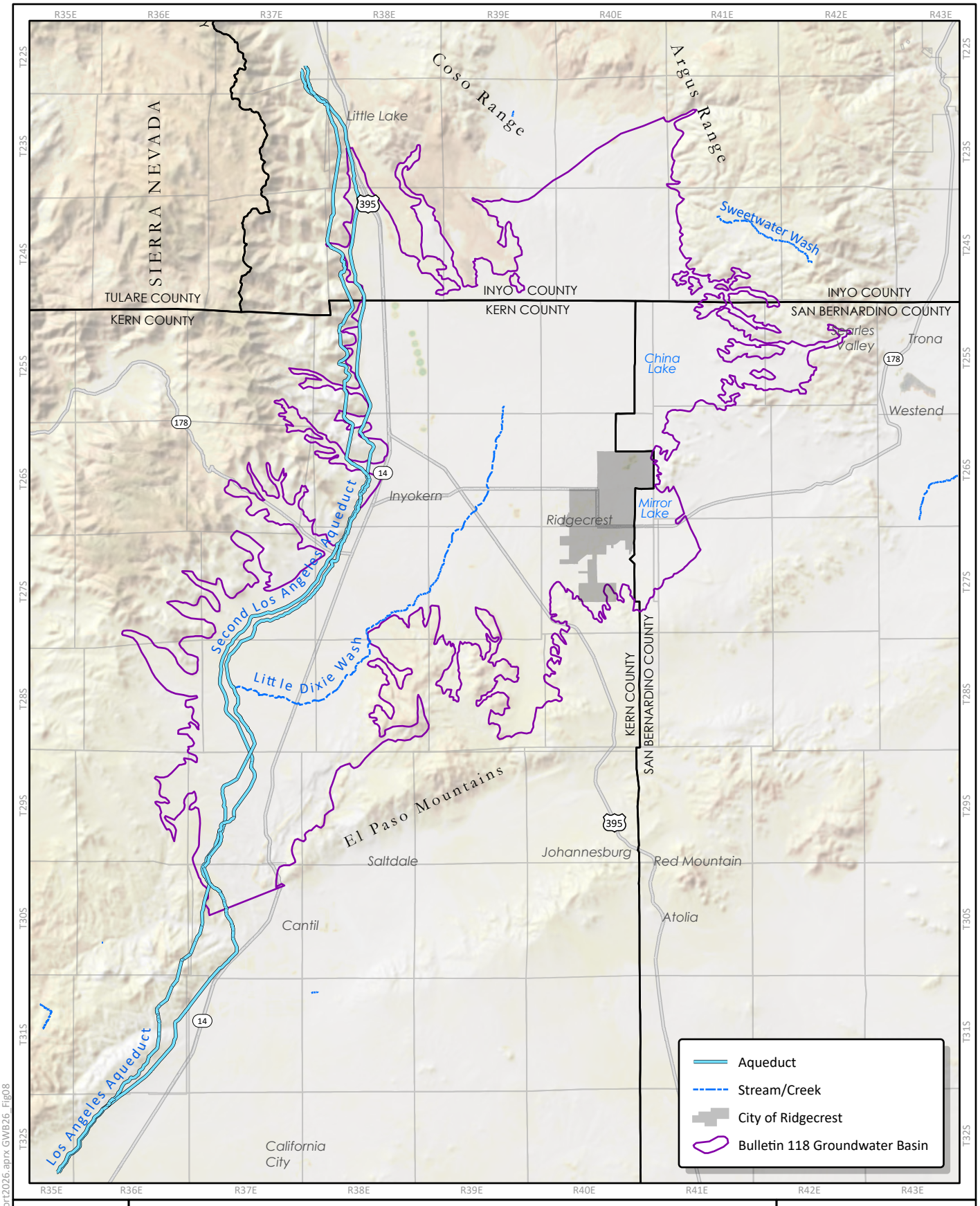
N

0 4 8
Miles

FIGURE 8



STETSON ENGINEERS INC.

STREAMS, RIVERS AND OTHER SURFACE WATERS

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Miles

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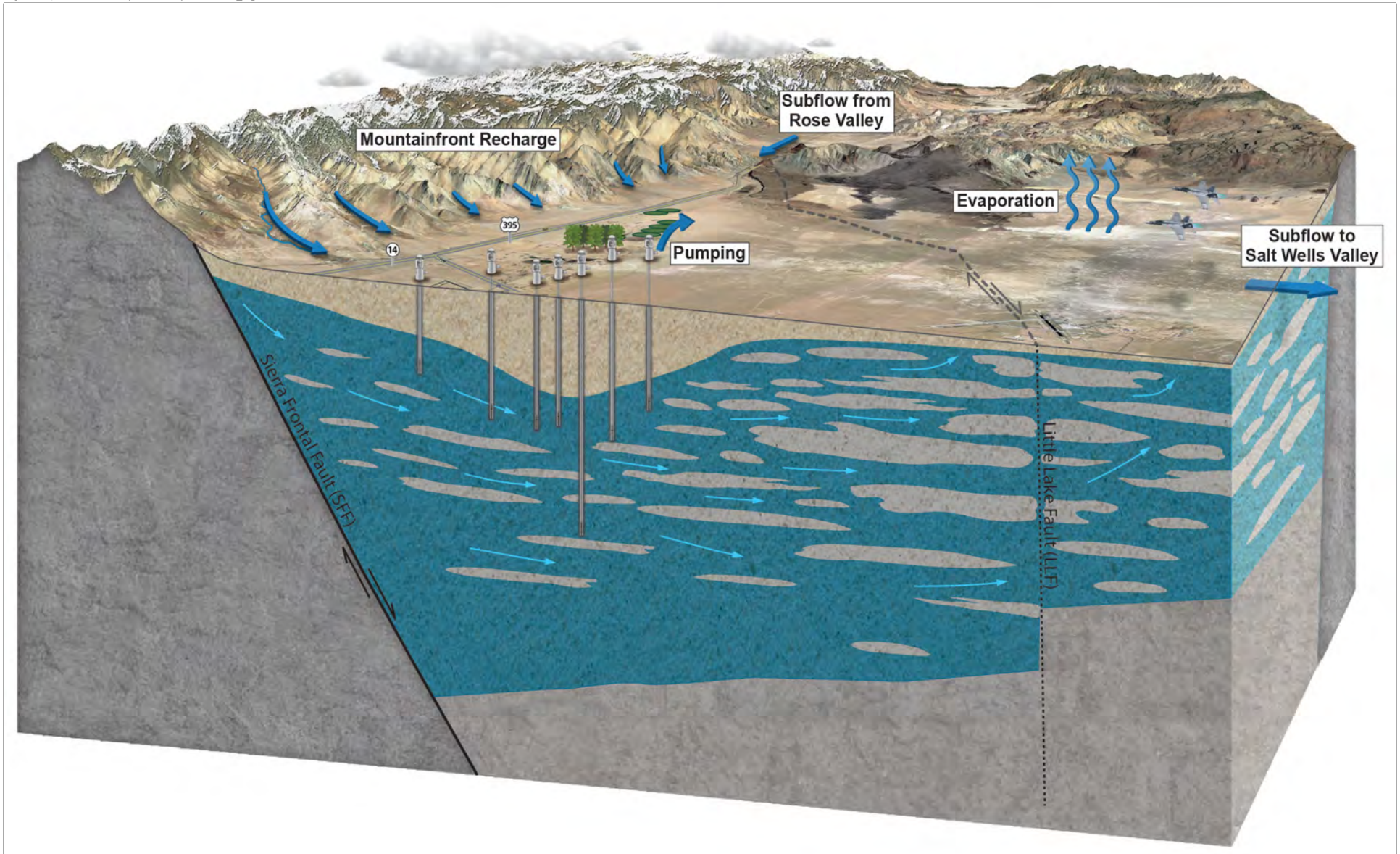
J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig09



STETSON ENGINEERS INC.

HYDROGEOLOGIC CONCEPTUAL MODEL

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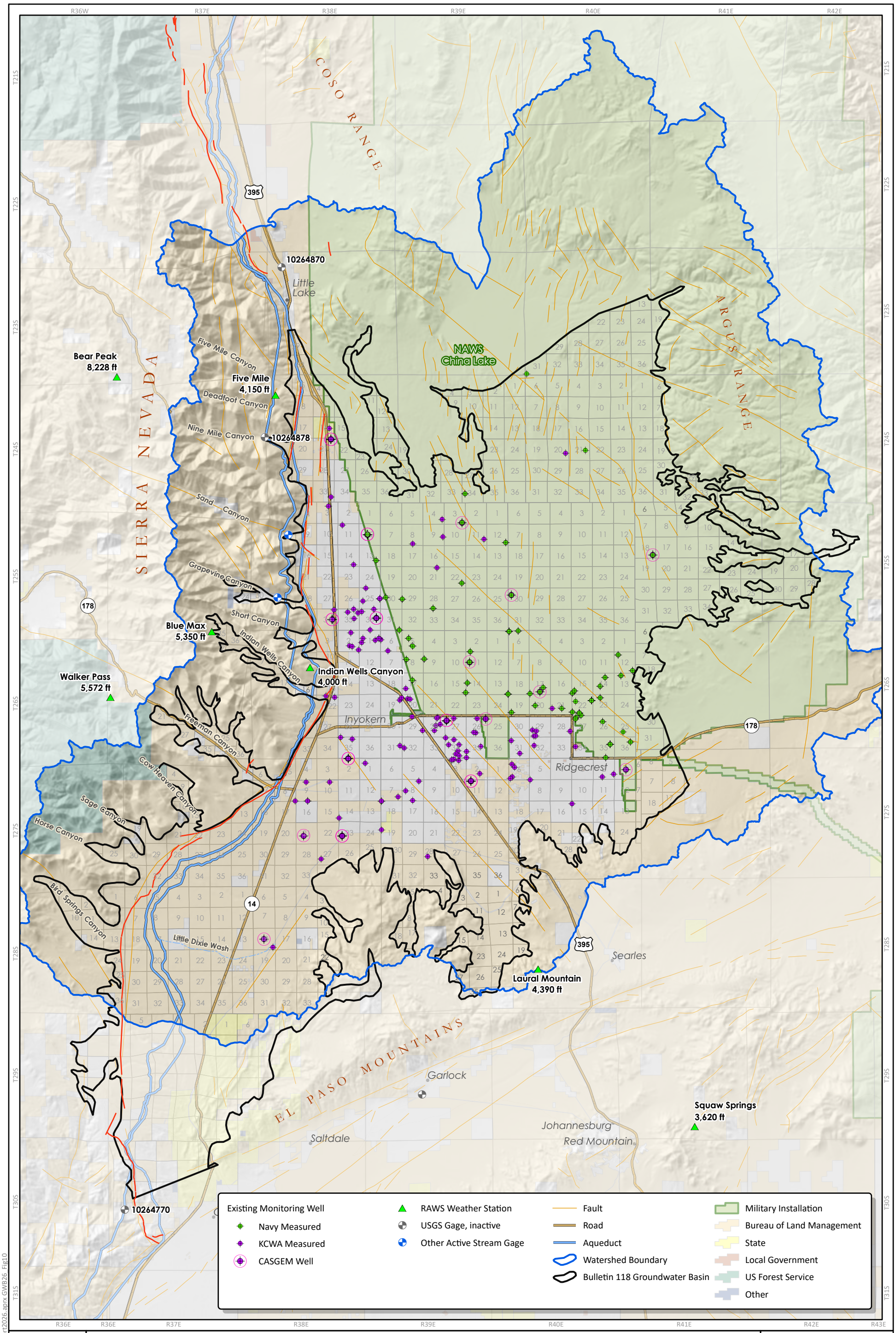
FIGURE 9



STETSON ENGINEERS INC.

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LOCATION MAP

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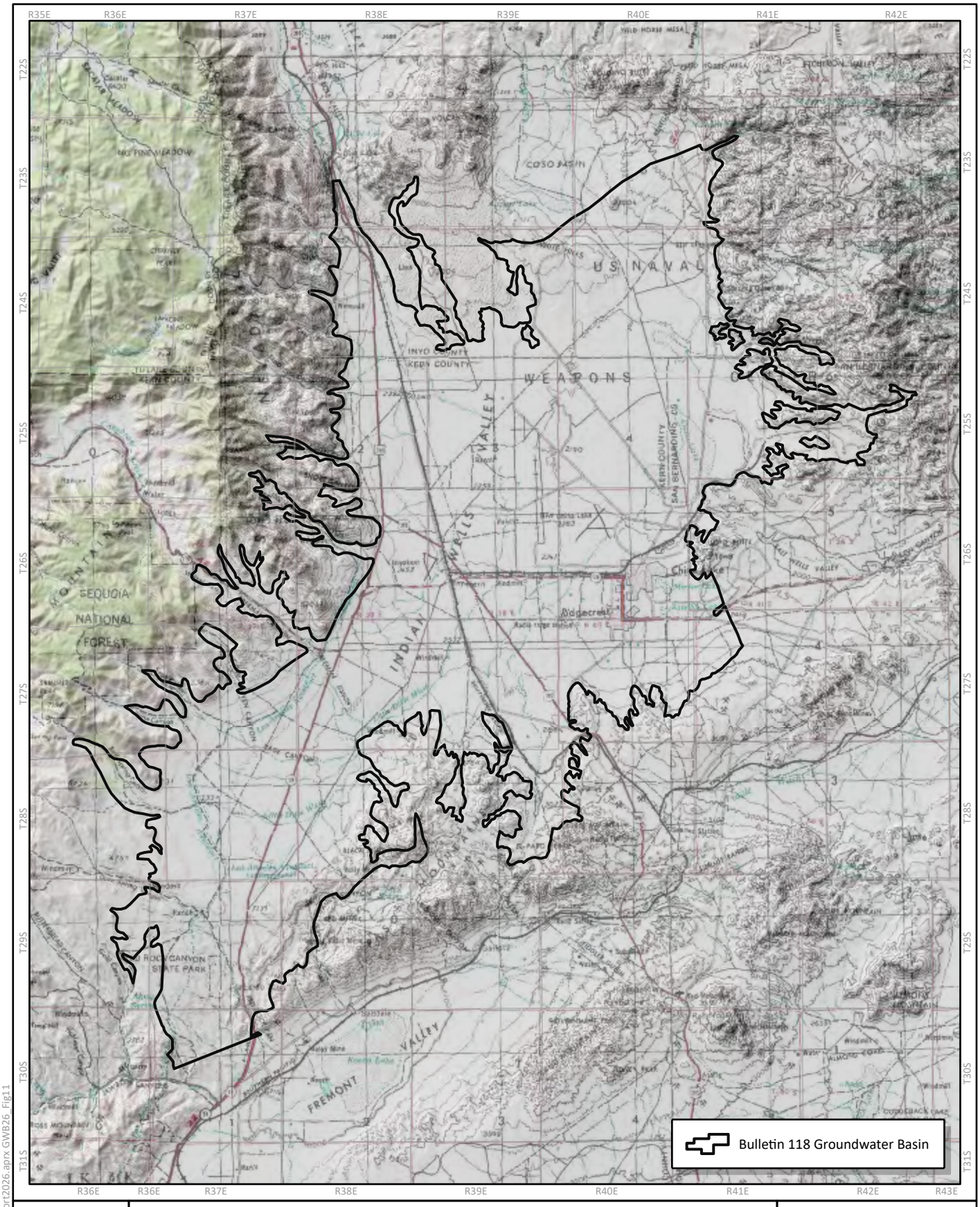
0 2.5 5
Miles

FIGURE 10

FIGURE 11



STETSON ENGINEERS INC.

TOPOGRAPHIC MAP

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Miles

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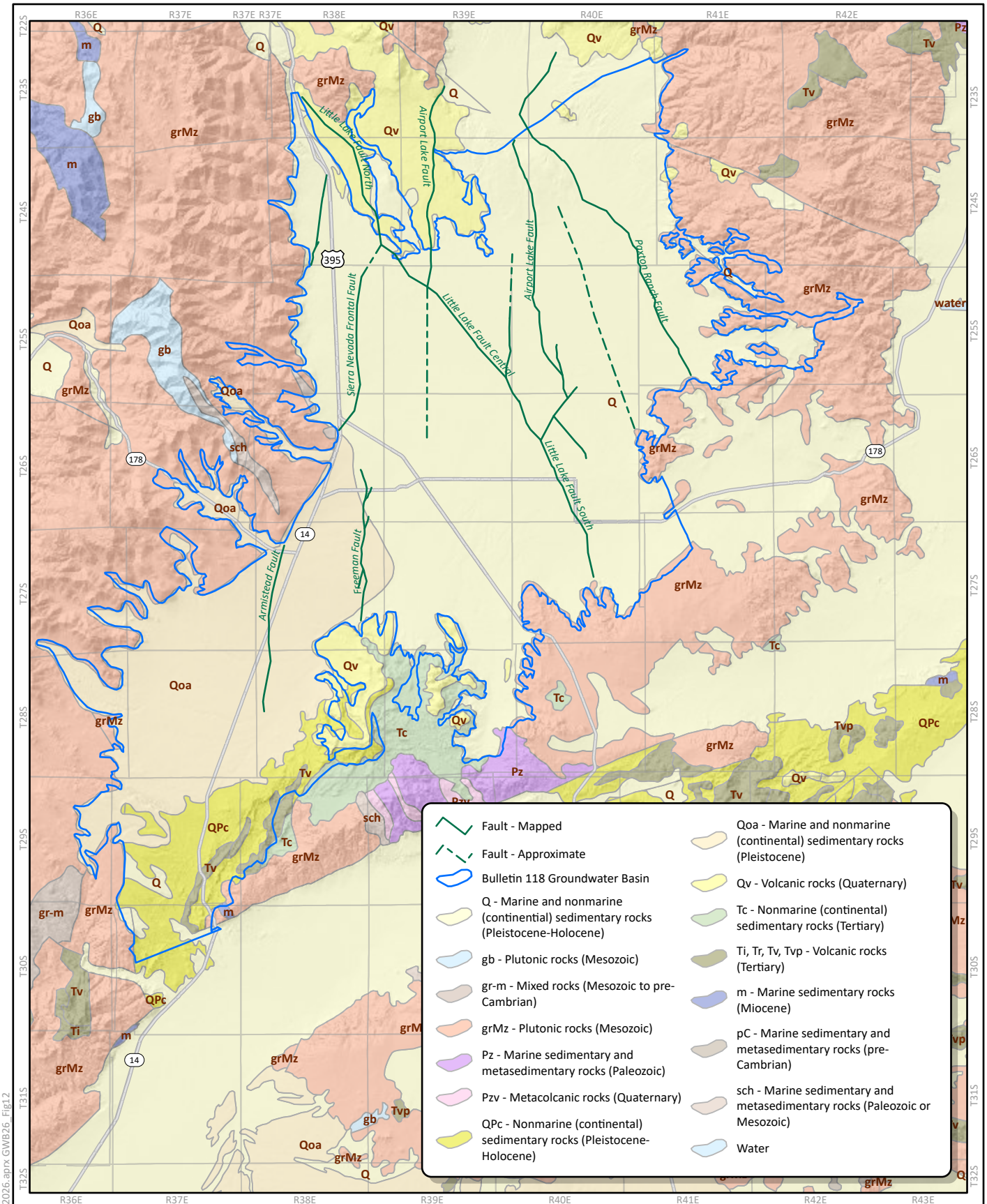

STETSON ENGINEERS INC.

GEOLOGY MAP

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Miles

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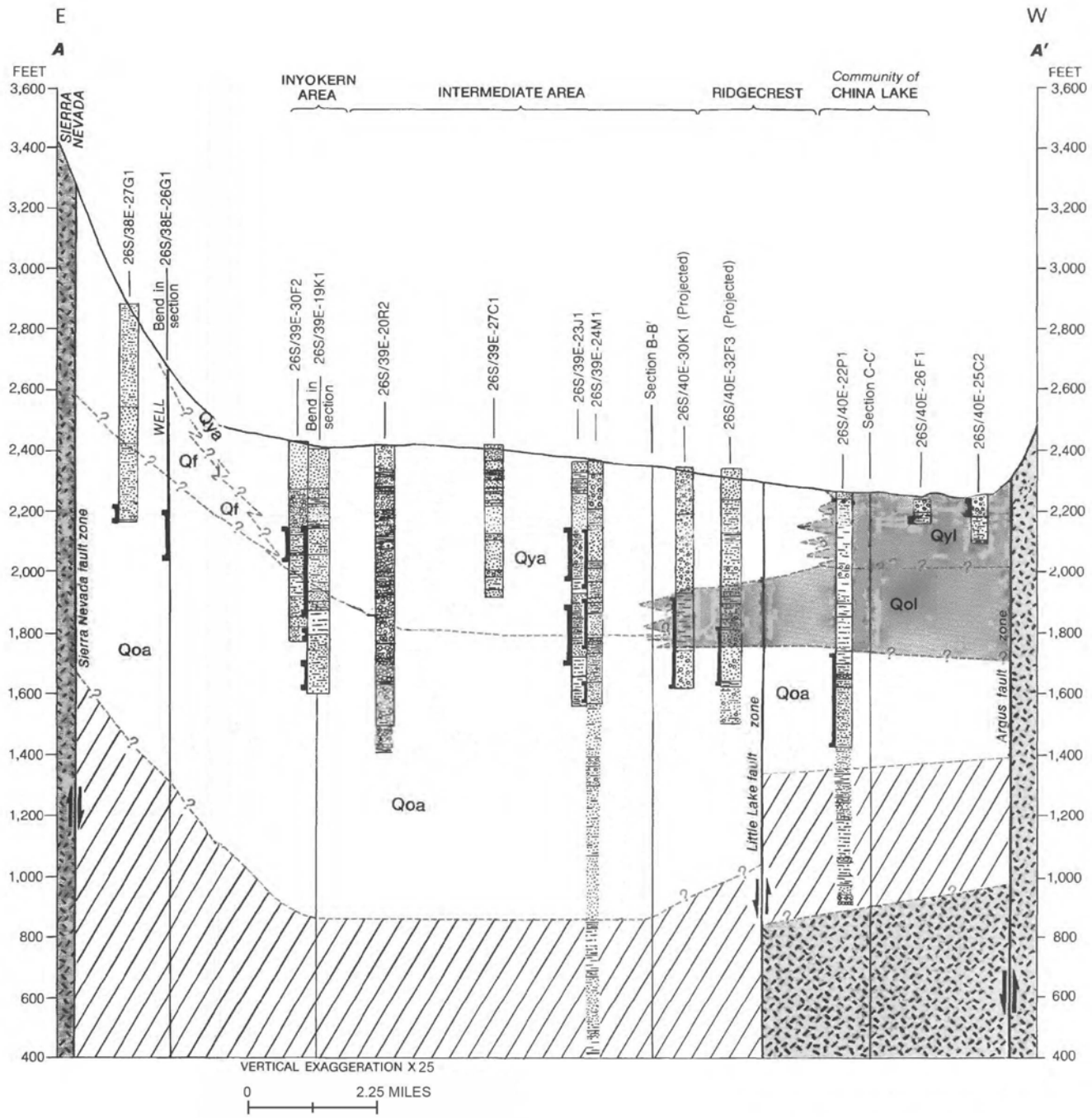

Modified from Berenbrock and Martin (1991, Figure 3); Kunkel and Chase (1969, Figure 3)

CROSS SECTION A TO A'

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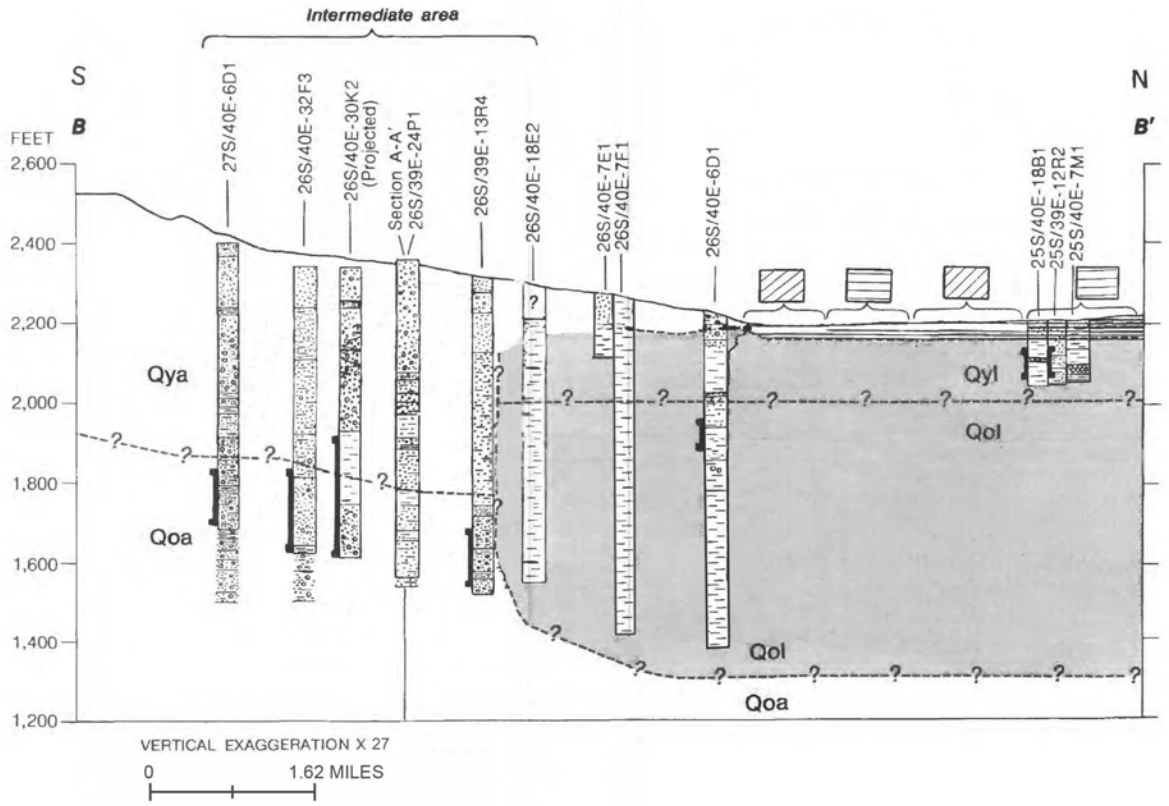
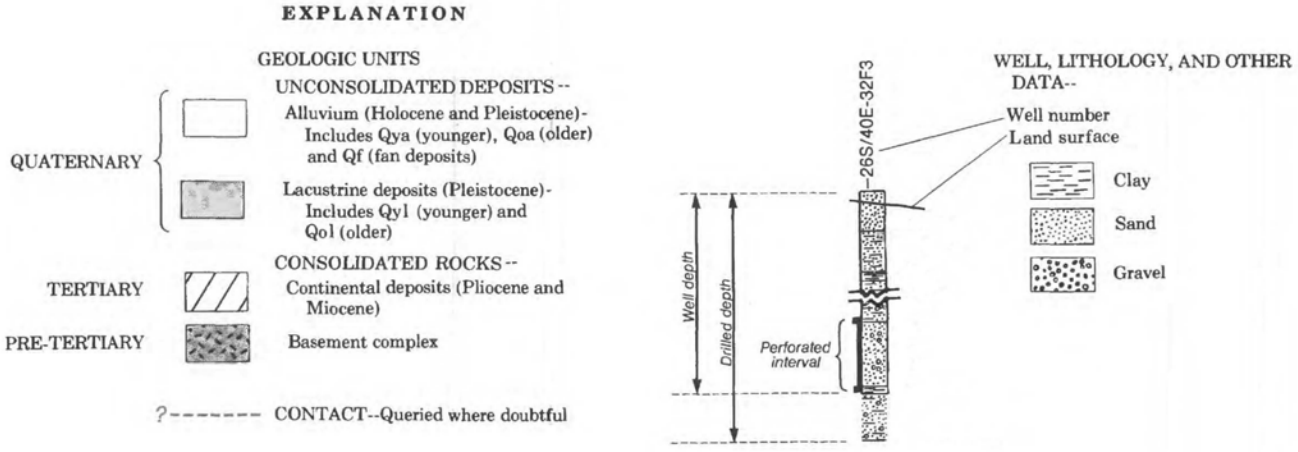
J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig13a





Modified from Berenbrock and Martin (1991, Figure 3); Kunkel and Chase (1969, Figure 3)

STETSON ENGINEERS INC.

CROSS SECTION B TO B'

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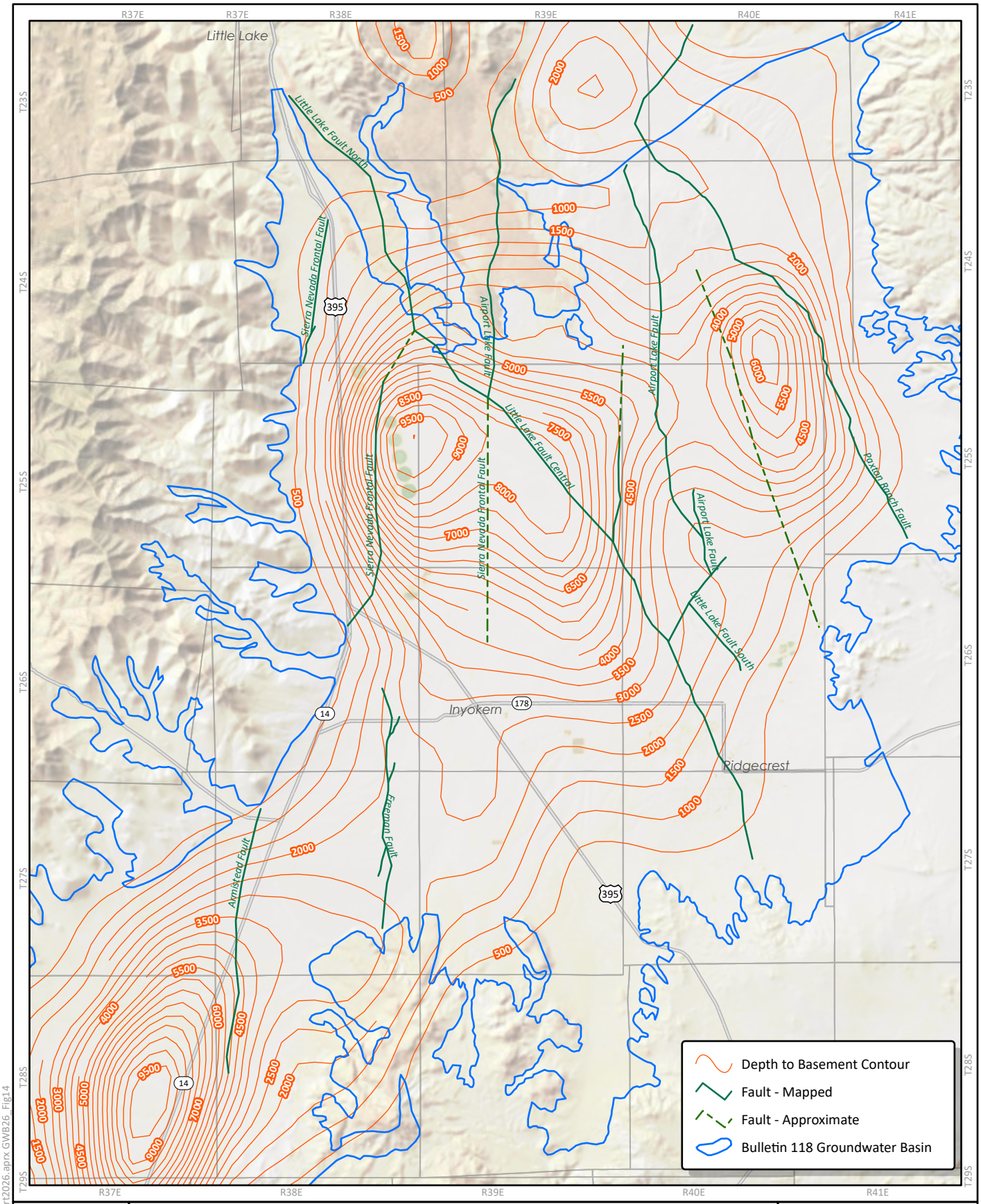
J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig13b

FIGURE 14



STETSON ENGINEERS INC.

DEPTH TO BASEMENT CONTOUR MAP

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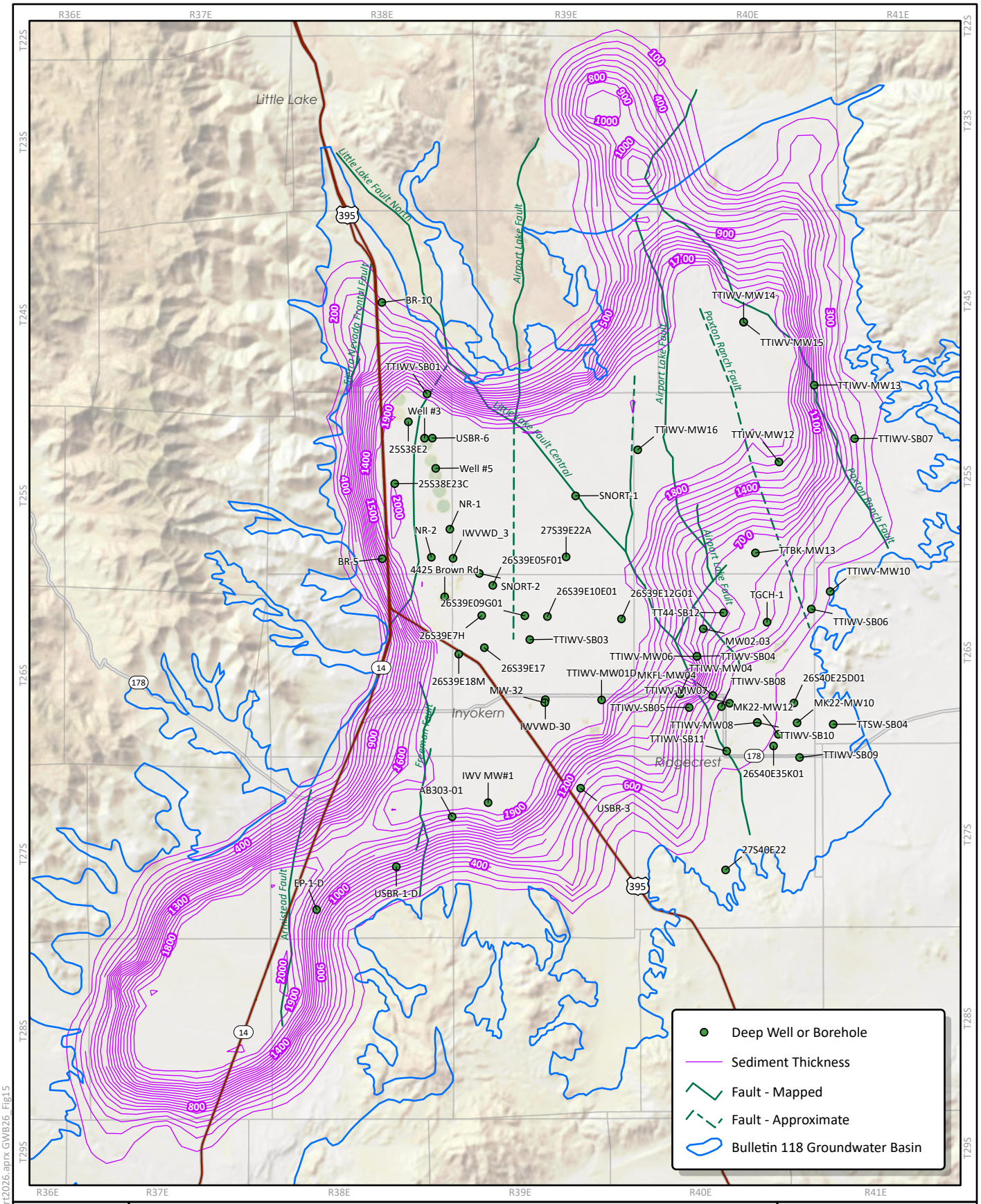
N

0 2 4
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig14

FIGURE 15



STETSON ENGINEERS INC.

THICKNESS OF UNCONSOLIDATED SEDIMENT CONTOUR MAP

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N

0 2.5 5
Miles

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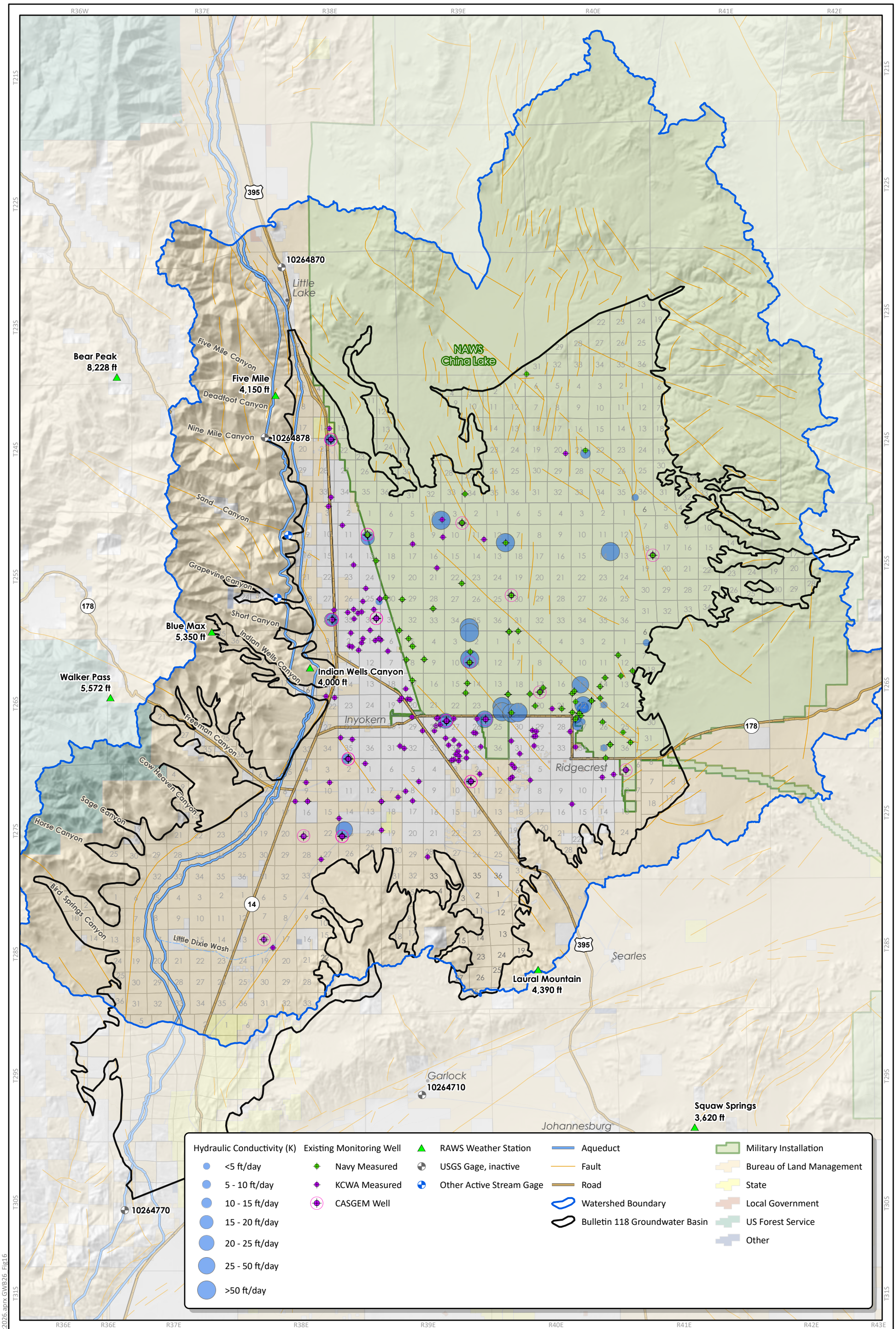

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STETSON ENGINEERS INC.

HISTORIC AQUIFER TEST LOCATIONS

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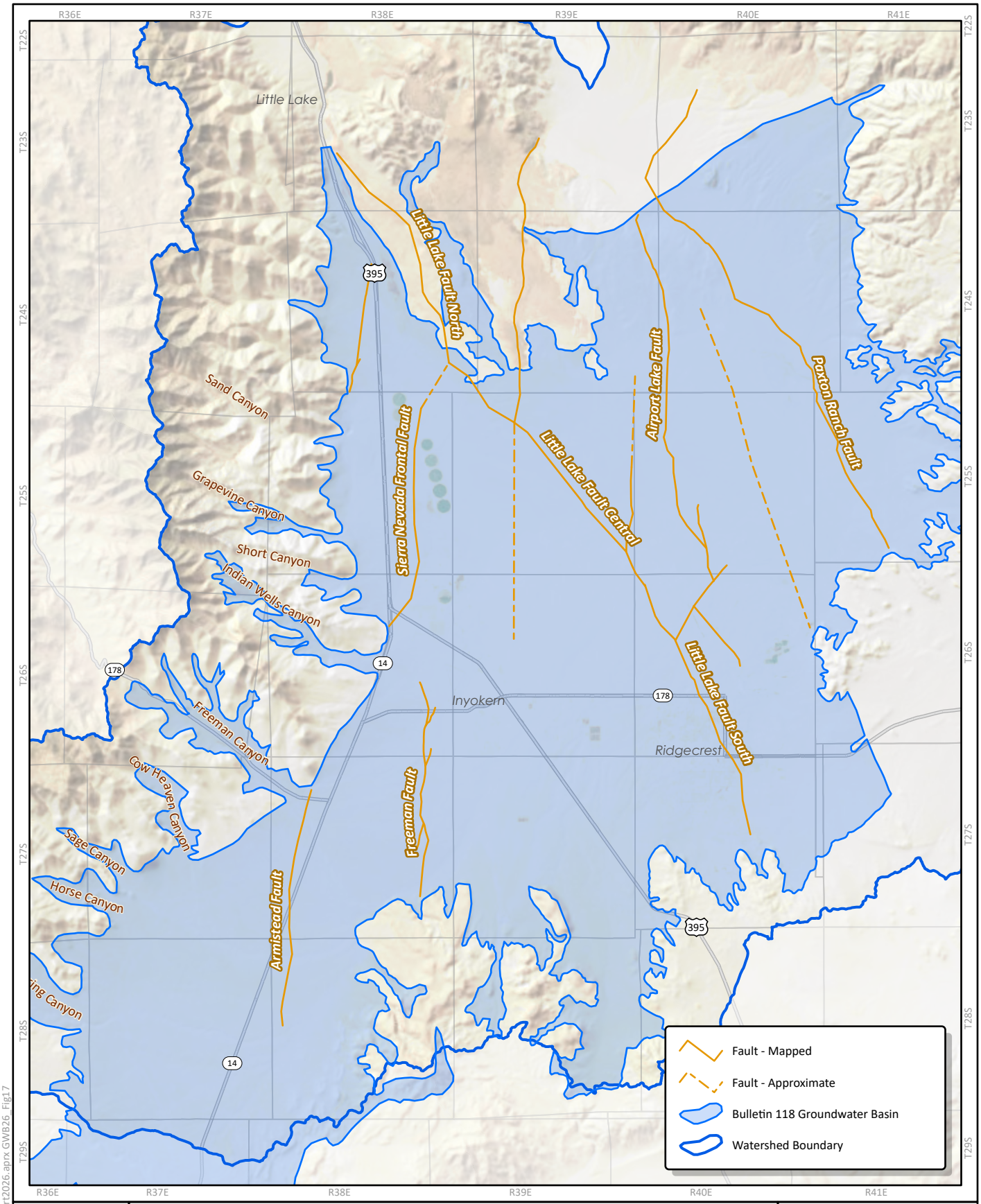
FIGURE 16

FIGURE 17



STETSON ENGINEERS INC.

FAULTS IN THE INDIAN WELLS VALLEY GROUNDWATER BASIN

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N

0 2.5 5
Miles

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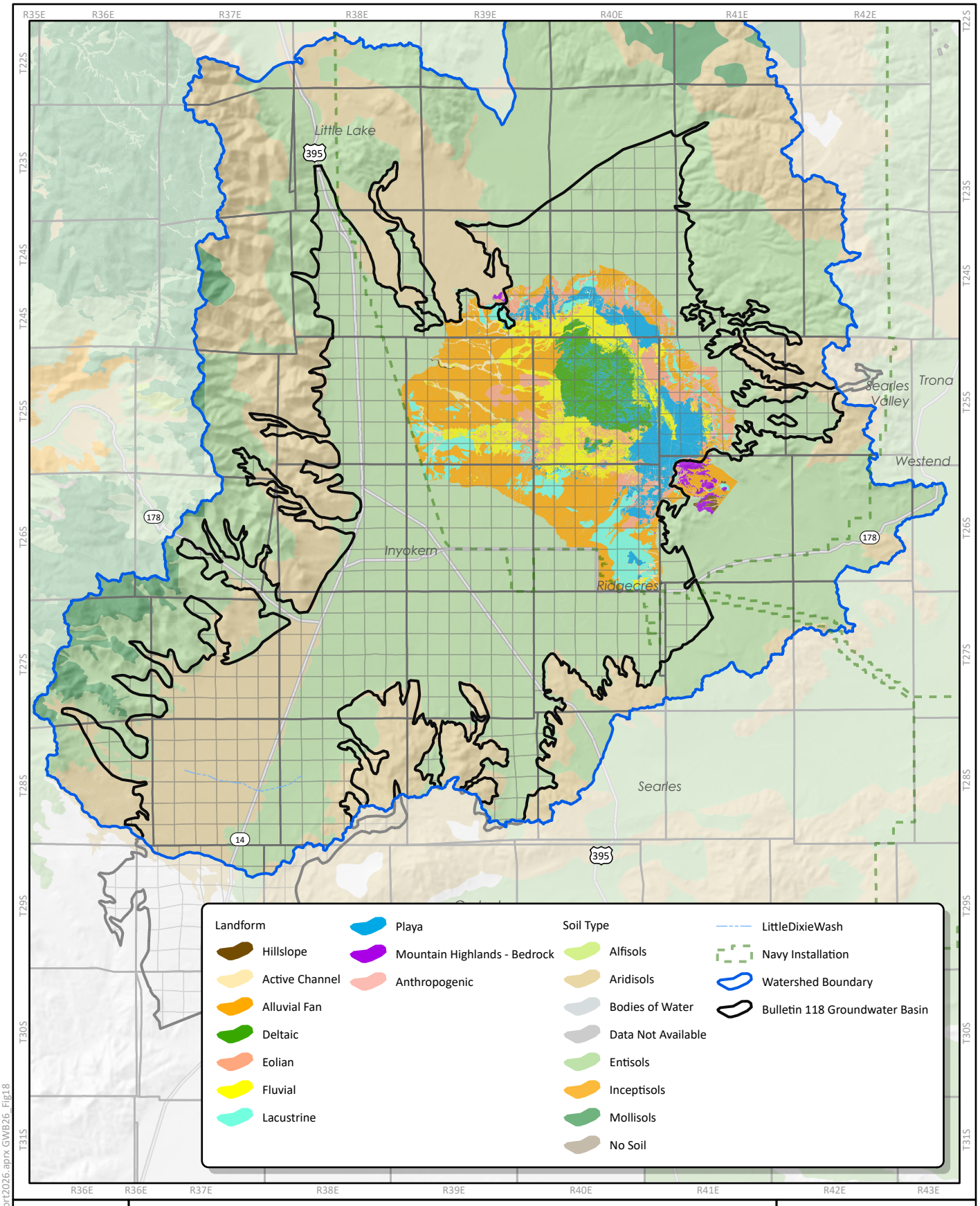
FIGURE 18



STETSON ENGINEERS INC.

SOILS AND LANDFORMS

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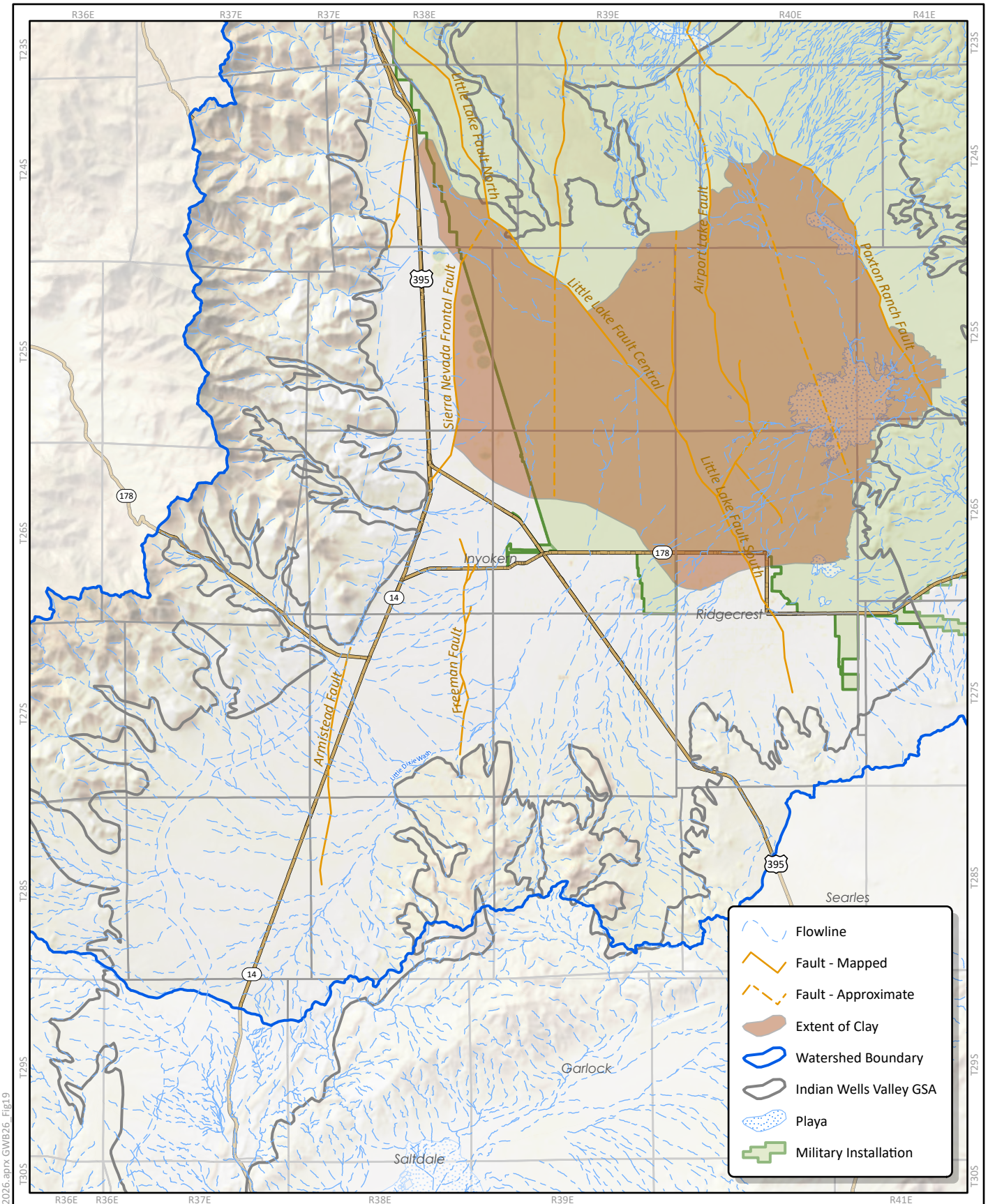
N

0 4 8
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig18

FIGURE 19



STETSON ENGINEERS INC.

GROUNDWATER BASIN CLAY LAYER

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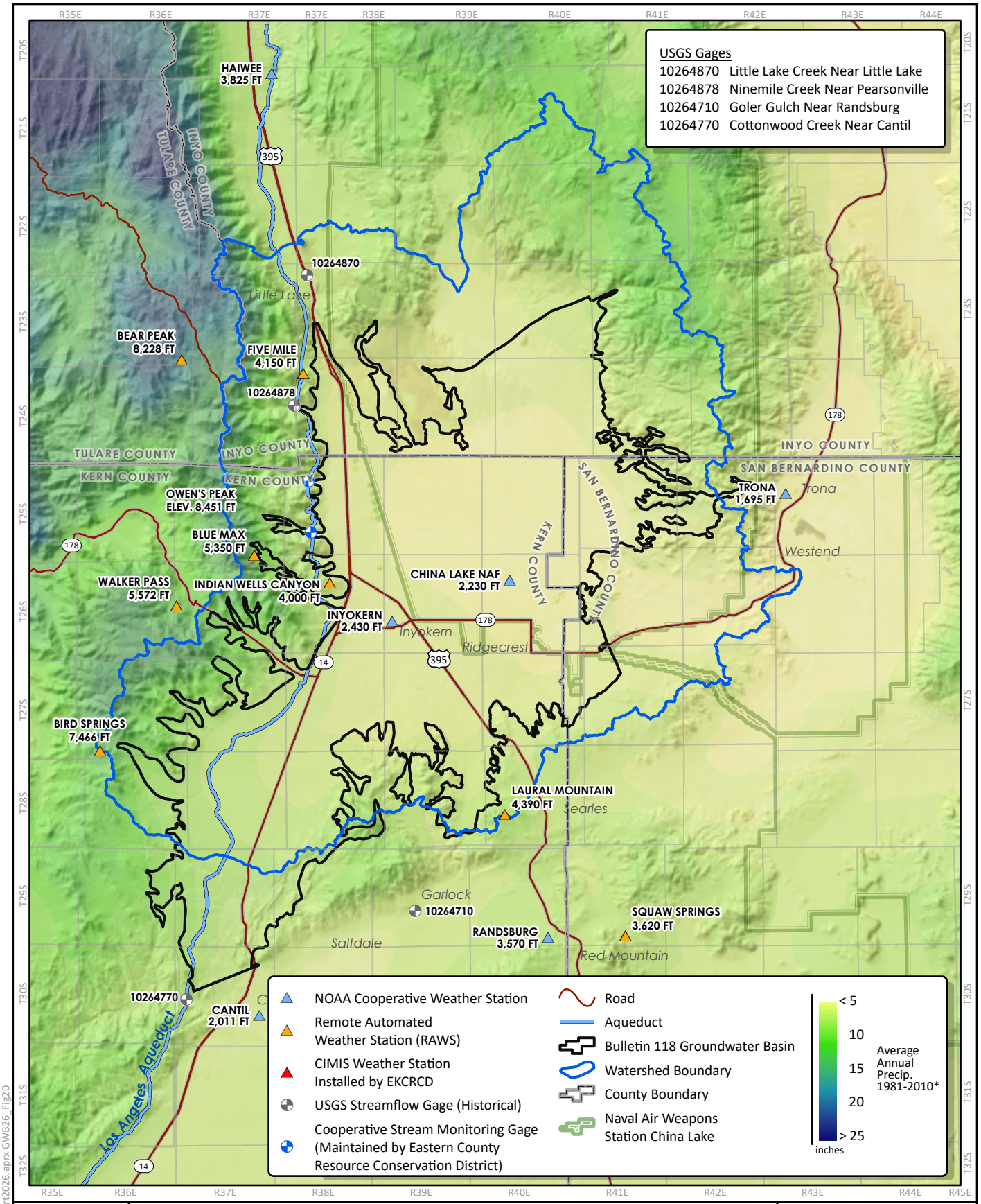
N

0 2 4
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig19

FIGURE 20



STETSON ENGINEERS INC.

WEATHER STATIONS, STREAM GAGES, AND AVERAGE ANNUAL PRECIPITATION

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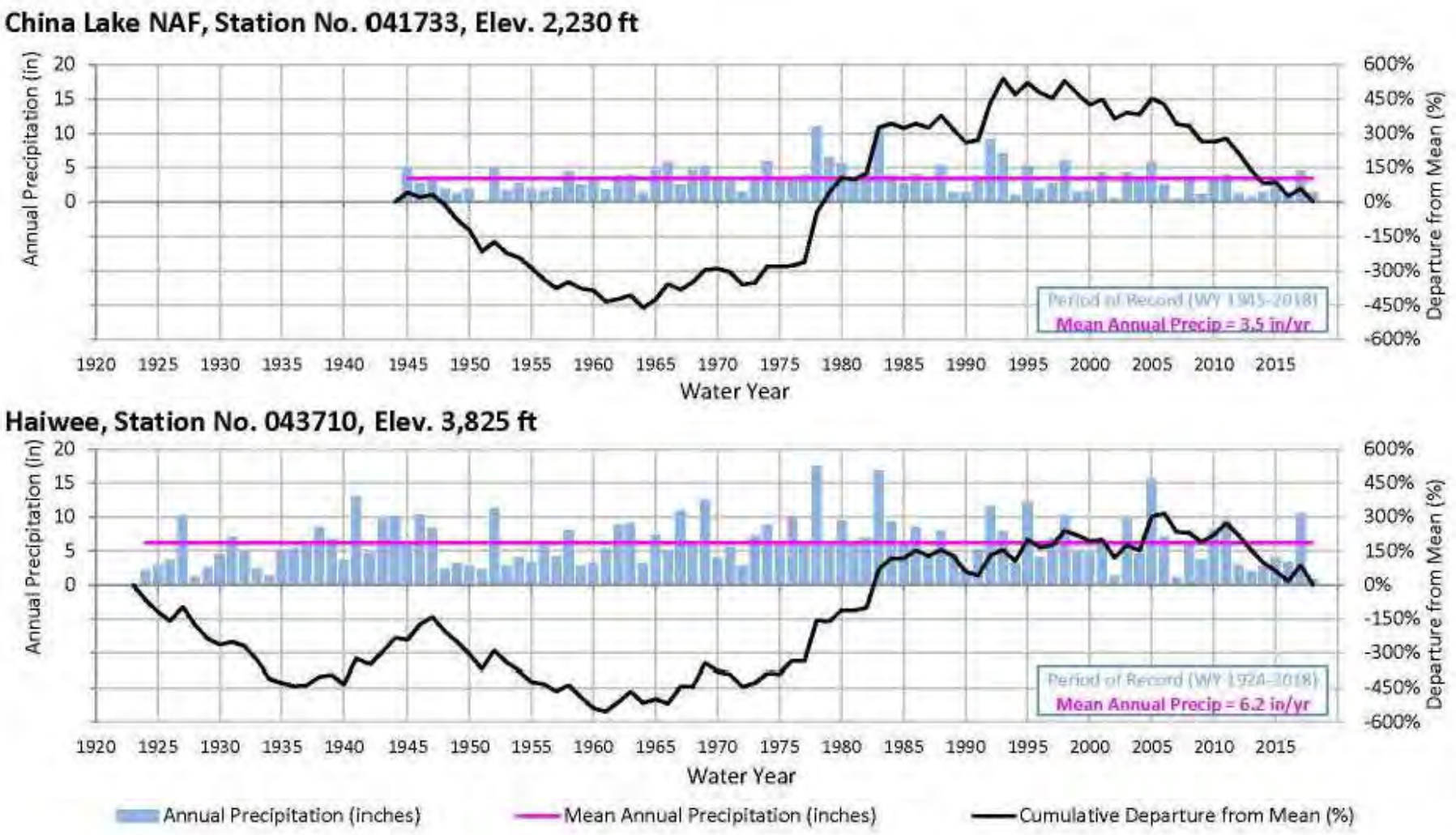
N

0 4 8
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig20

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig21



STETSON ENGINEERS INC.

ANNUAL PRECIPITATION AND CUMULATIVE DEPARTURE FROM MEAN

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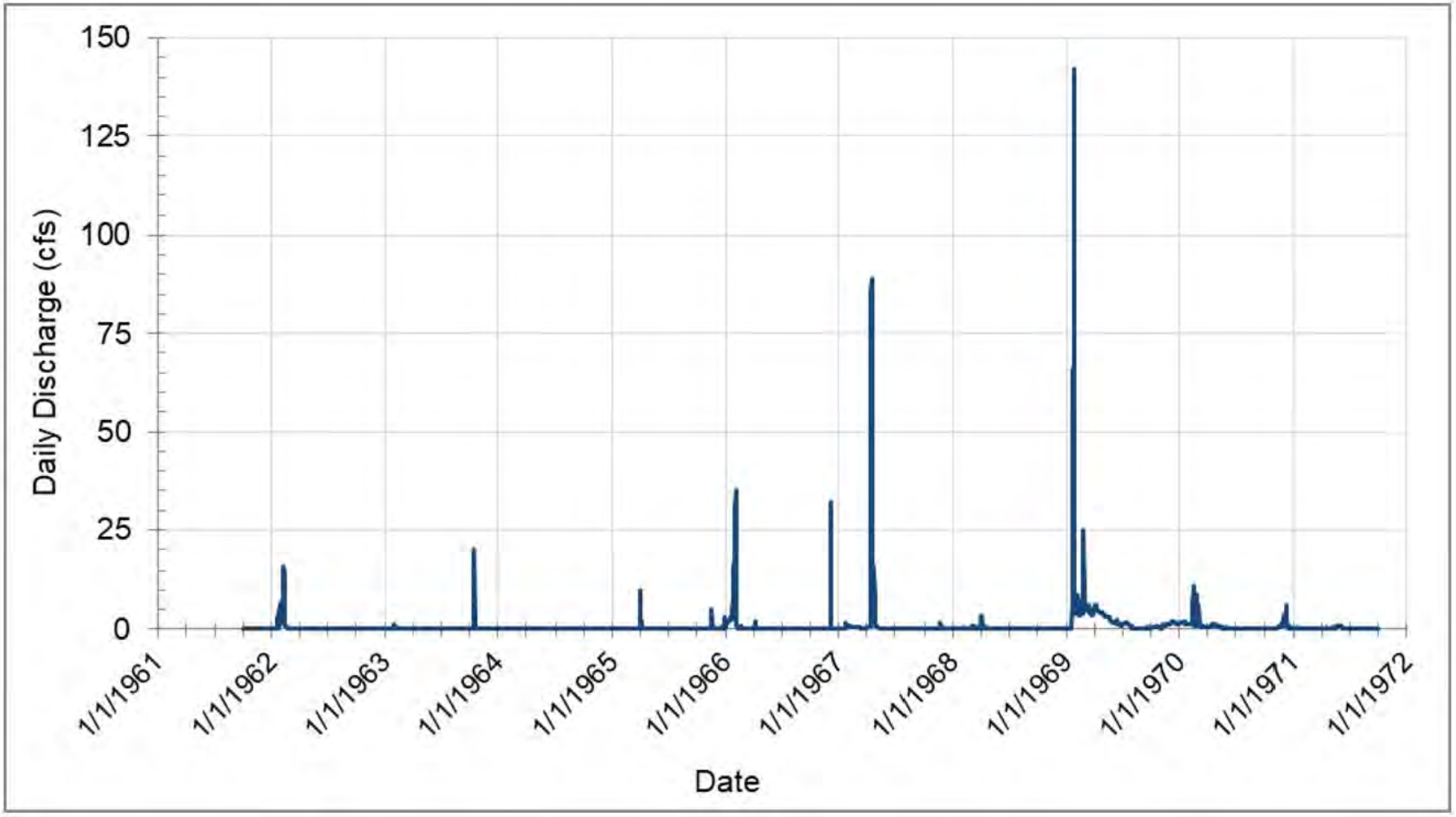
FIGURE 21

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig22



STETSON ENGINEERS INC.

HYDROGRAPH OF DAILY DISCHARGE AT NINEMILE CREEK

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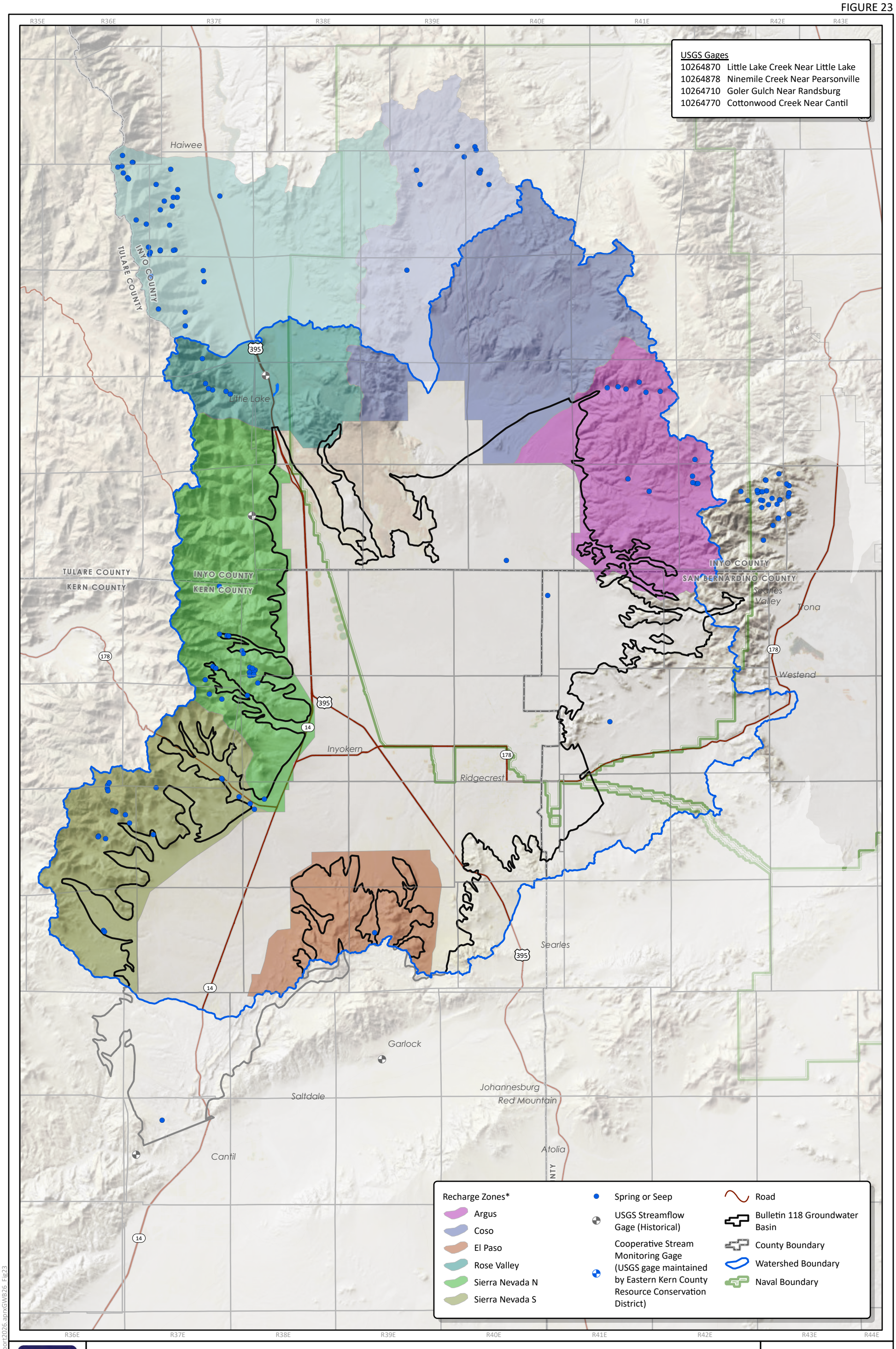
FIGURE 22



STETSON ENGINEERS INC.

RECHARGE ZONES AND SPRINGS

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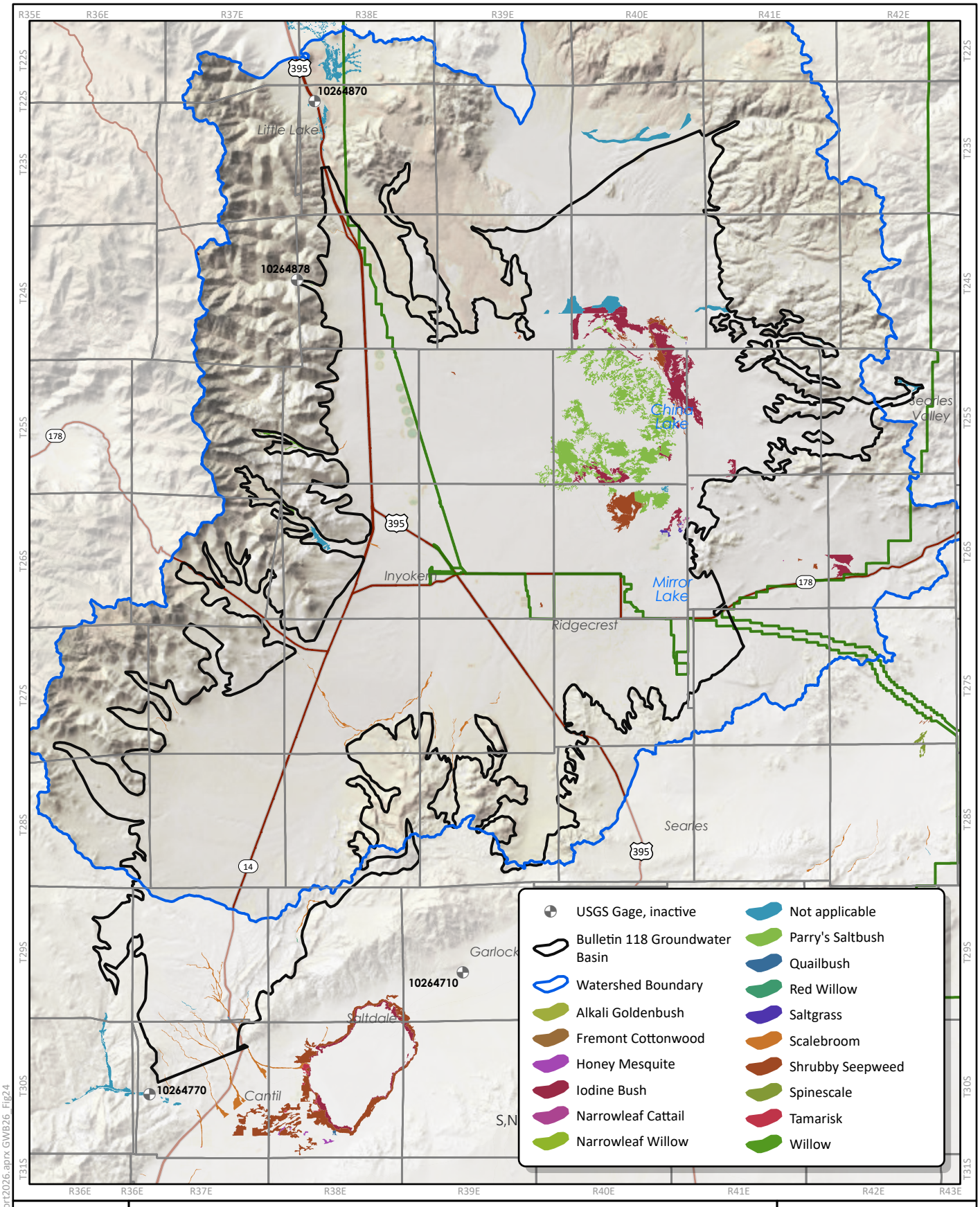
Source(s): *Recharge zones as developed by Desert Research Institute (McGraw et al, 2016)

J:\jn2652\GWBasinTechReport2026 aprx\GWB26_Fig23



J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig24

STETSON ENGINEERS INC.

GROUNDWATER DEPENDENT ECOSYSTEMS

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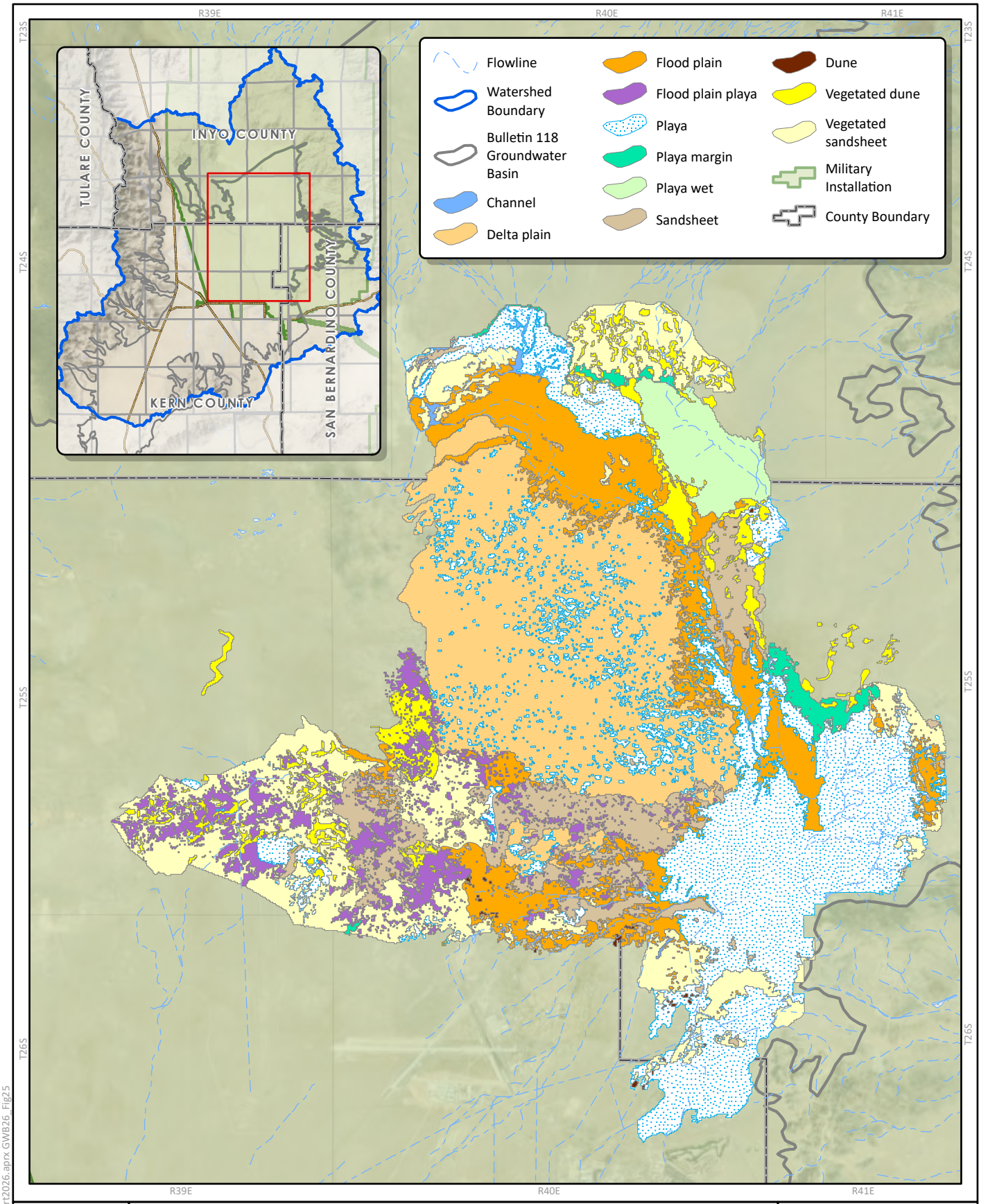
Source(s): DWR Natural Communities Commonly Associated with Groundwater

N

0 3 6

Miles

FIGURE 25



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LANDFORM ET ZONES

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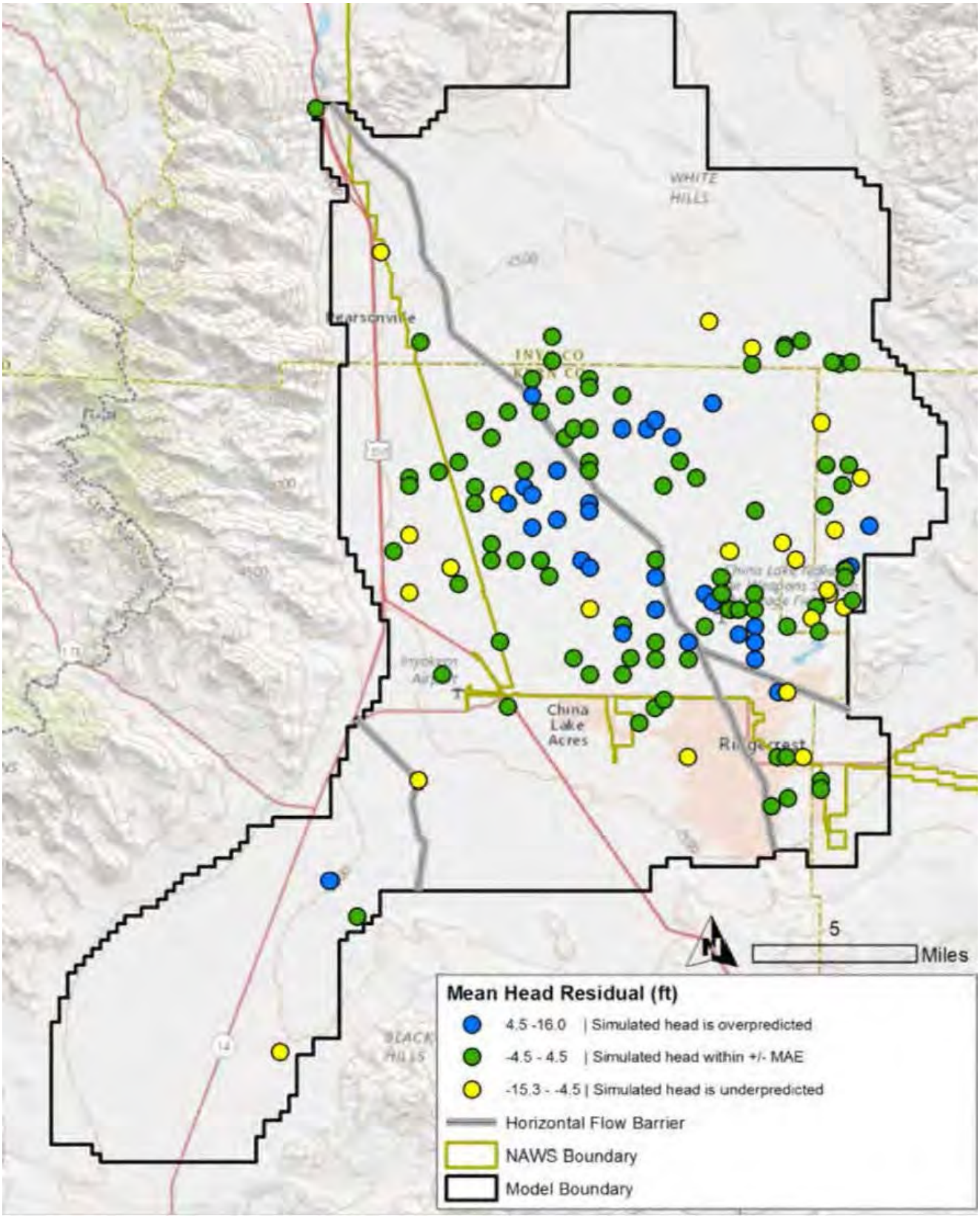
0 1 2
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig25



STETSON ENGINEERS INC.

CALIBRATION SIMULATED-MEASURED RESIDUAL GROUNDWATER LEVELS

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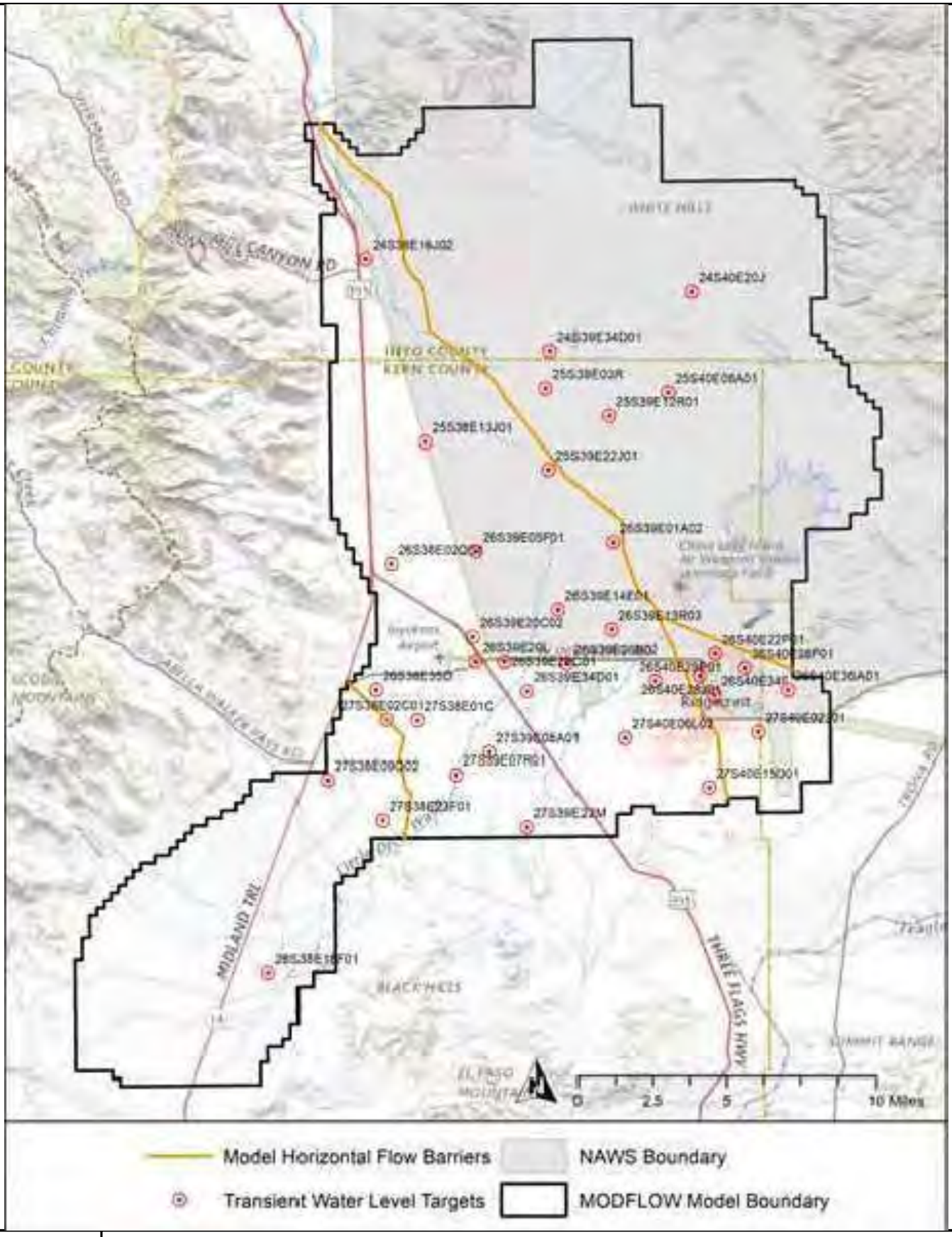
4/27/2026

Source: Desert Research Institute

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig26



J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig27

STETSON ENGINEERS INC.

CALIBRATION GROUNDWATER LEVEL TARGETS

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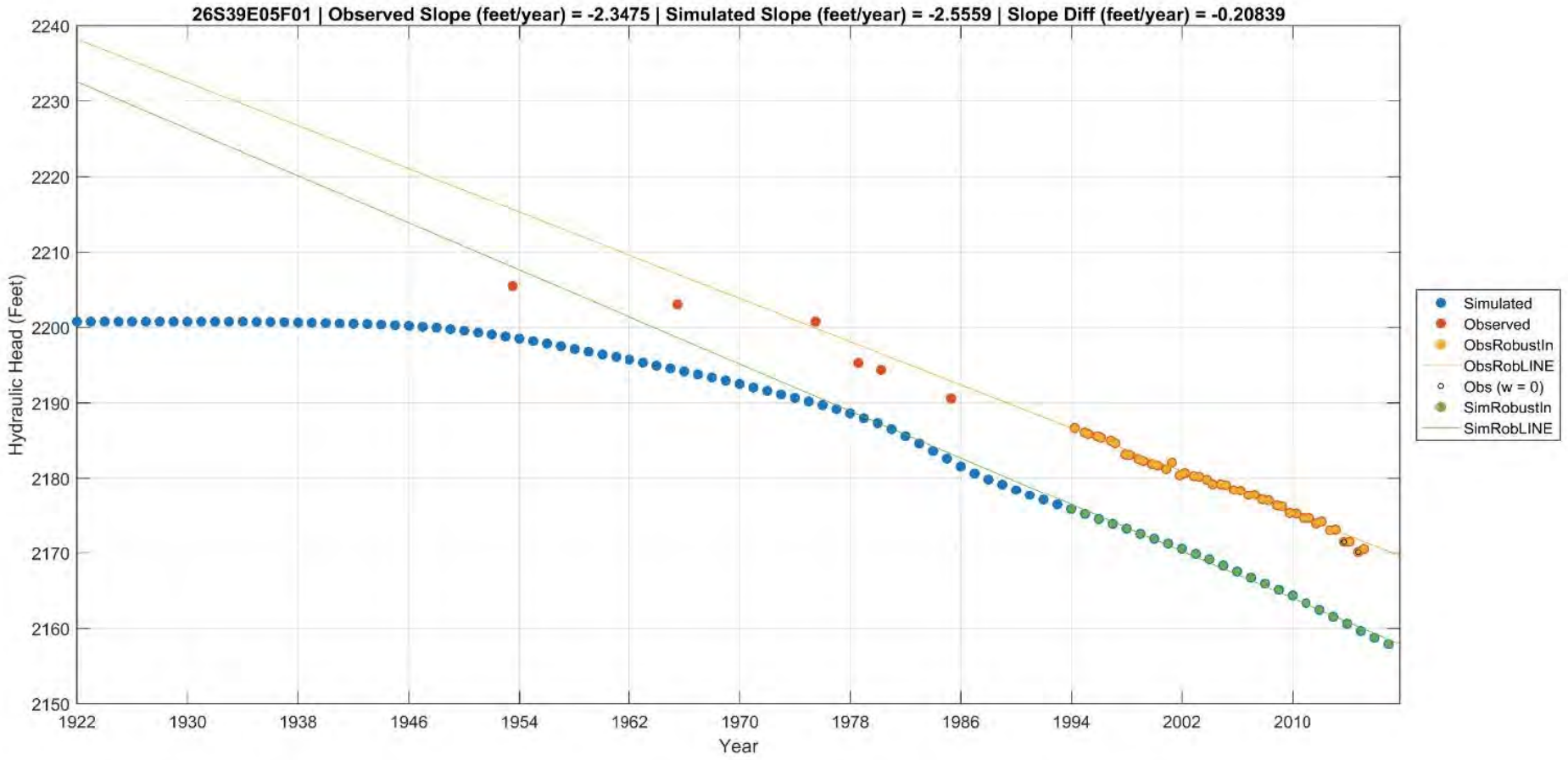
4/27/2026

Source: Desert Research Institute

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig28



STETSON ENGINEERS INC.

EXAMPLE HYDROGRAPH SLOPE-FITTING METHOD USED FOR CALIBRATION

Source: Desert Research Institute

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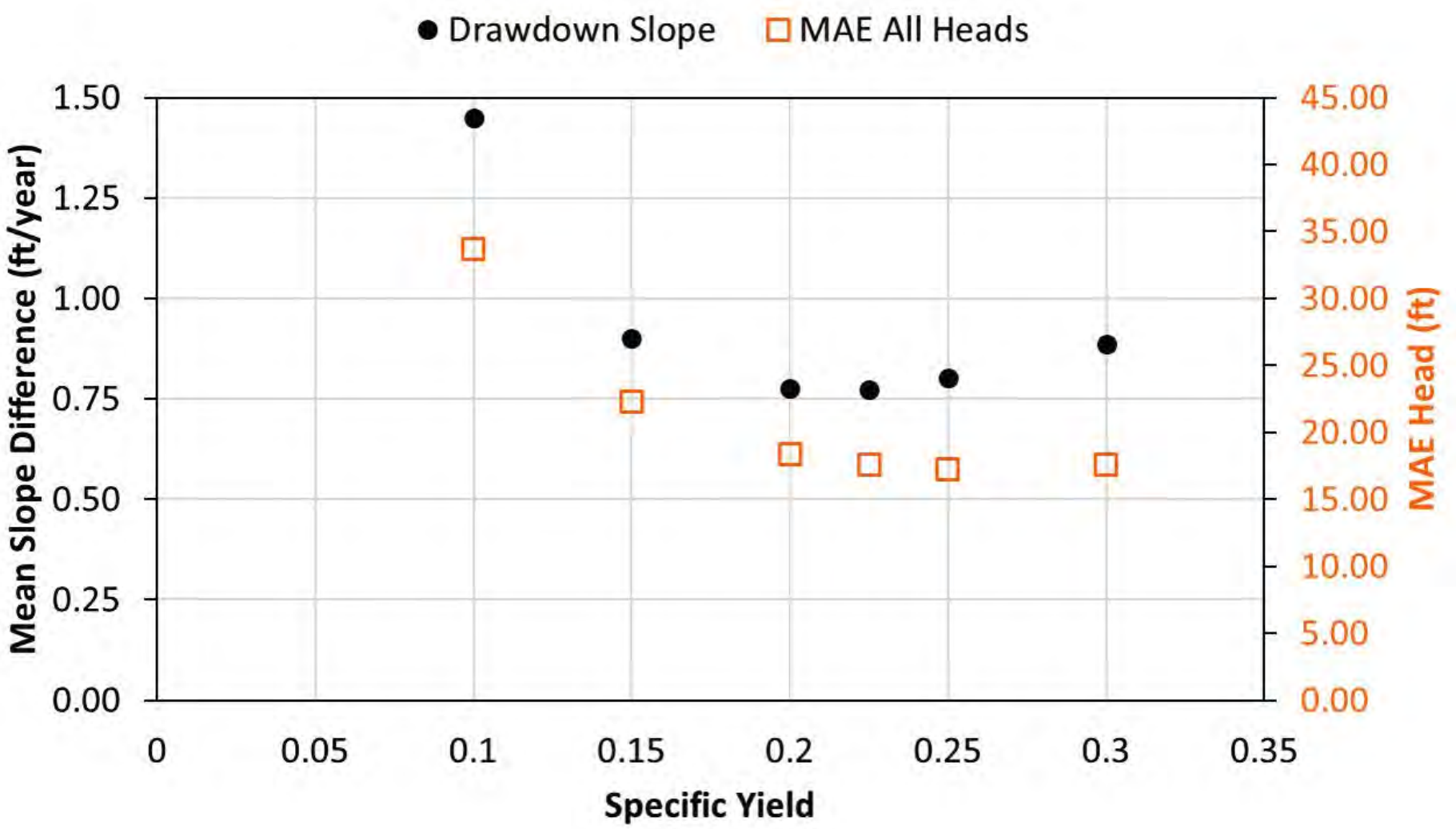
FIGURE 28

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig29



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DRAWDOWN SLOPE AND MAE RESULTS

Source: Desert Research Institute

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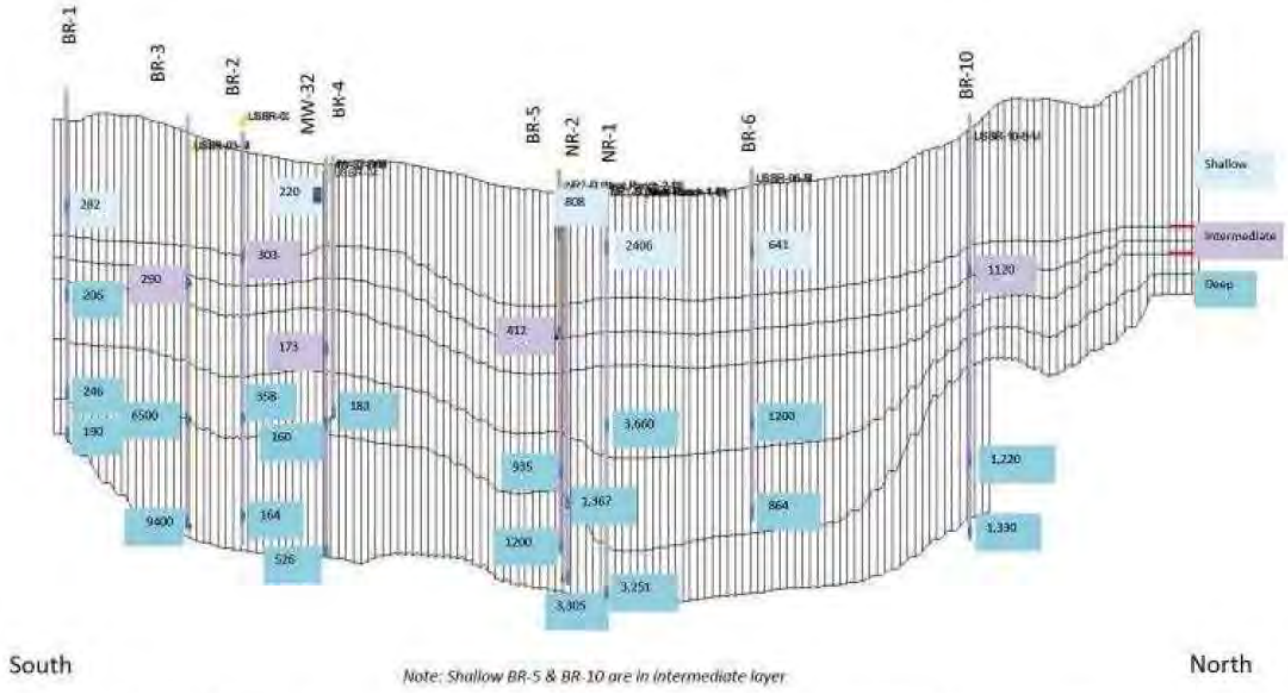
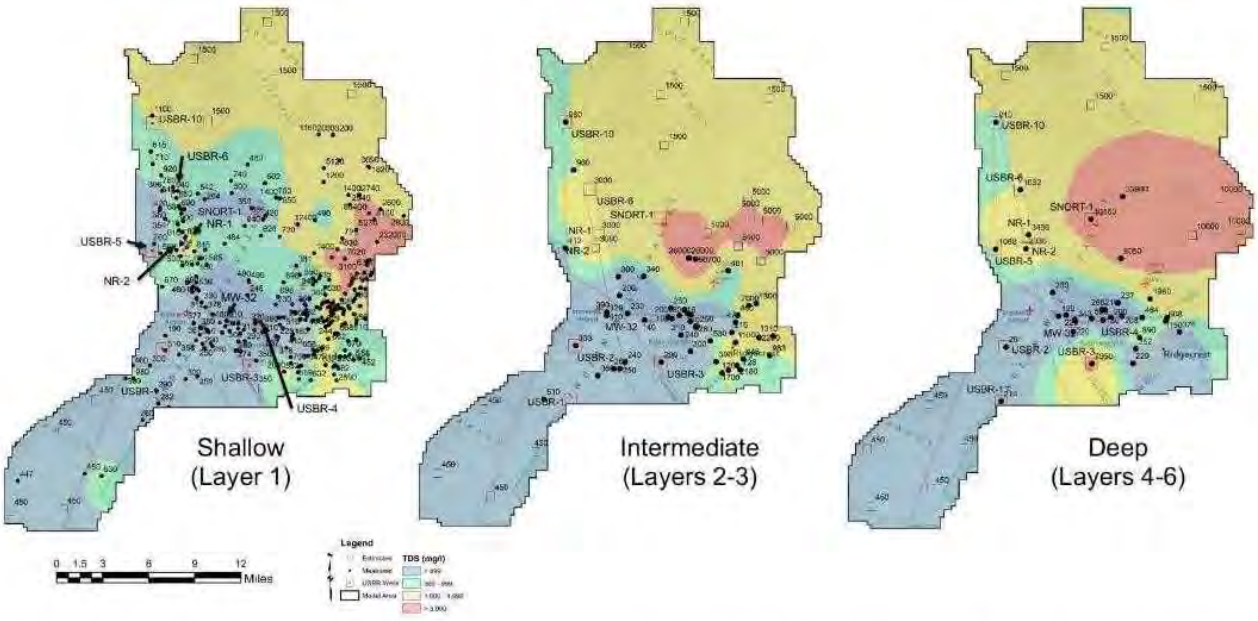
4/27/2026

FIGURE 29



An example North-South cross section through the transport model illustrating the relationship between of the Shallow, Intermediate, and Deep TDS zones to the six computational layers in the flow model. TDS measurements at selected well locations are also shown to illustrate the averaging of multiple values within a TDS zone. Measured TDS concentrations were interpolated to the transport model grid cells based on the TDS zone in which they fall.



Spatial distributions of TDS concentration in the three TDS zones that are used for initial conditions in the transport model.

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TRANSPORT MODEL

Source: Desert Research Institute

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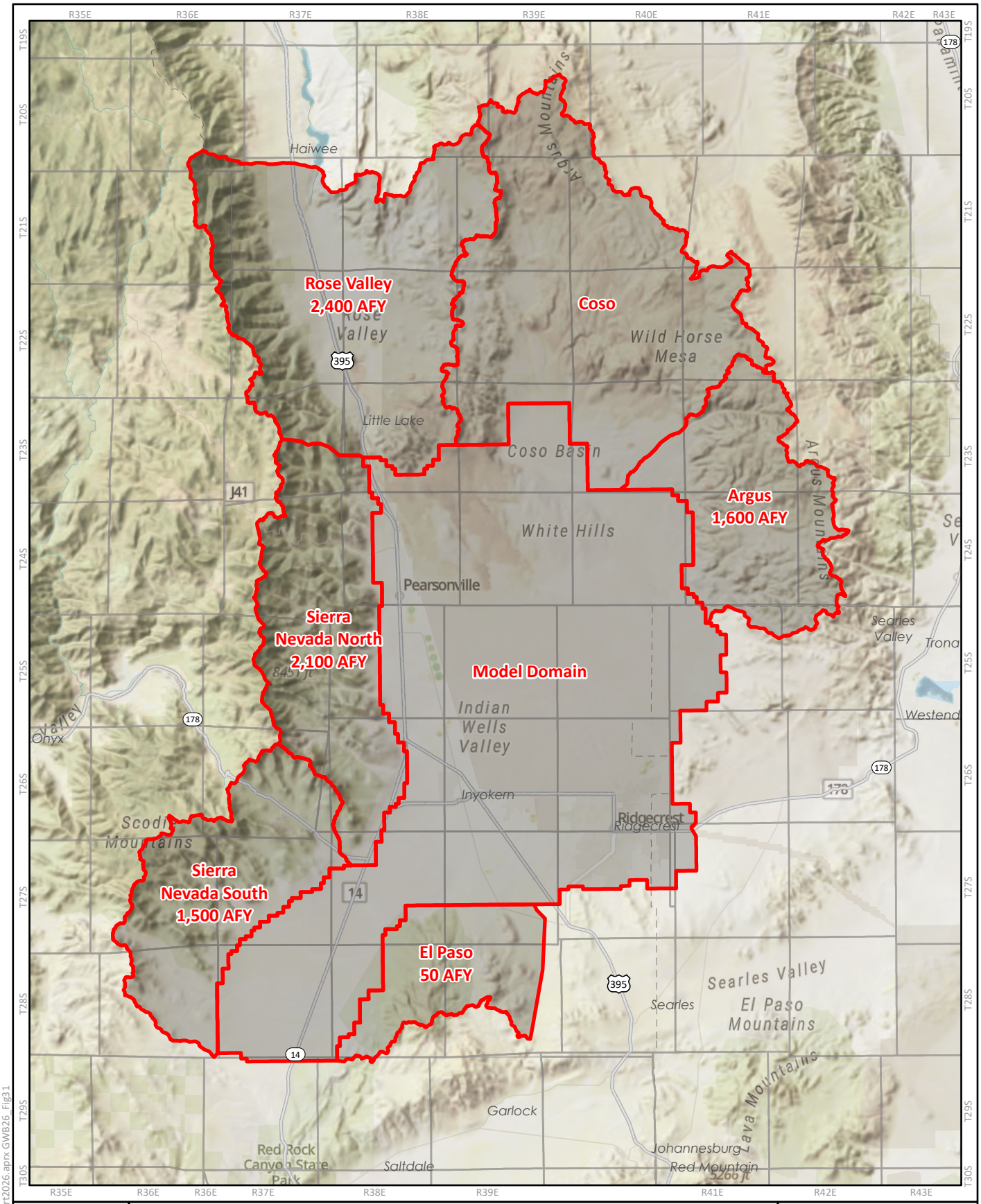
FIGURE 31



J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig31

STETSON ENGINEERS INC.

2020 BASIN MODEL MFR DISTRIBUTION

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N

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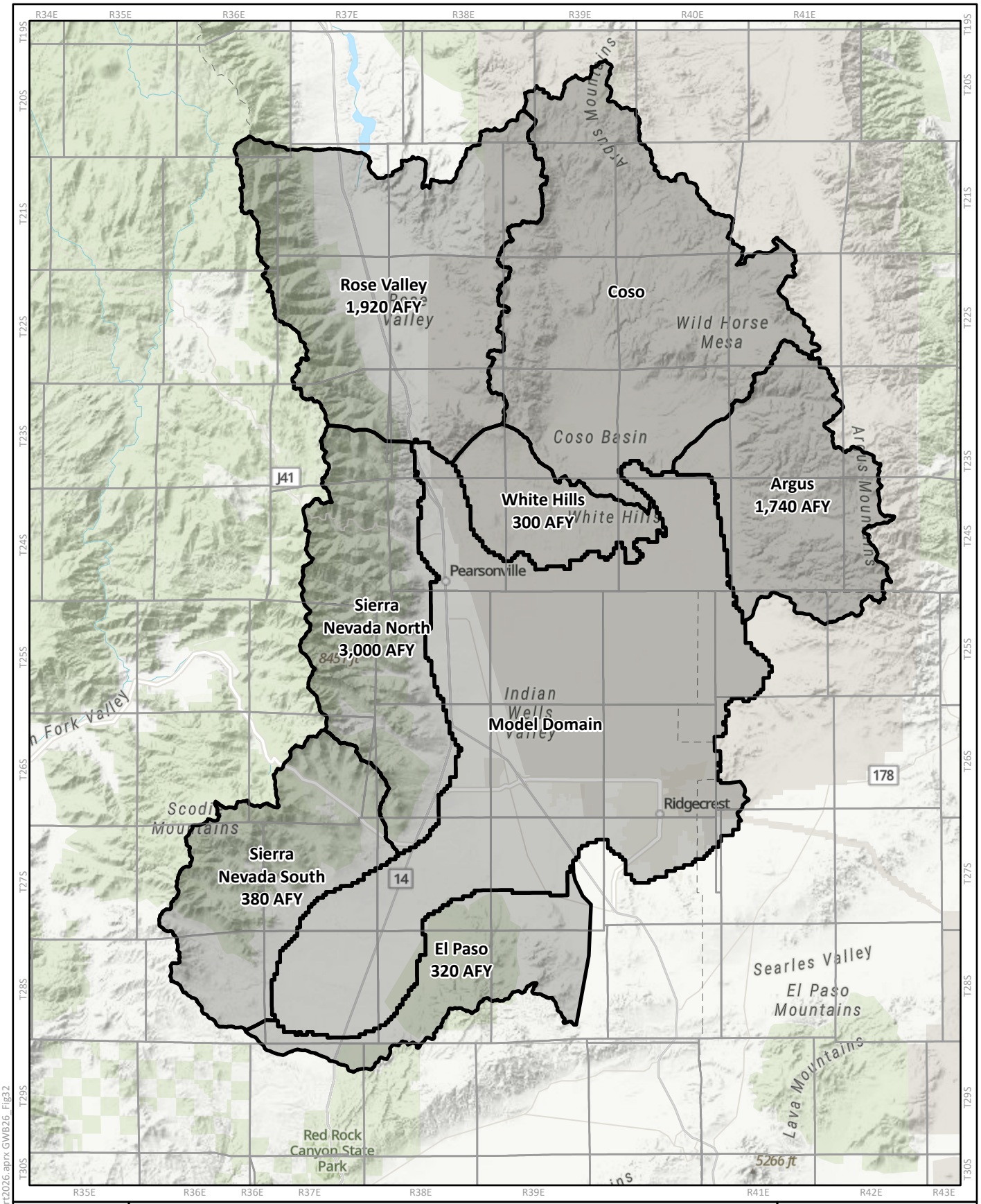
Miles

FIGURE 32



STETSON ENGINEERS INC.

2025 BASIN MODEL MFR DISTRIBUTION

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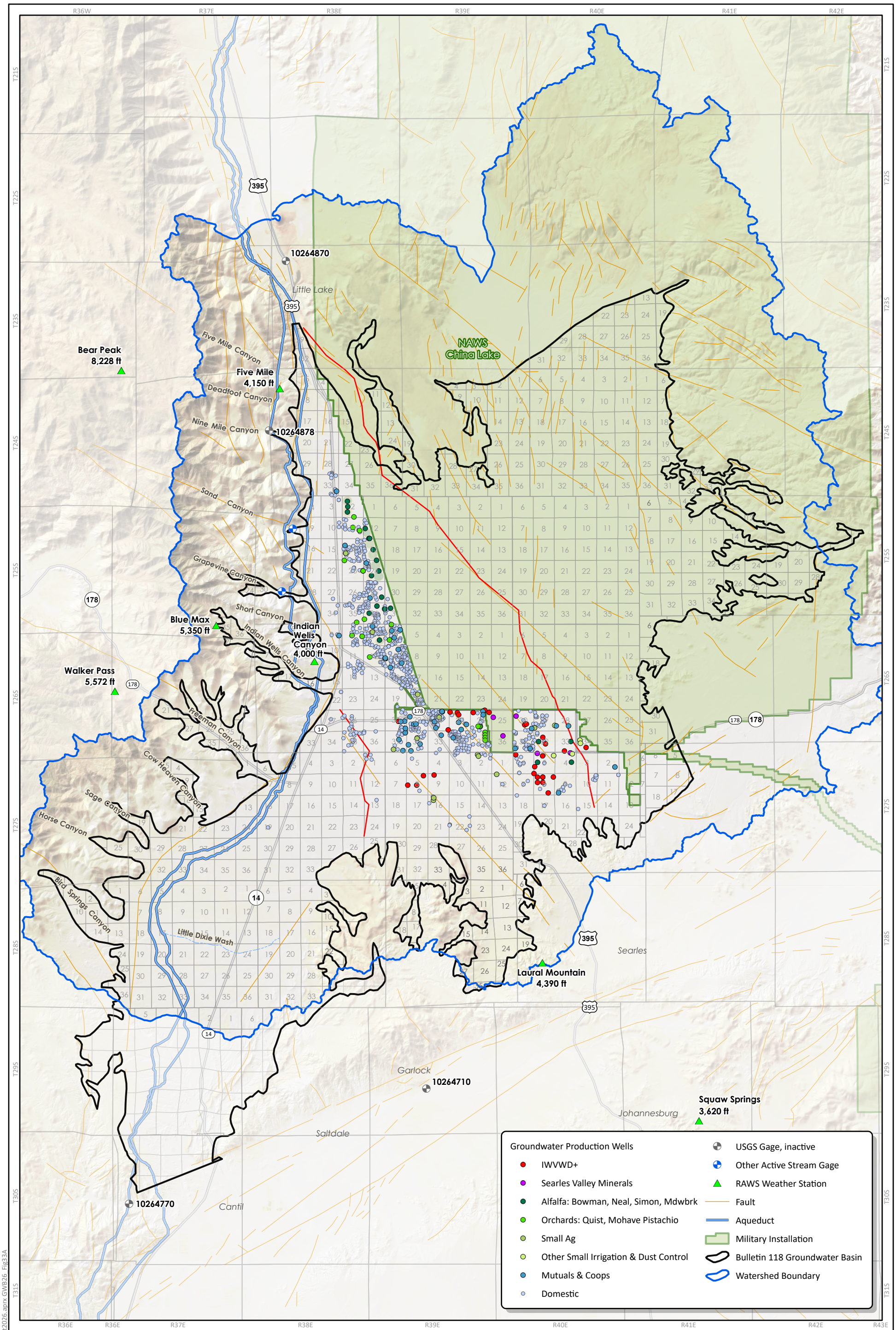
N

0 4 8
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig32



J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig33A

STETSON ENGINEERS INC.

PUMPING WELL LOCATIONS

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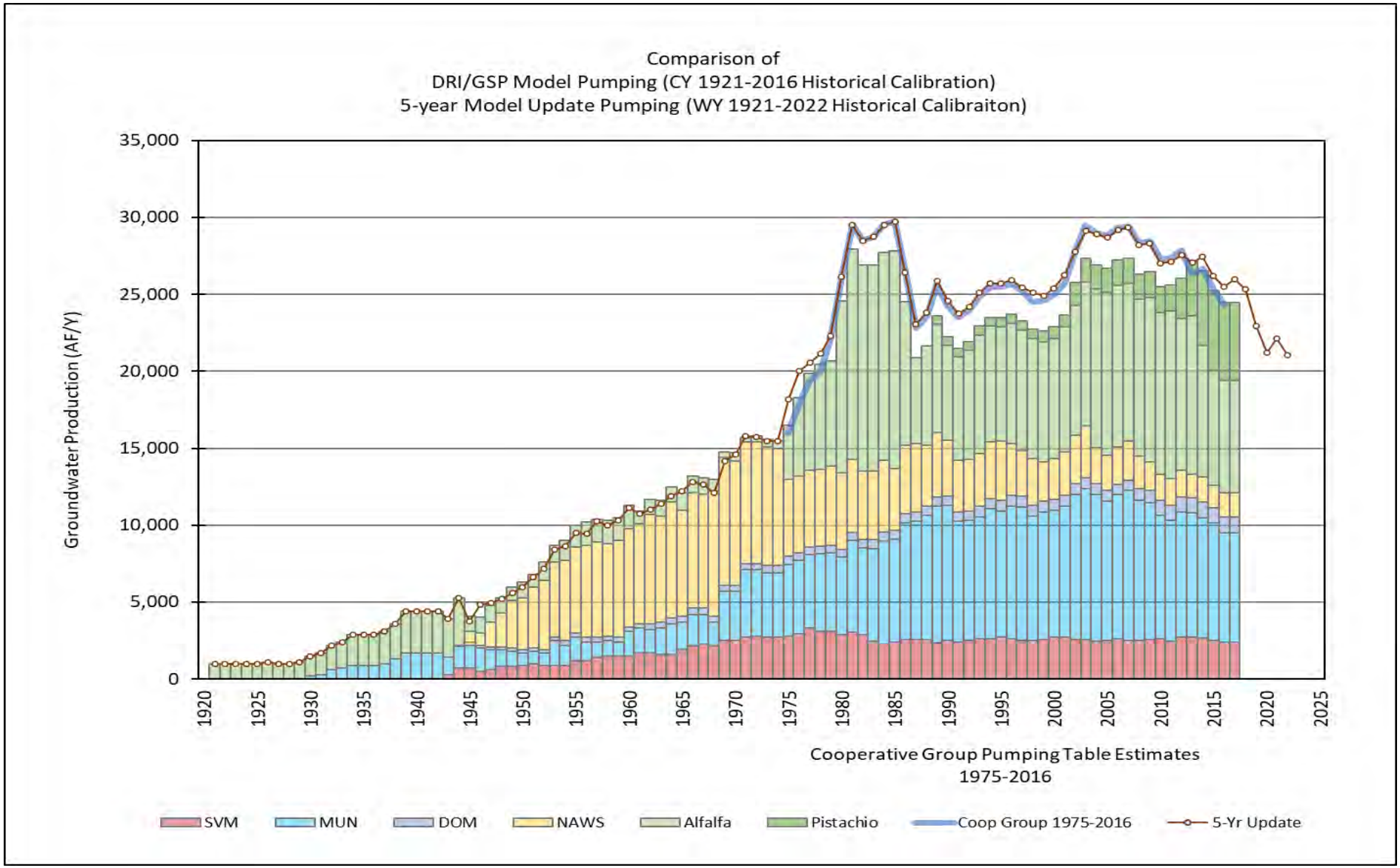
FIGURE 33A

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig33B



STETSON ENGINEERS INC.

ESTIMATED ANNUAL PUMPING BY WATER YEAR AND PUMPING GROUP FOR THE HISTORICAL CALIBRATION (WY 1921-2022)

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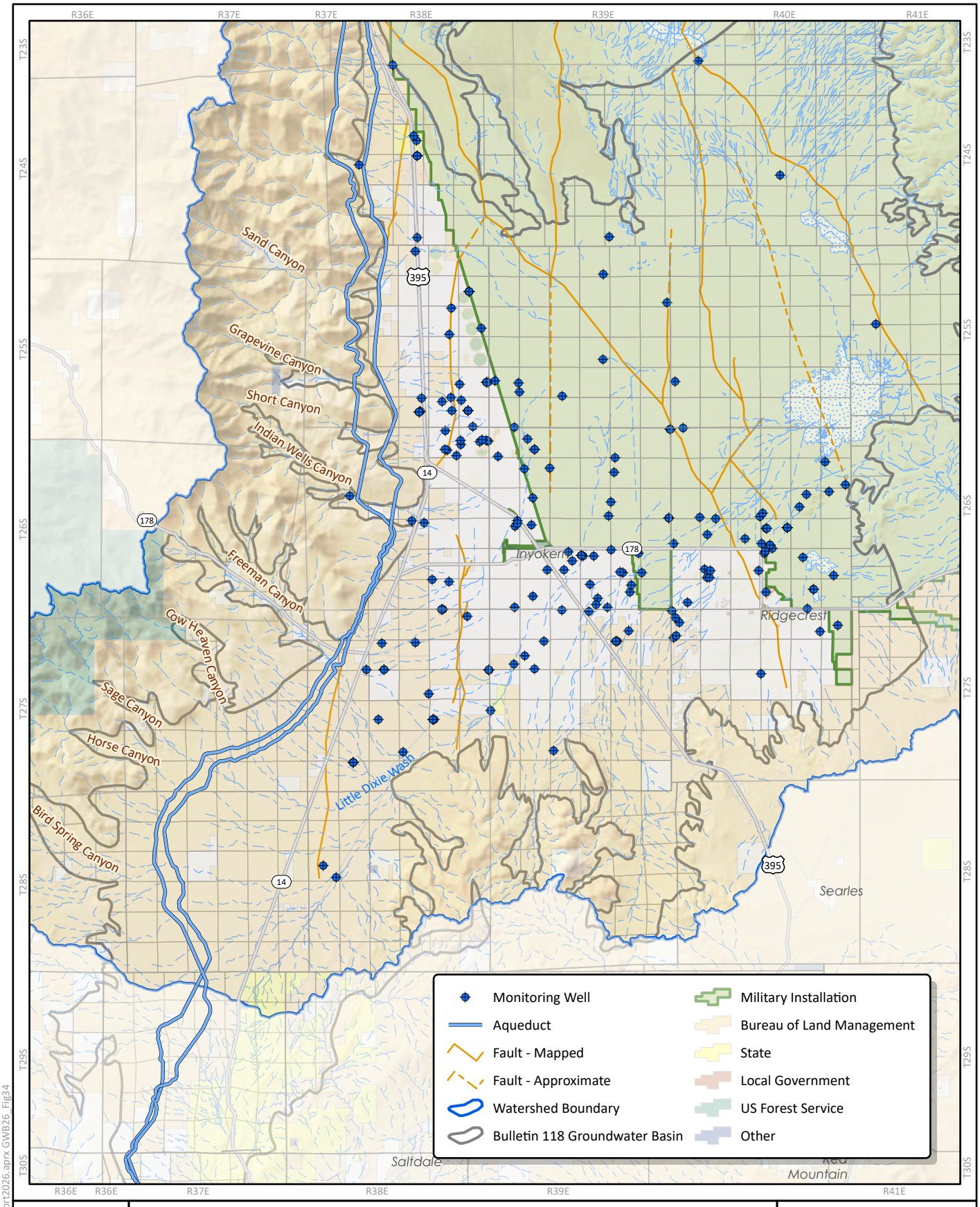
5/8/2026

FIGURE 33B

FIGURE 34



STETSON ENGINEERS INC.

2025 GSP MONITORING NETWORK FOR GWLS

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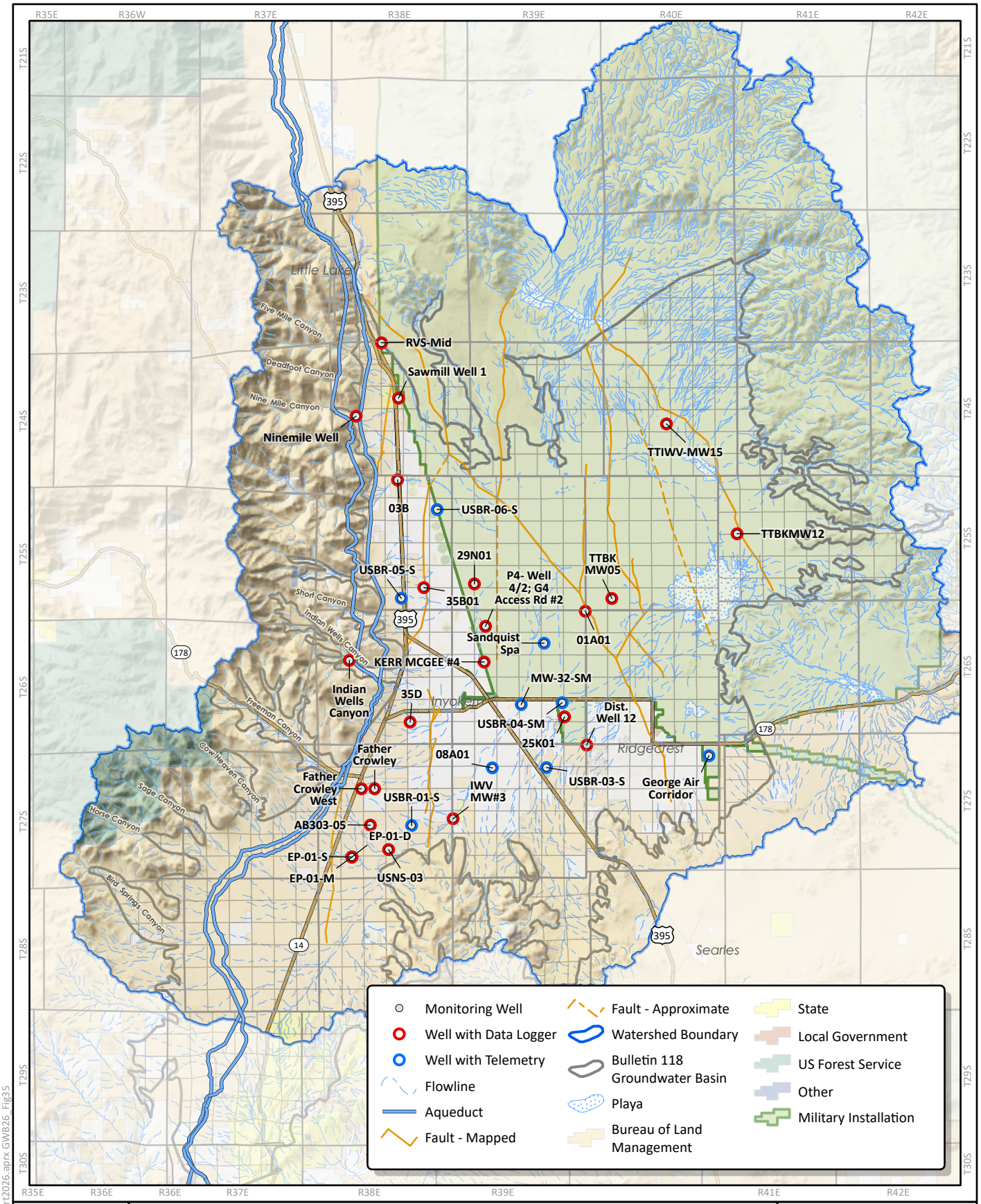
4/27/2026

N

0 2 4
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig34

FIGURE 35



STETSON ENGINEERS INC.

GWL MONITORING SITES WITH DATALOGGER AND TELEMETRY

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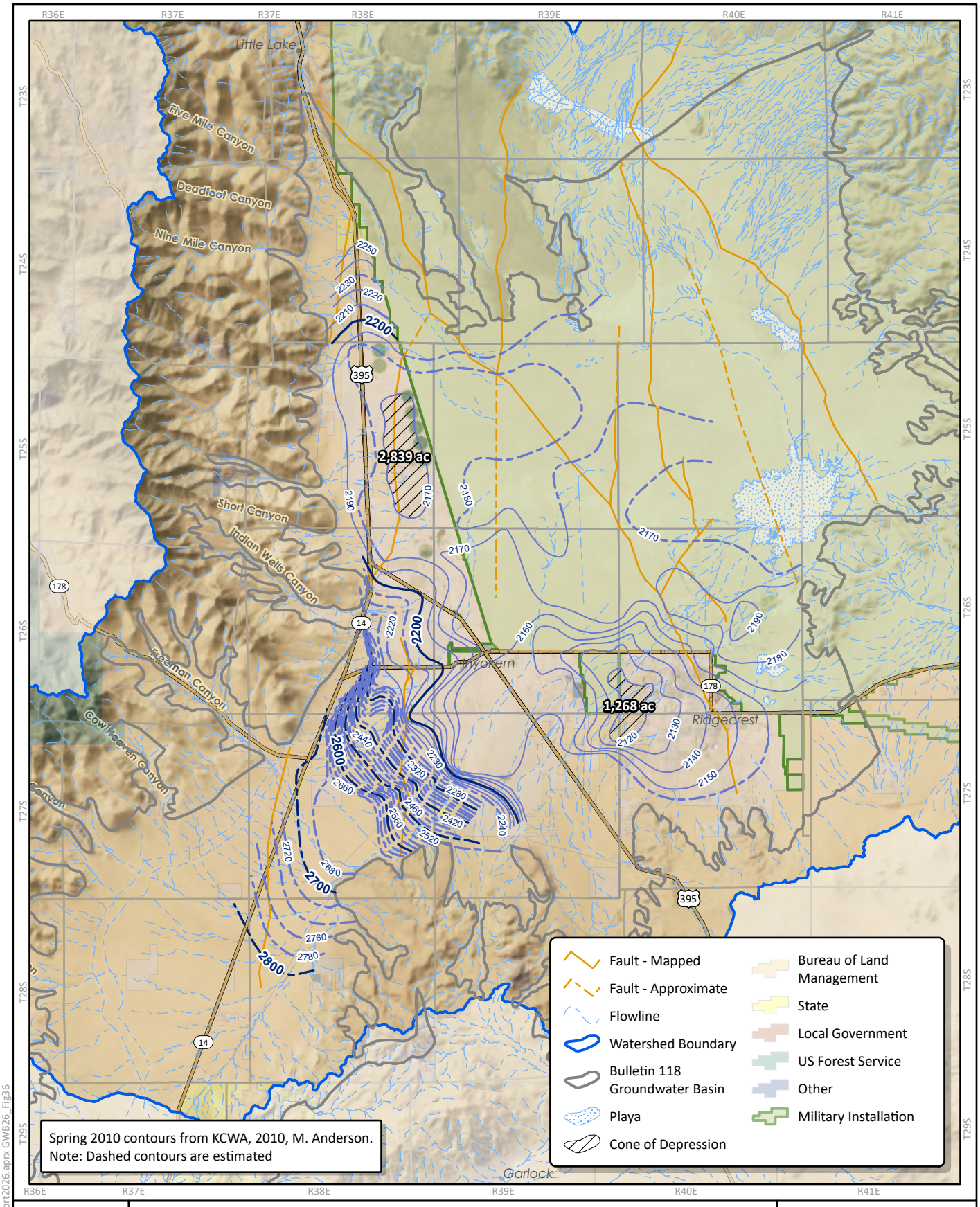
4/27/2026

N

0 2 4
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig35

FIGURE 36



STETSON ENGINEERS INC.

SPRING 2010 GROUNDWATER CONTOUR MAP

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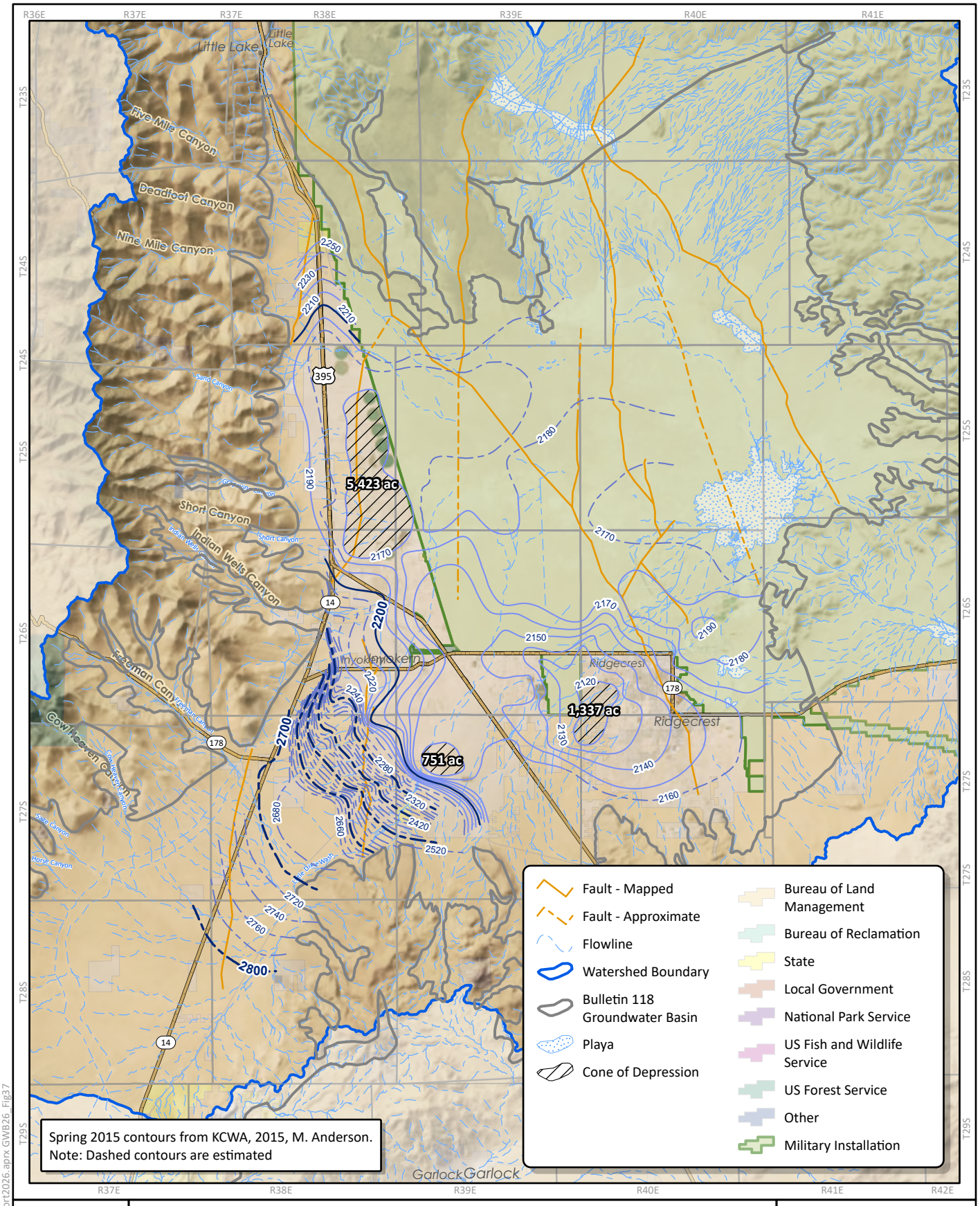
N

0 2 4
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig36



STETSON ENGINEERS INC.

SPRING 2015 GROUNDWATER CONTOUR MAP

DRAFT
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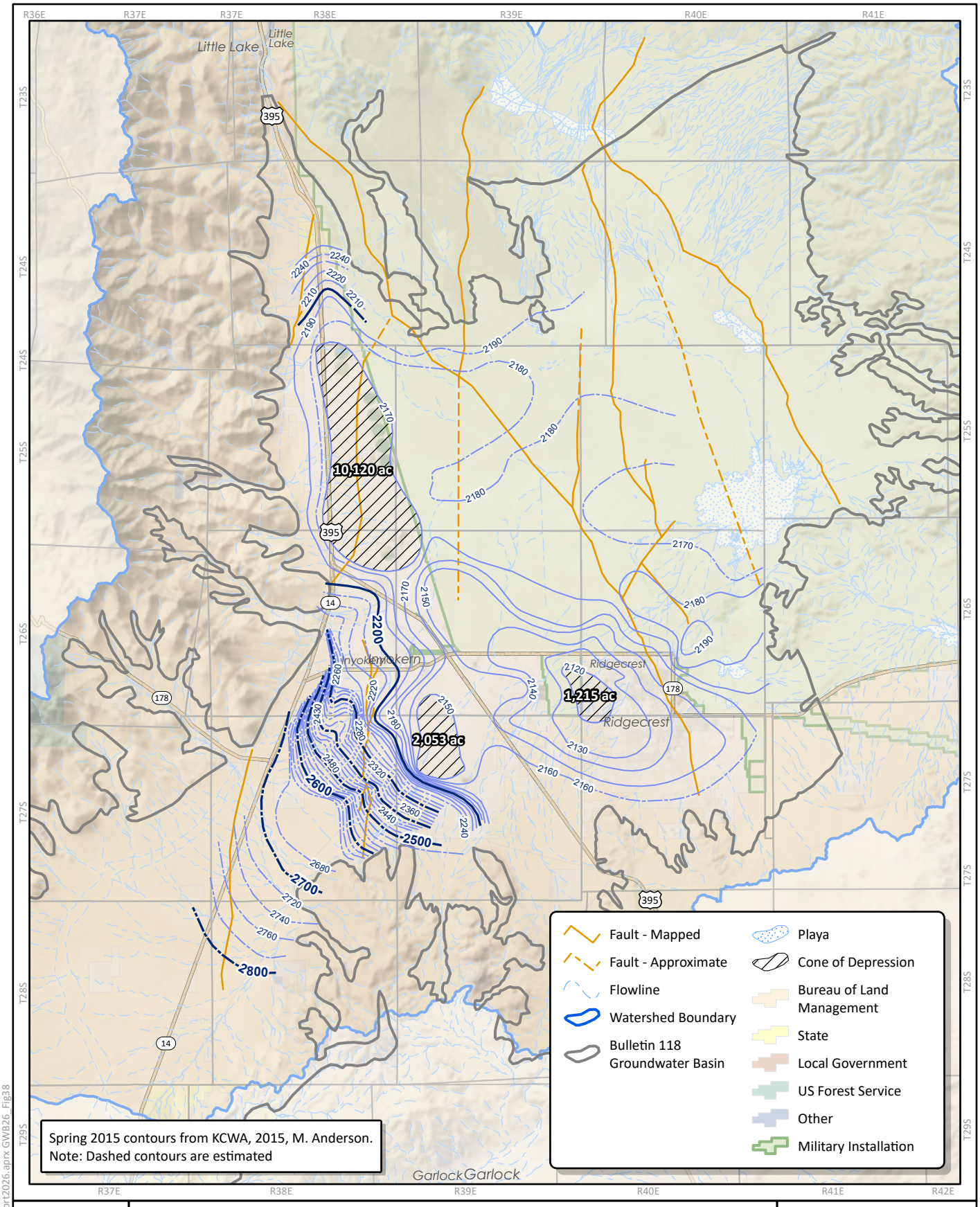
N

0 2 4
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig37

FIGURE 38



STETSON ENGINEERS INC.

SPRING 2023 GROUNDWATER CONTOUR MAP

INDIAN WELLS VALLEY, CA

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N

0 2 4
Miles

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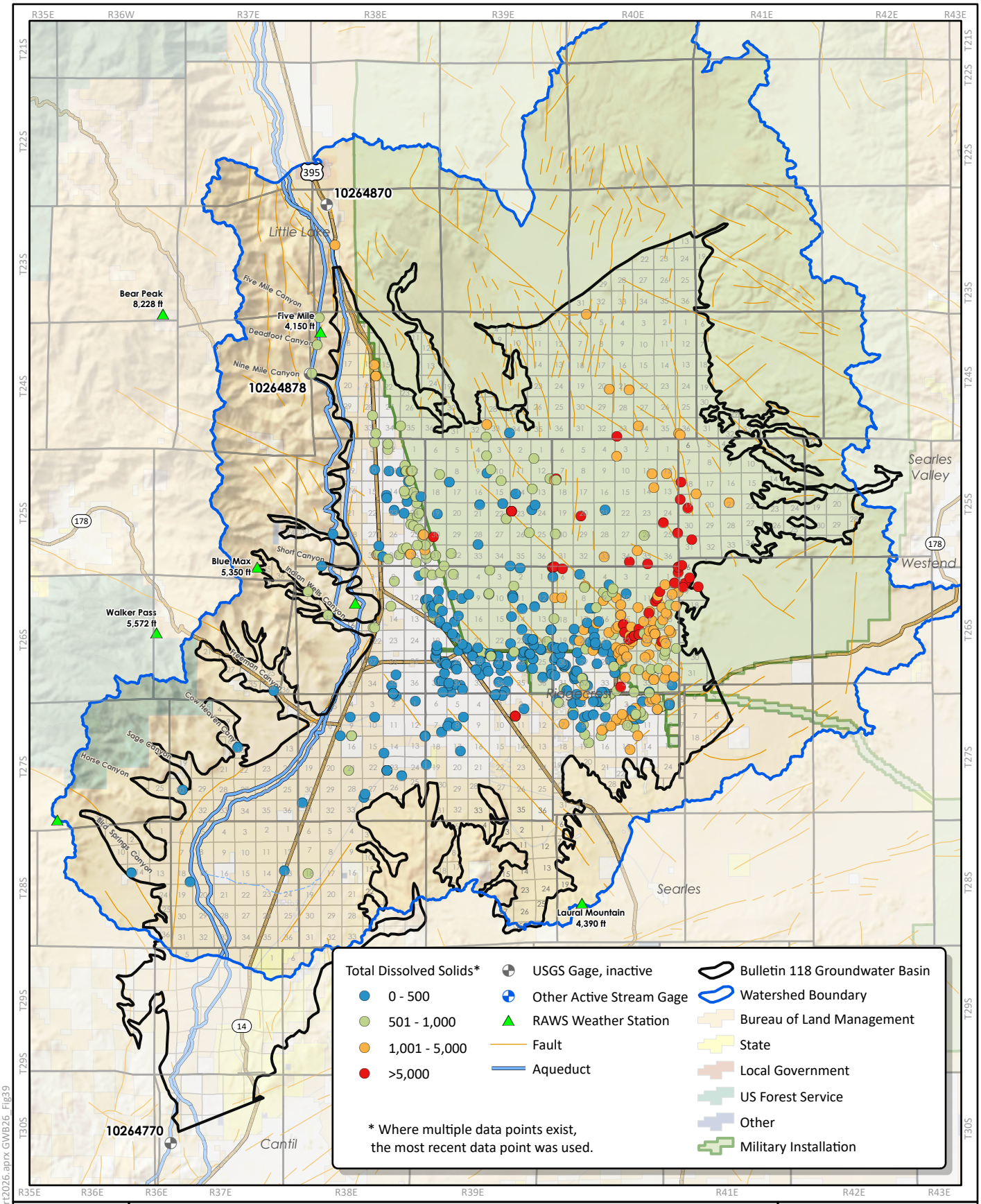

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2020 TDS CONCENTRATIONS

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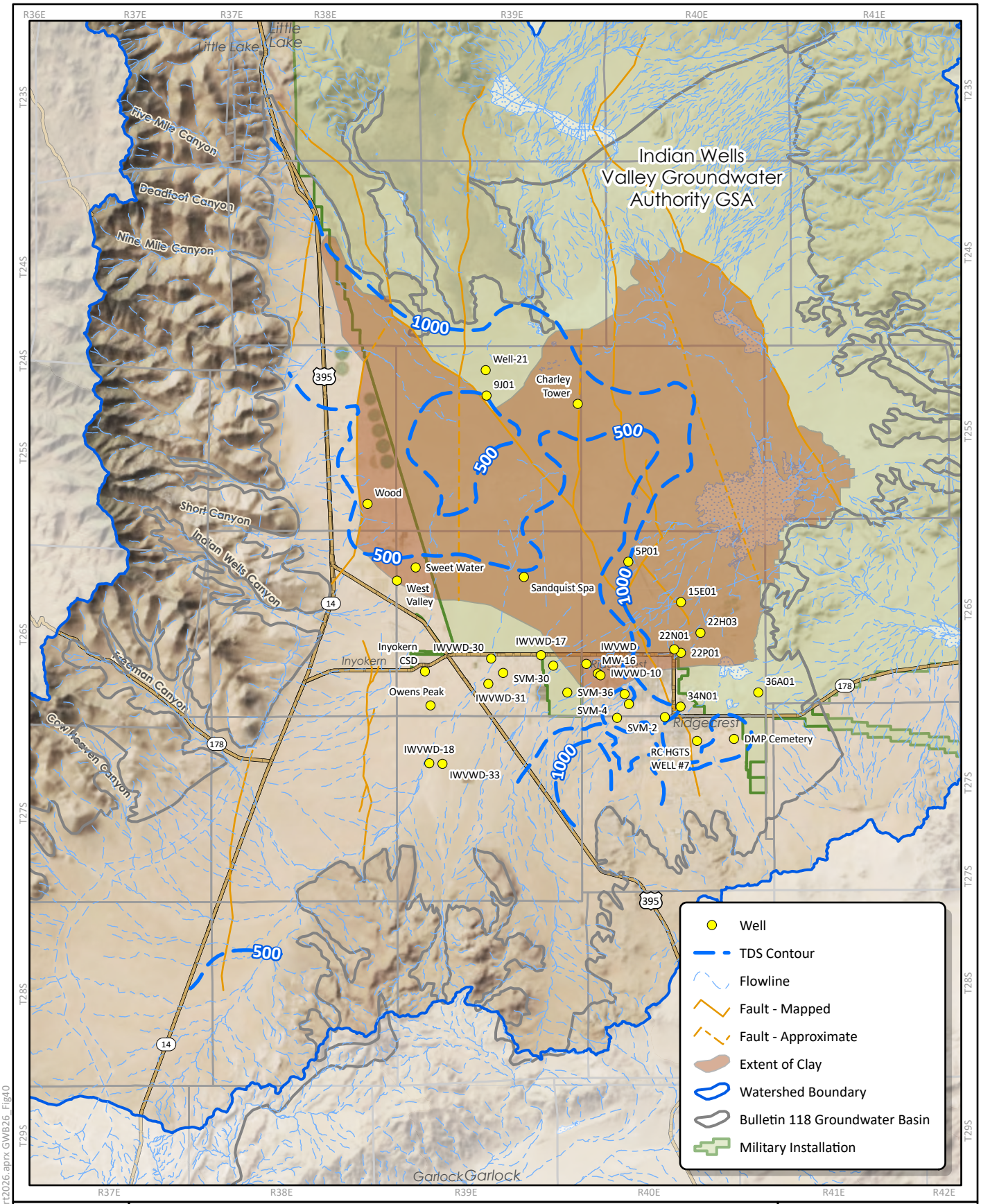
N

0 4 8
Miles

FIGURE 40



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TDS CONCENTRATION CONTOUR MAP

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N

0 2 4
Miles

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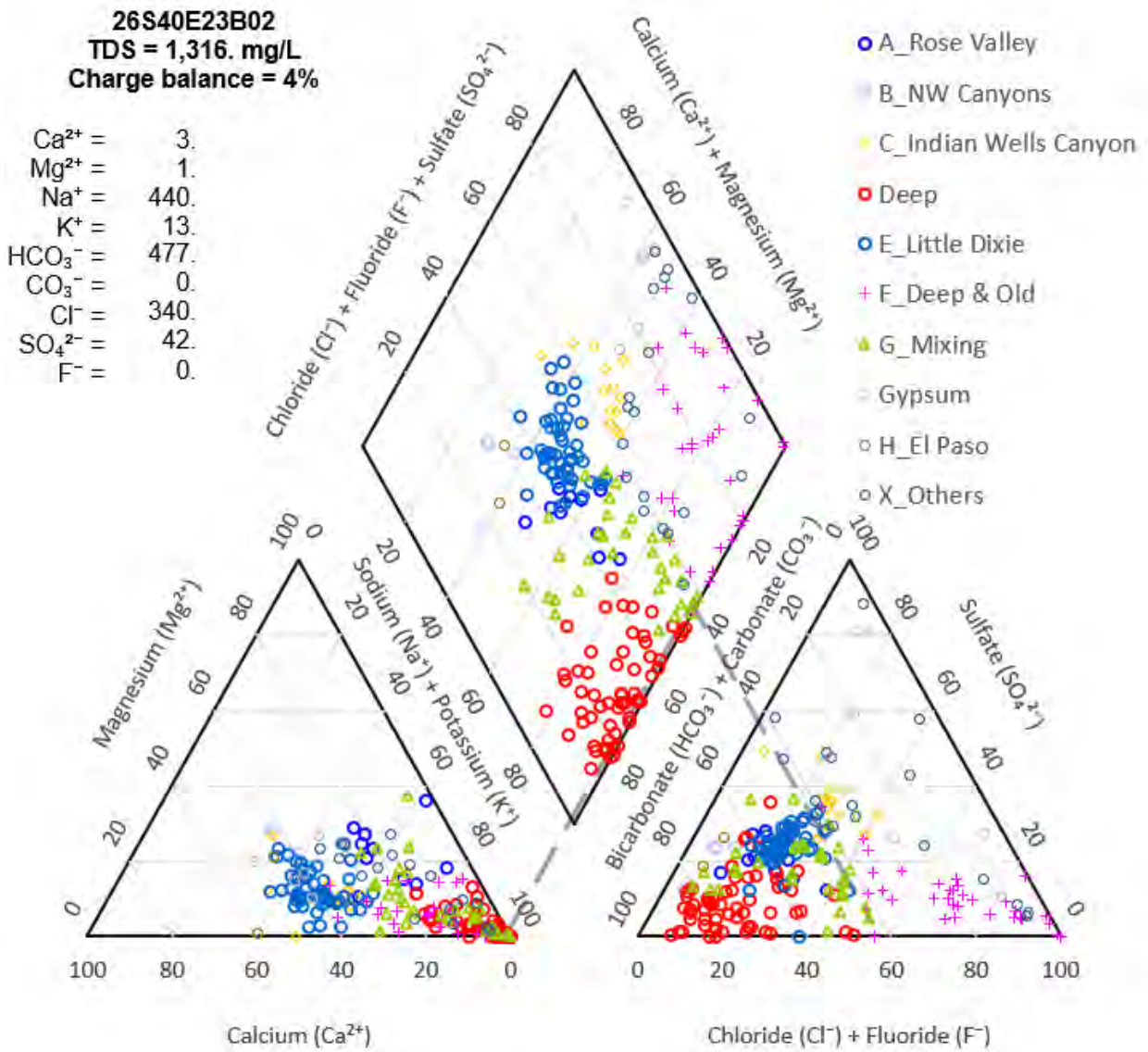
J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig41



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GROUNDWATER QUALITY PIPER DIAGRAM

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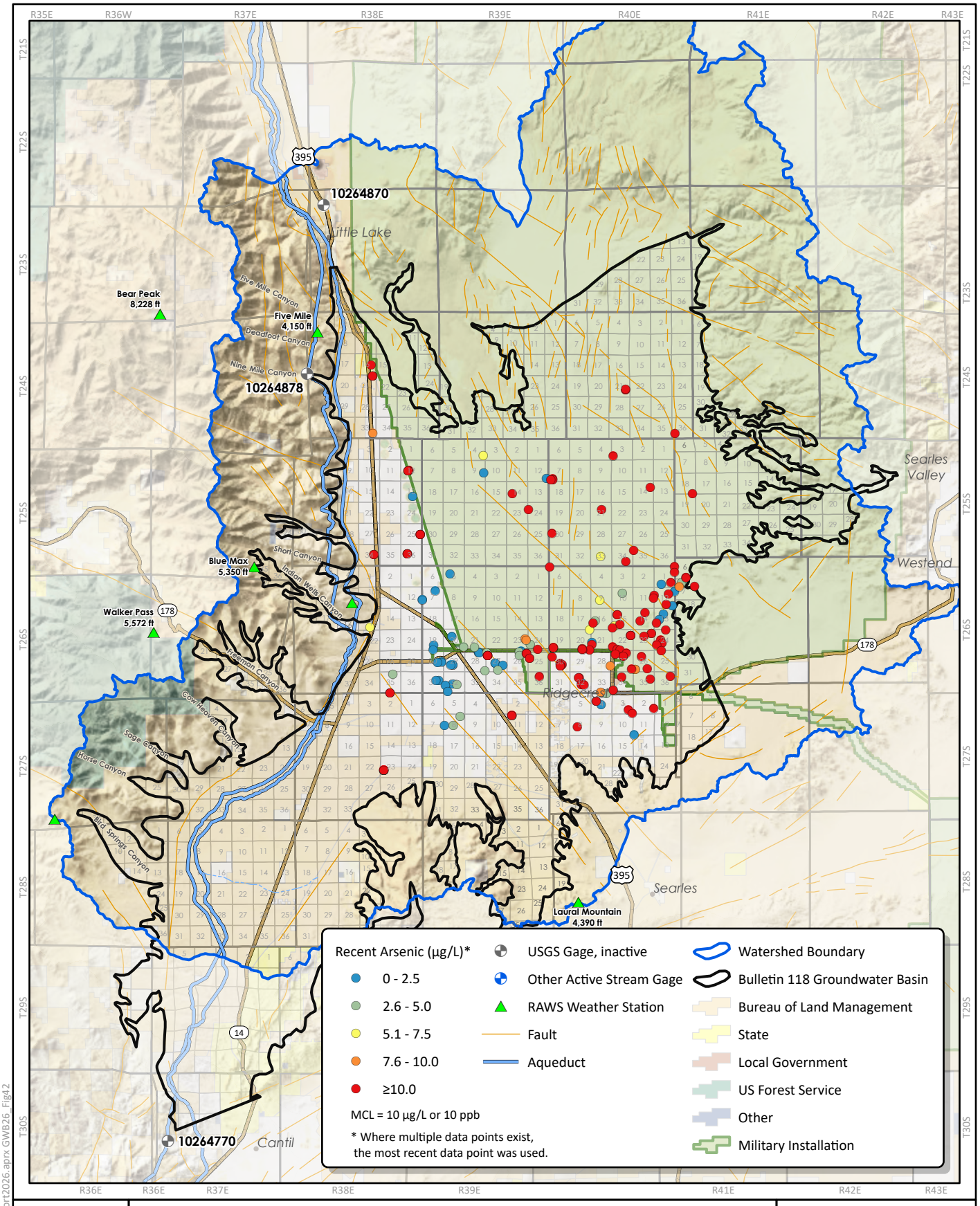
FIGURE 41

FIGURE 42



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2020 ARSENIC CONCENTRATIONS

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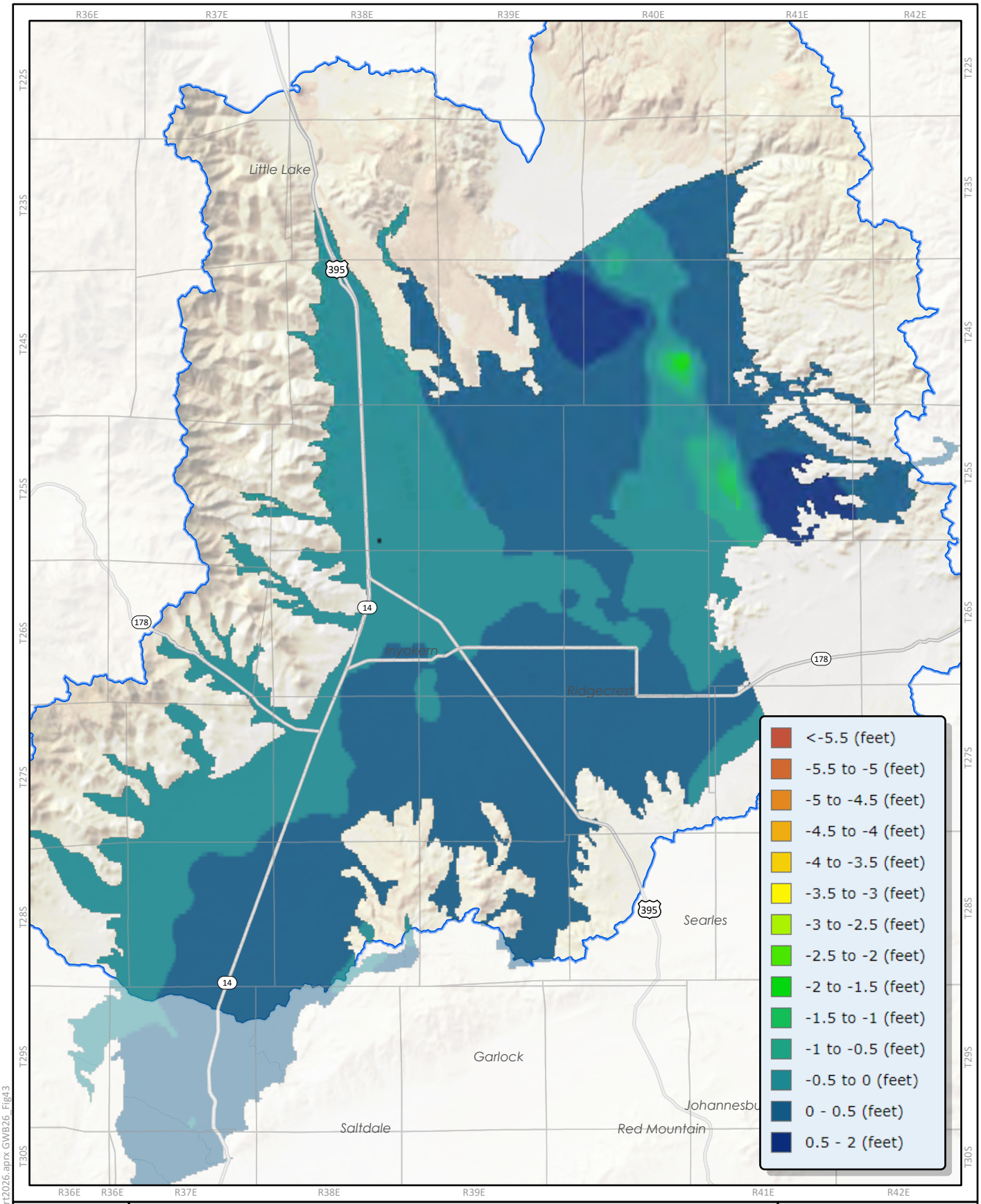
N

0 3 6
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig42

FIGURE 43



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CUMULATIVE LAND SUBSIDENCE 2015-2024

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N

0 3 6
Miles

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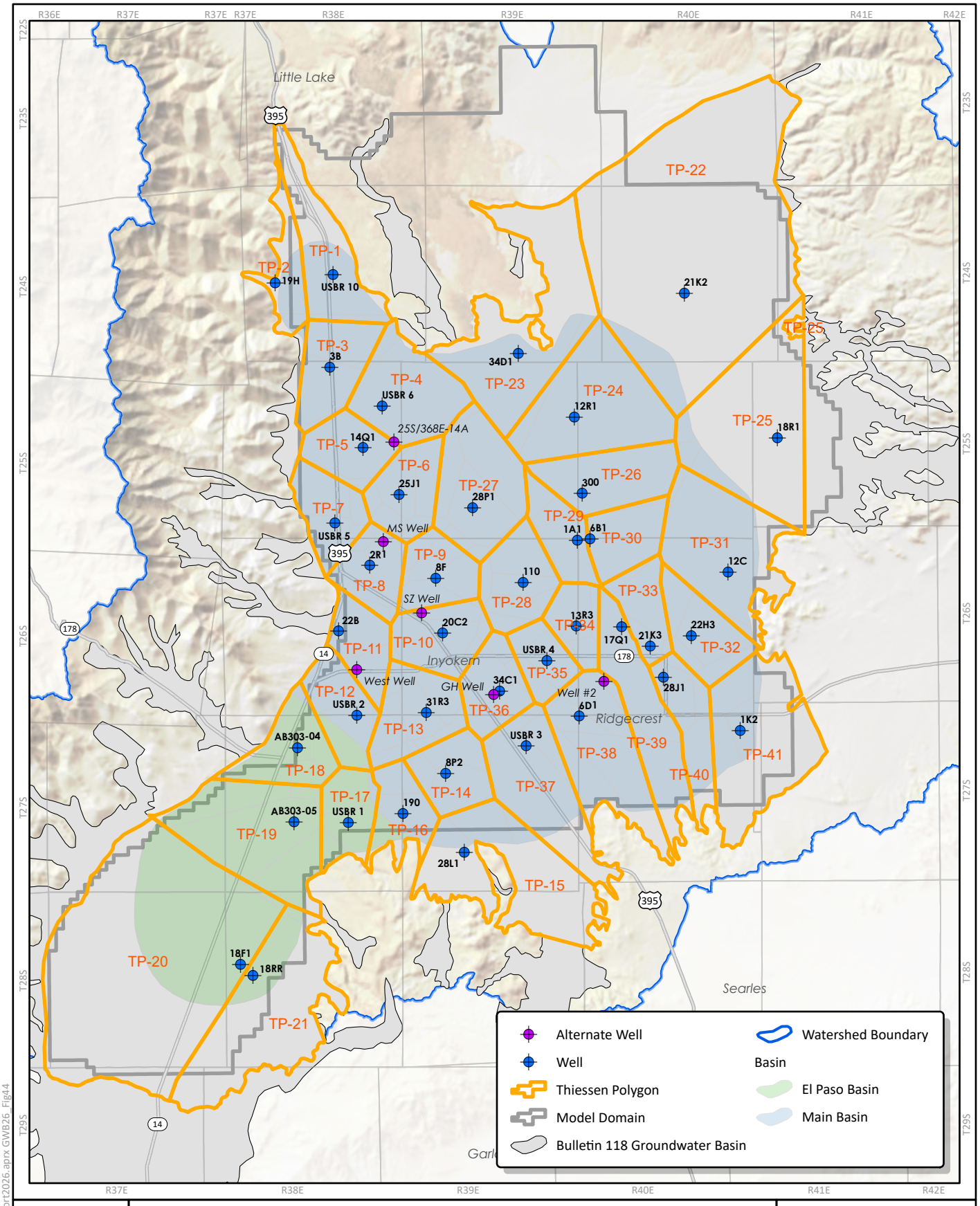
FIGURE 44



STETSON ENGINEERS INC.

BASIN STORAGE – MODIFIED THIESSEN POLYGON METHOD

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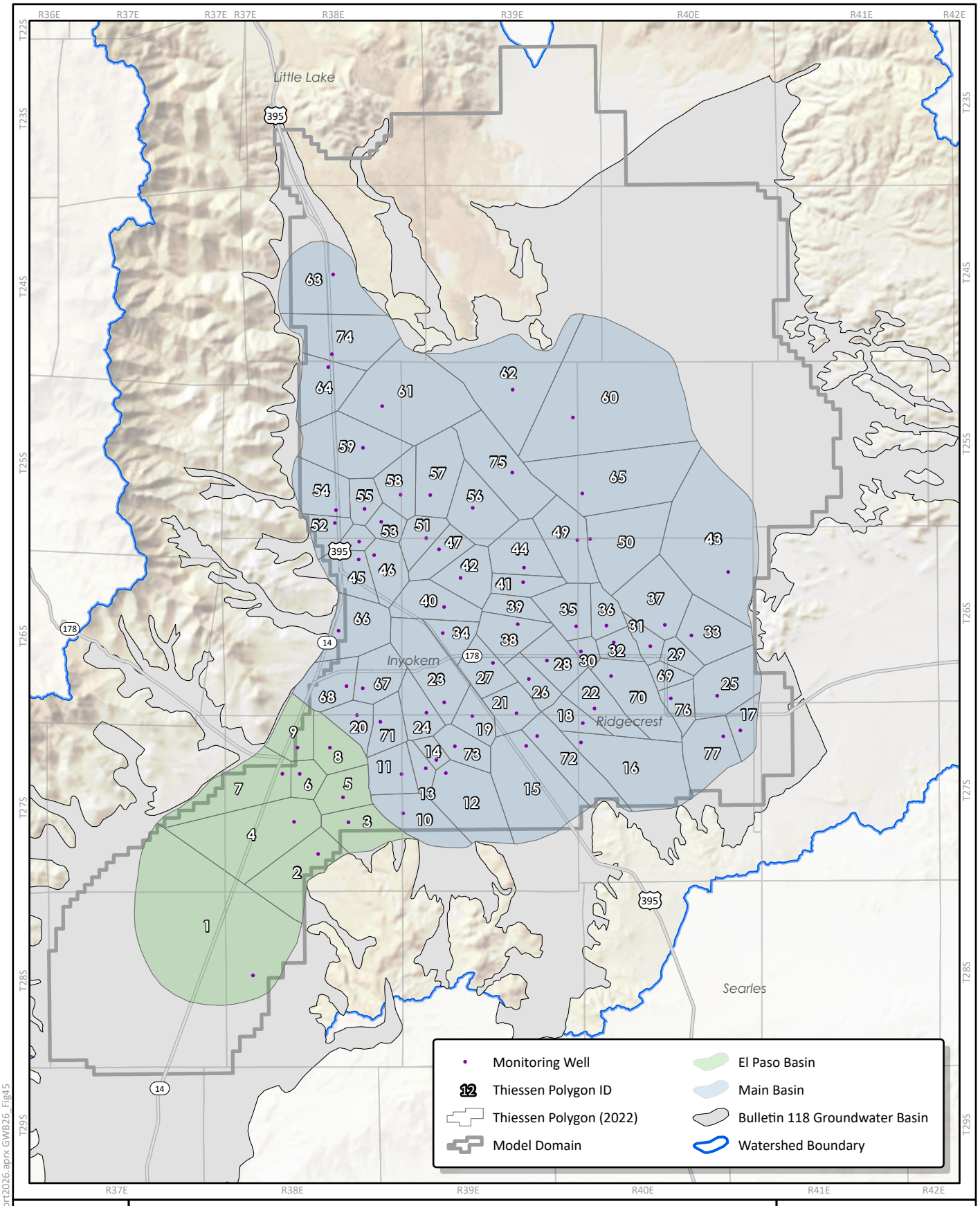
N

0 2.5 5
Miles

J:\jn2652\GWBasinTechReport2026.aprx GWB26_Fig44

FIGURE 45



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BASIN STORAGE – MODIFIED THIESSEN POLYGON METHOD

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N

0 2.5 5
Miles

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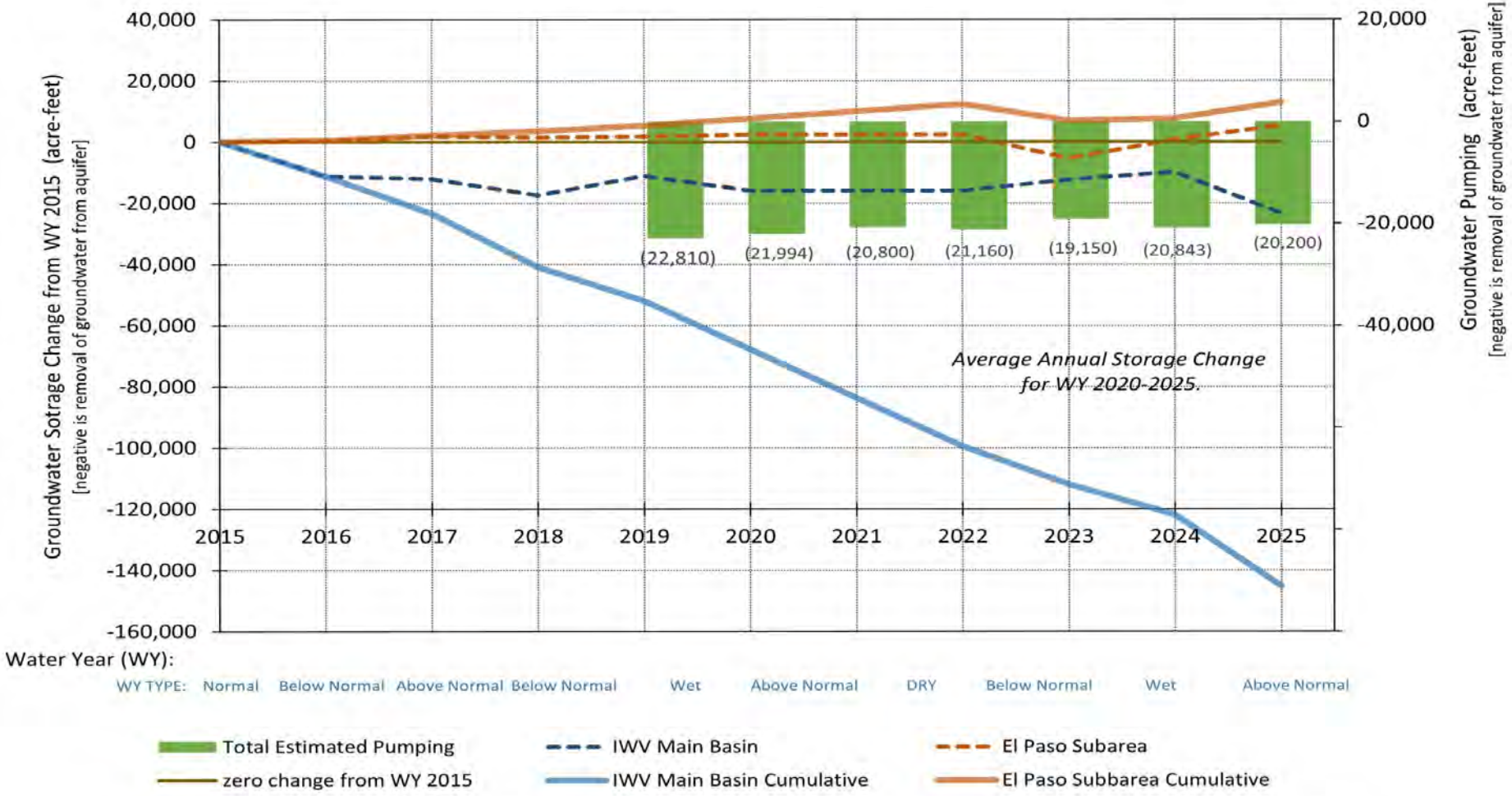

Note: Groundwater storage change is estimated based on the Thiesen polygon method for measured area of basin (see IWV Annual Report)

STETSON ENGINEERS INC.

ESTIMATED GROUNDWATER STORAGE CHANGE WY 2016-2025
WITH RECENT GROUNDWATER PUMPING

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FIGURE 46