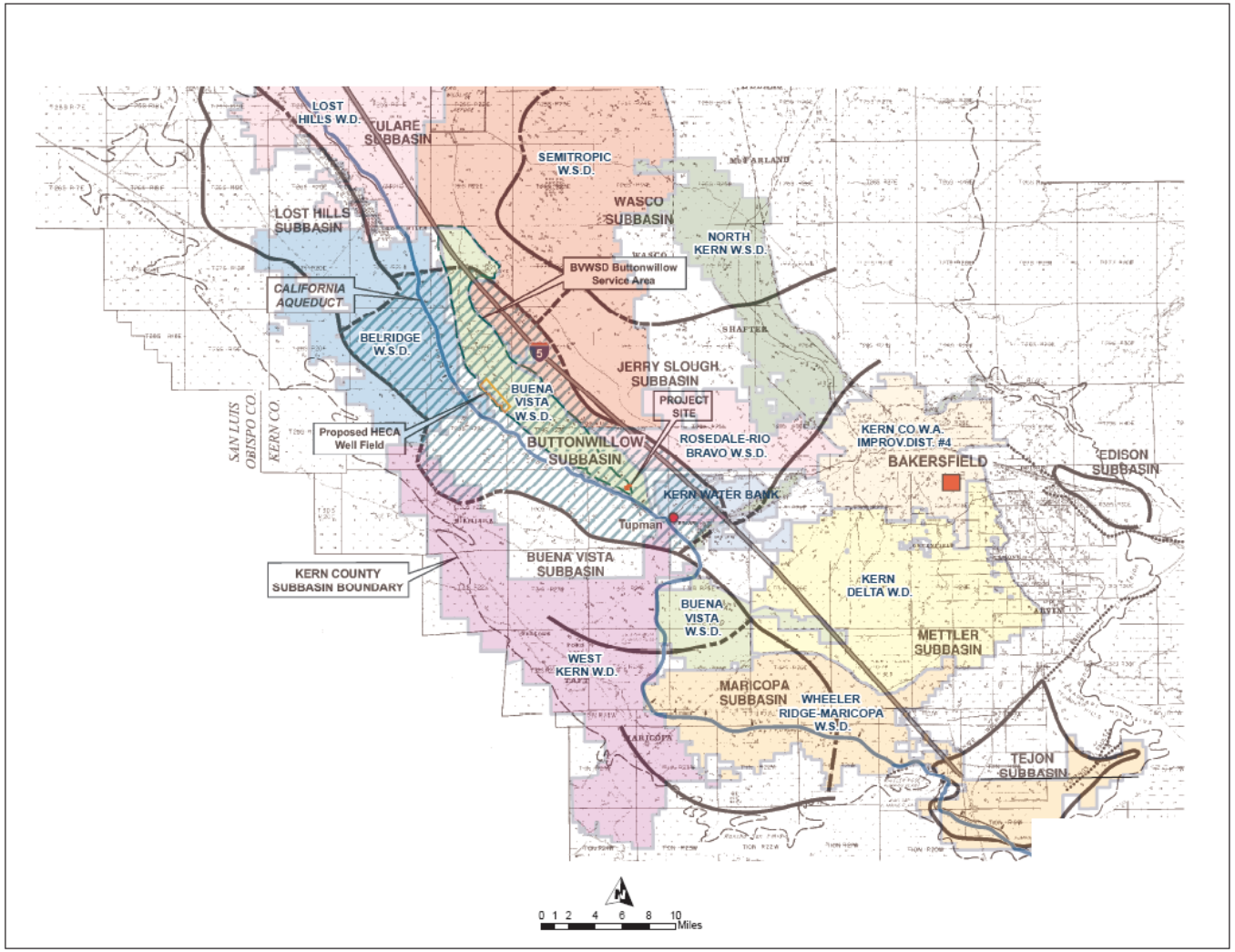
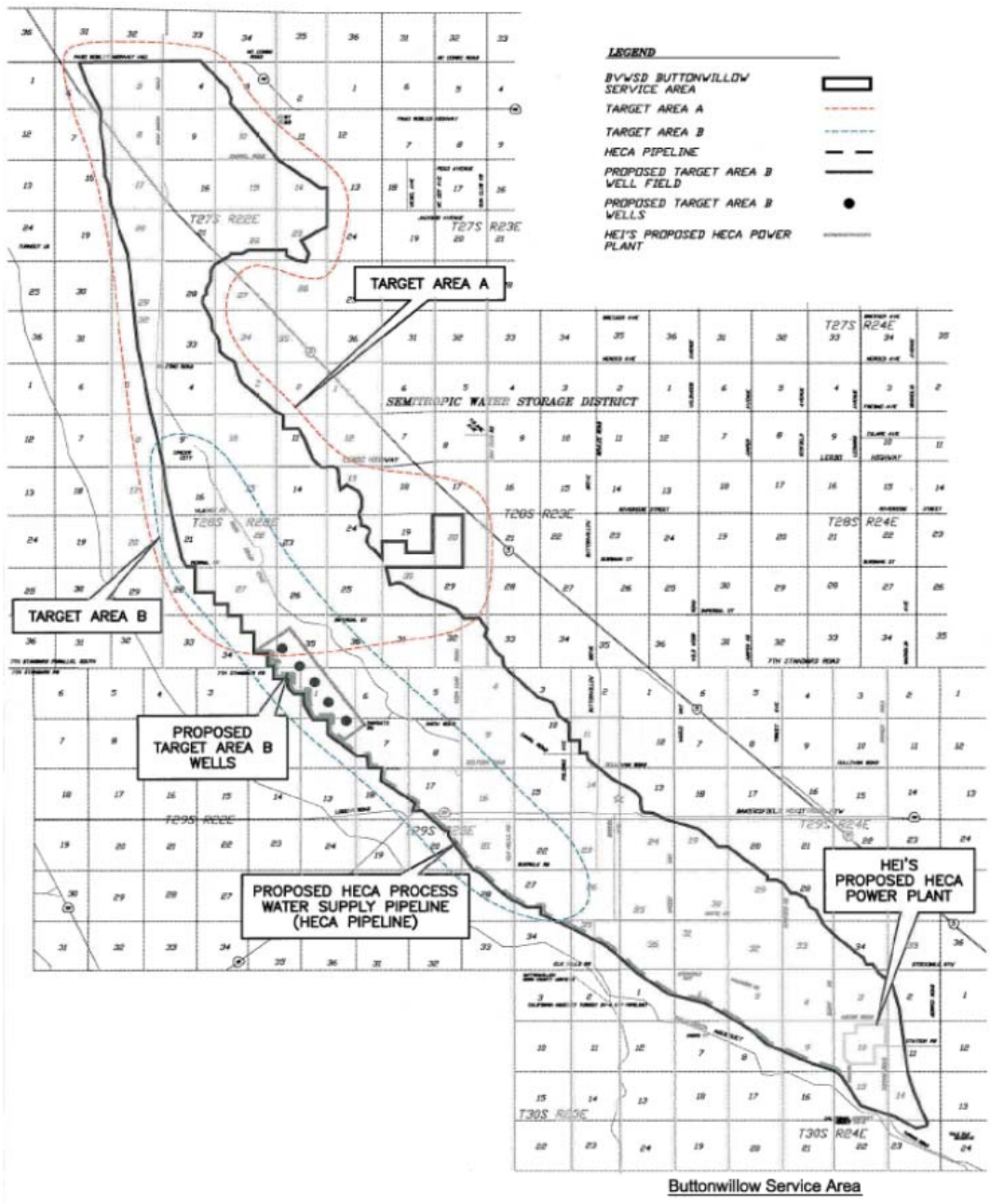
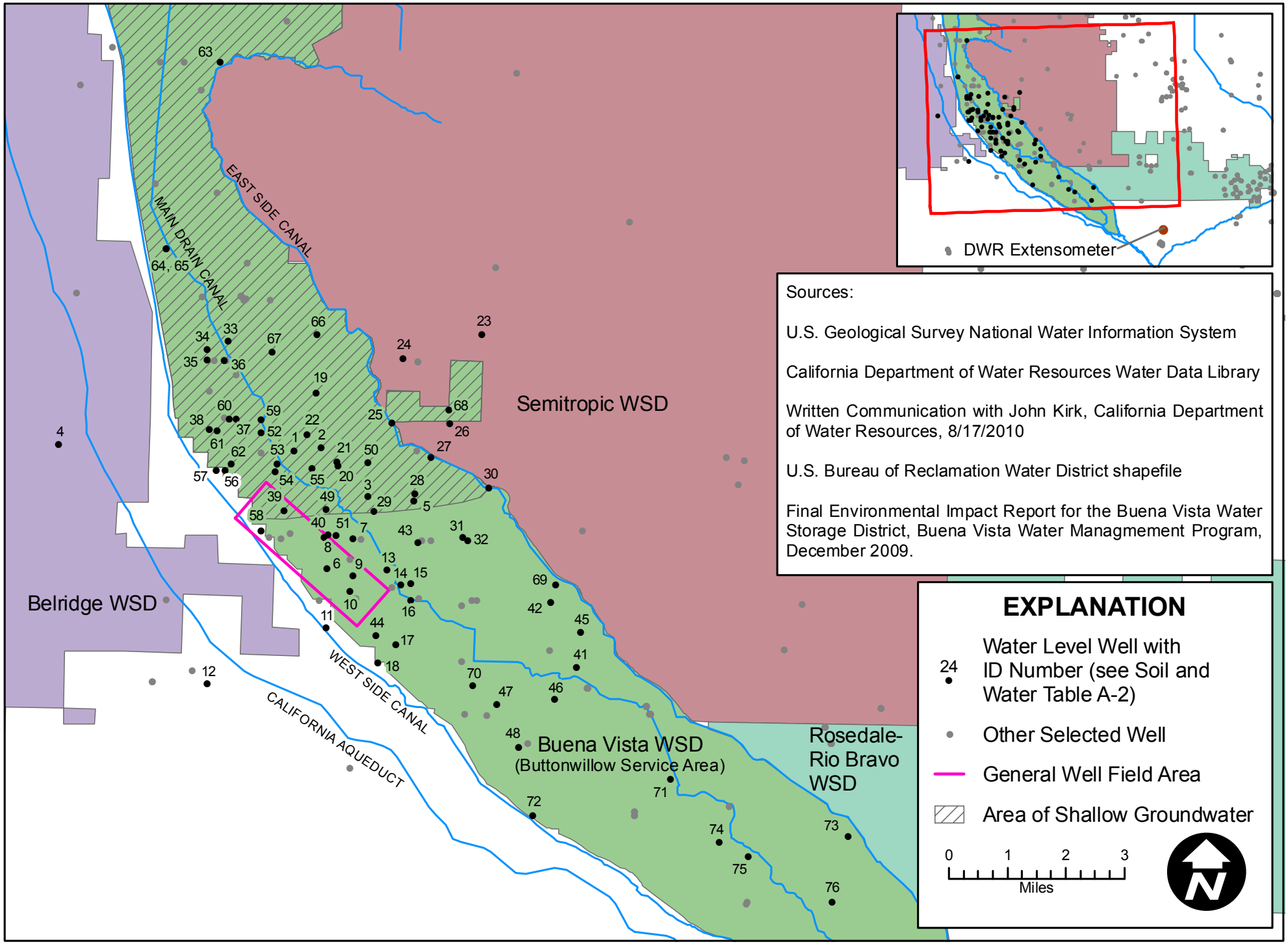
SOIL&WATER Figure 1: Kern Water Districts and Subbasins



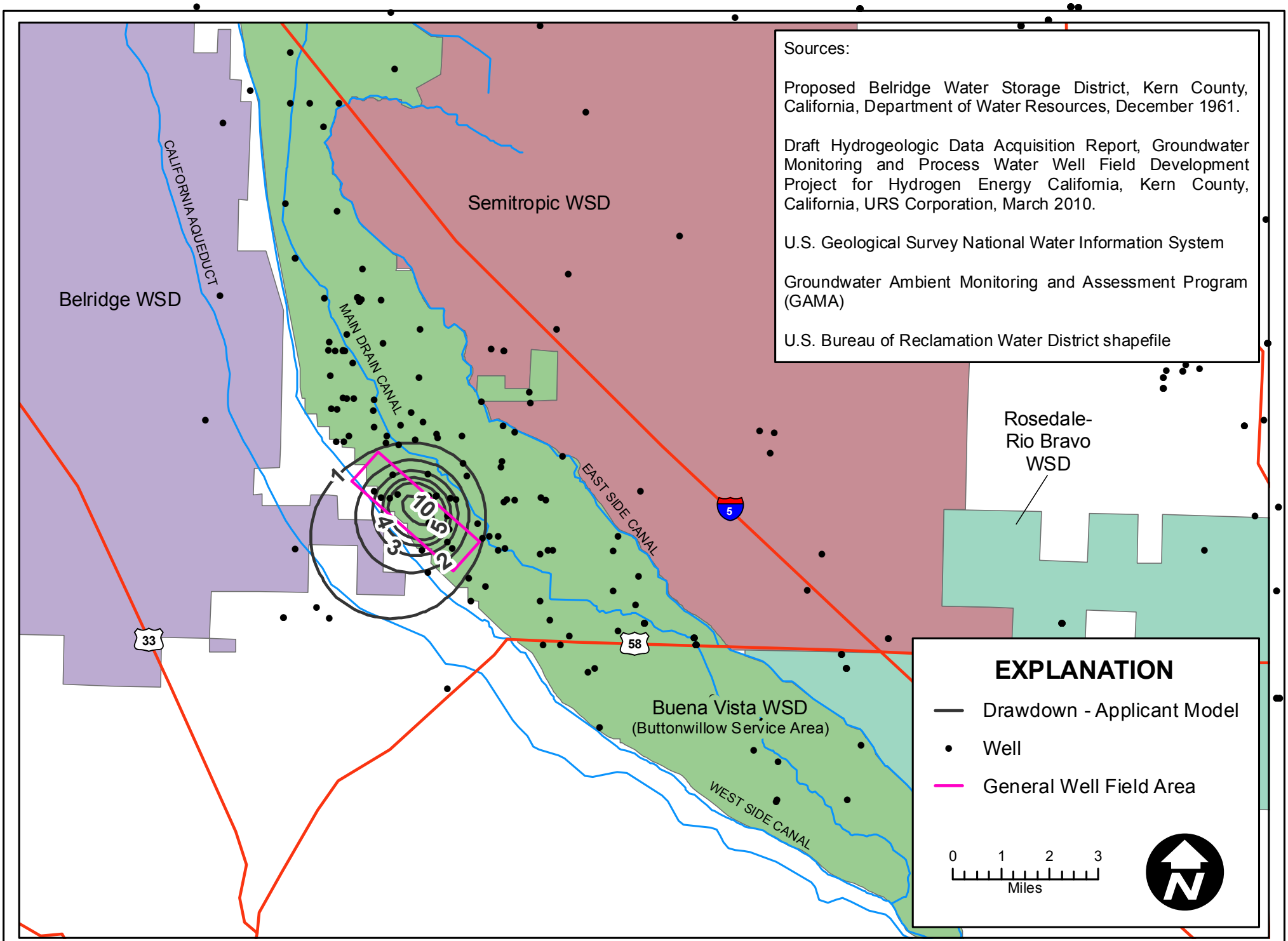
Source: FEIR 2009

SOIL&WATER Figure 2: Brackish Groundwater Remediation Project

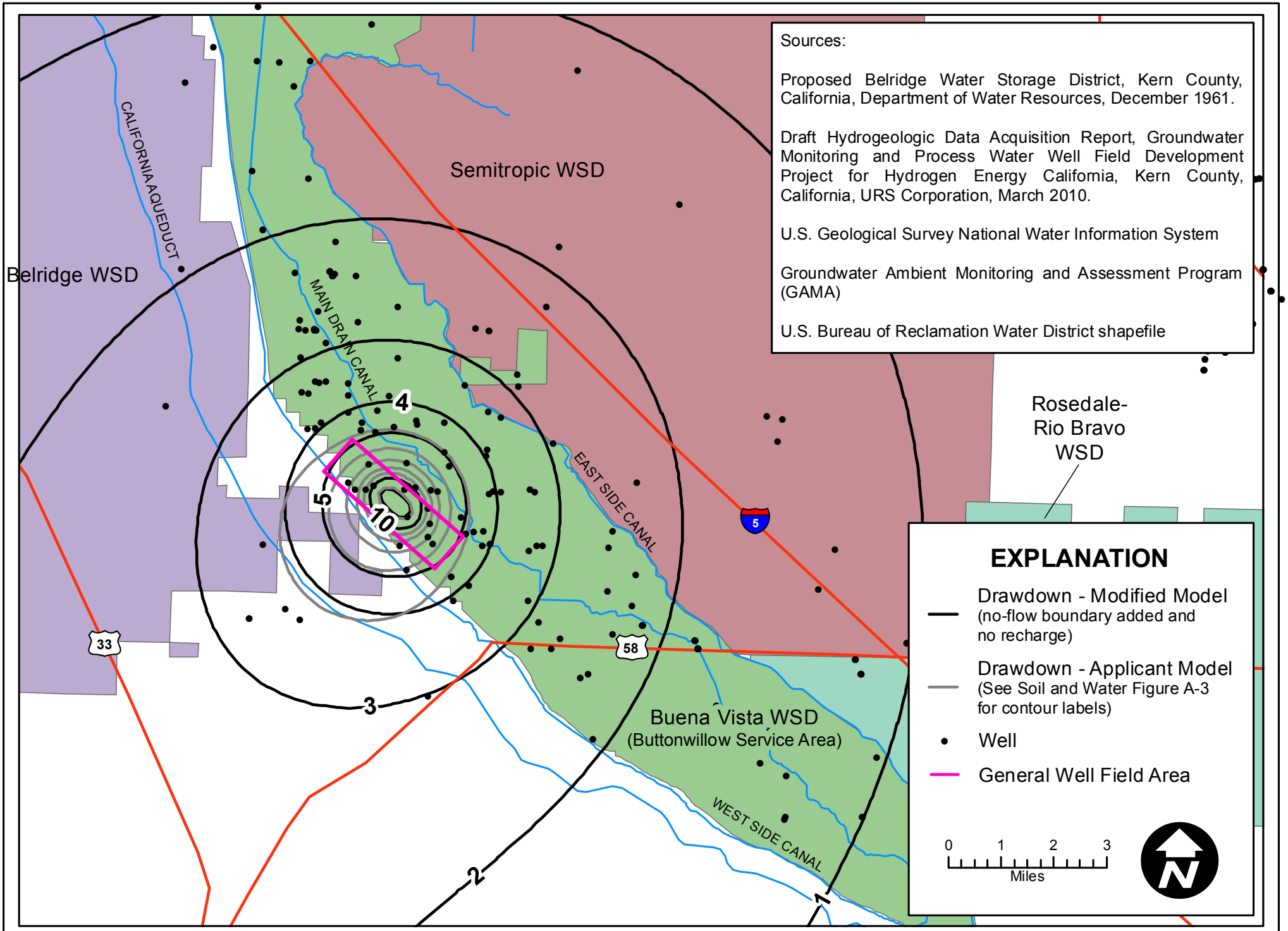




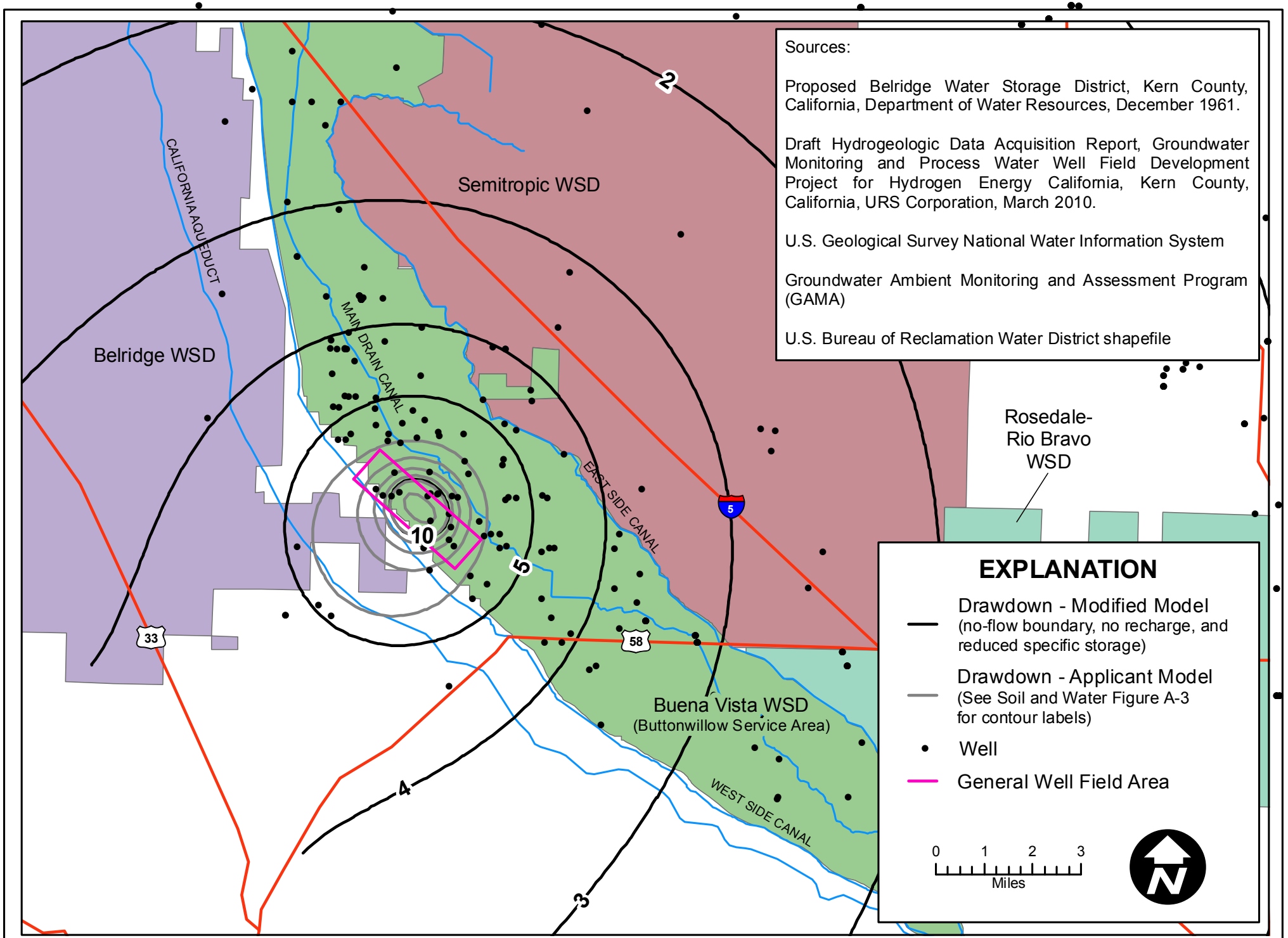
Soil and Water Figure 3. Selected existing wells and proposed well field, Buttonwillow Service Area, Buena Vista Water Storage District.



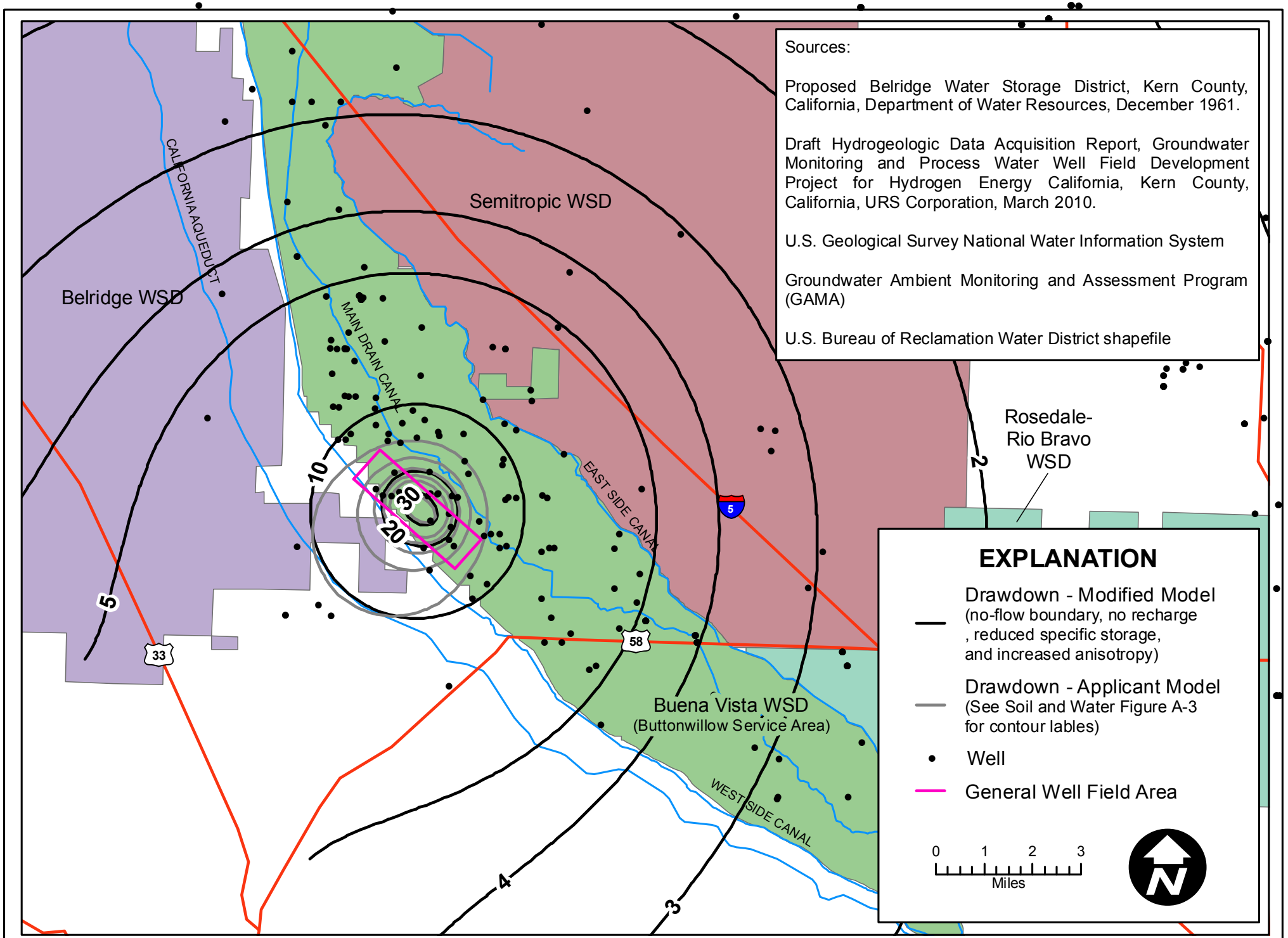
Soil and Water Figure 4. Simulated 25-year drawdown from applicant model.



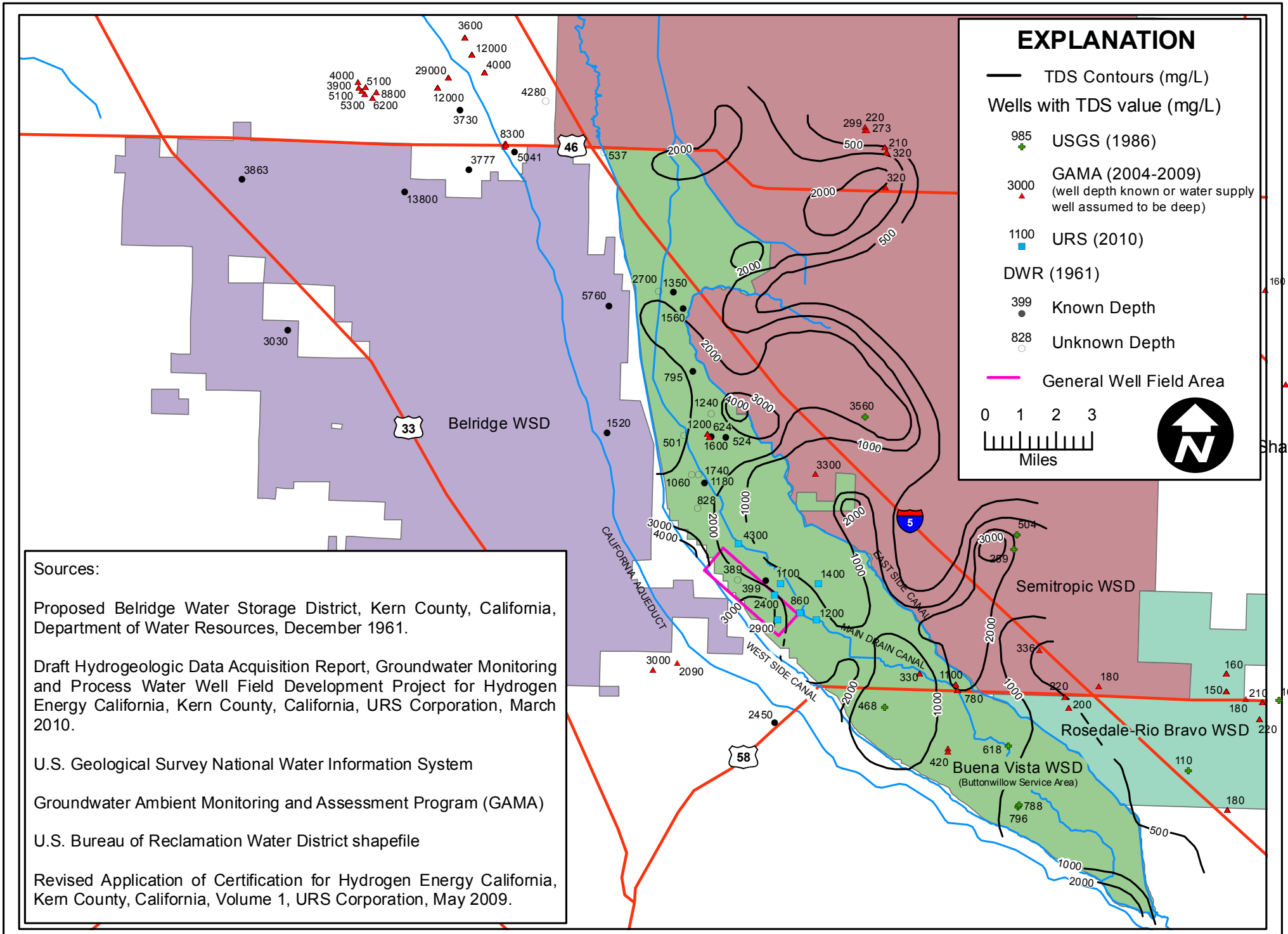
Soil and Water Figure 5. Simulated 25-year drawdown from staff modified model (no-flow boundary added and no recharge).



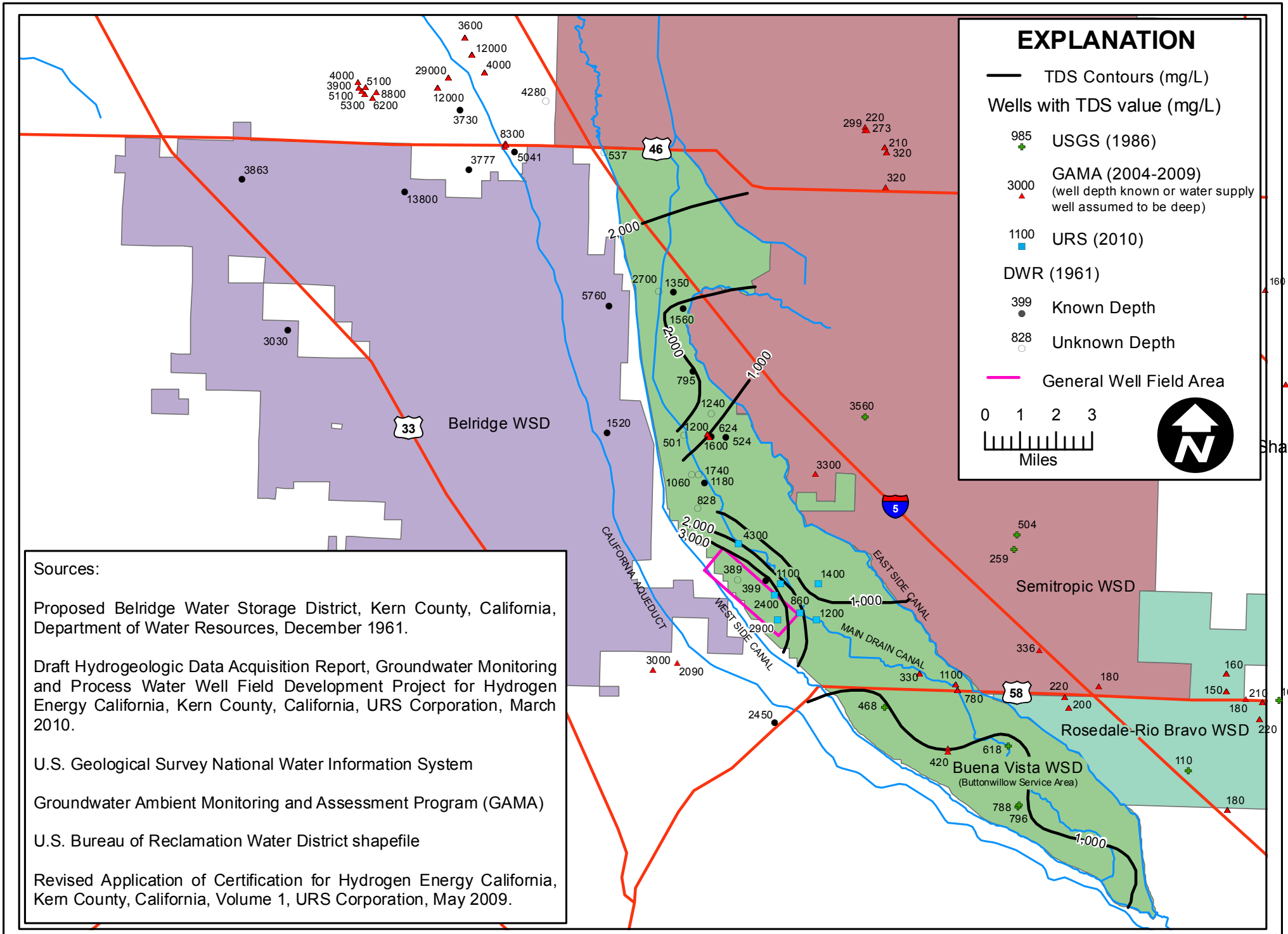
Soil and Water Figure 6. Simulated 25-year drawdown from staff-modified model including reduced storativity (0.007).



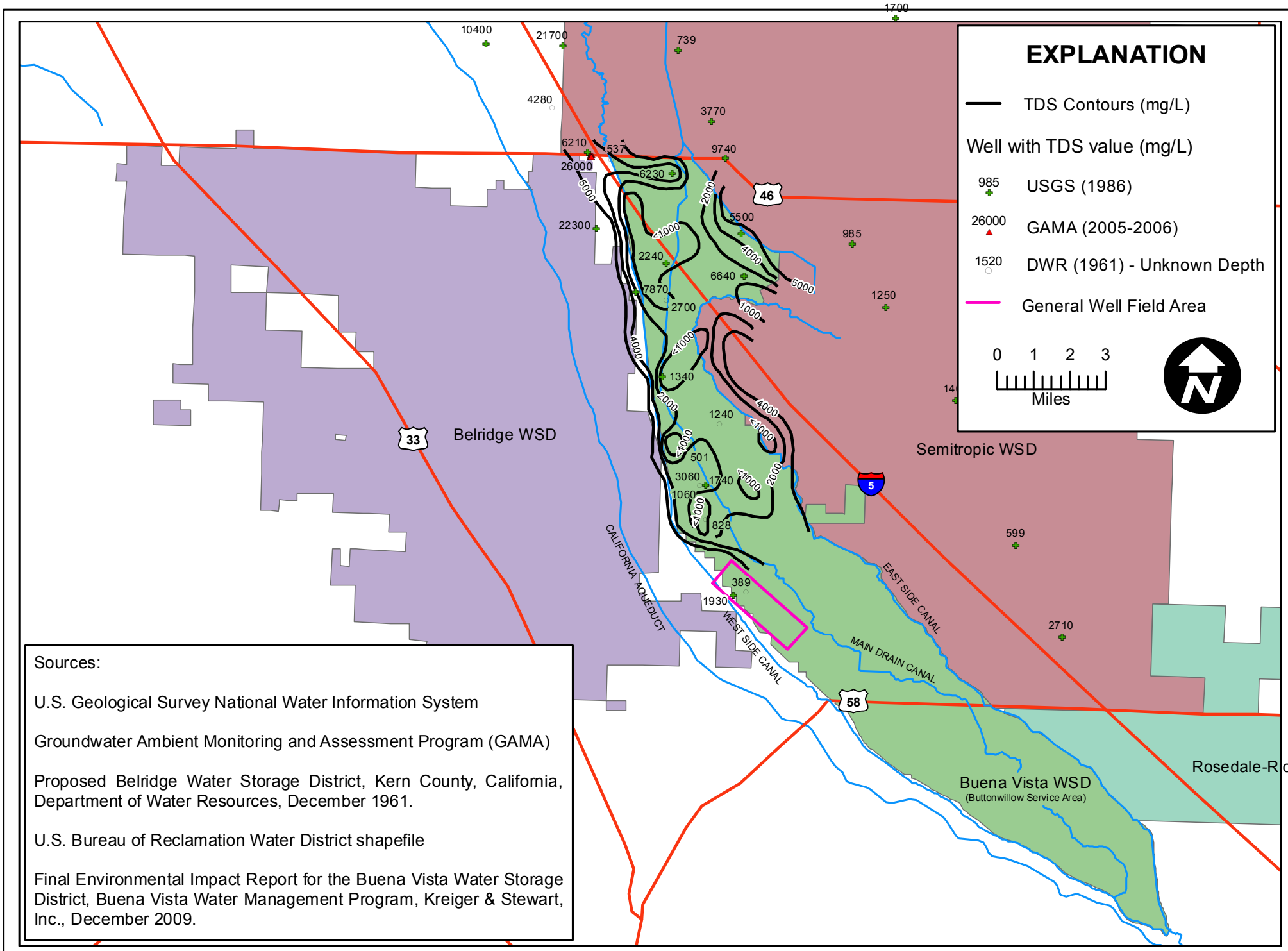
Soil and Water Figure 7. Simulated 25-year drawdown from staff-modified model including reduced storativity (0.007) and anisotropy increased to 1,000.



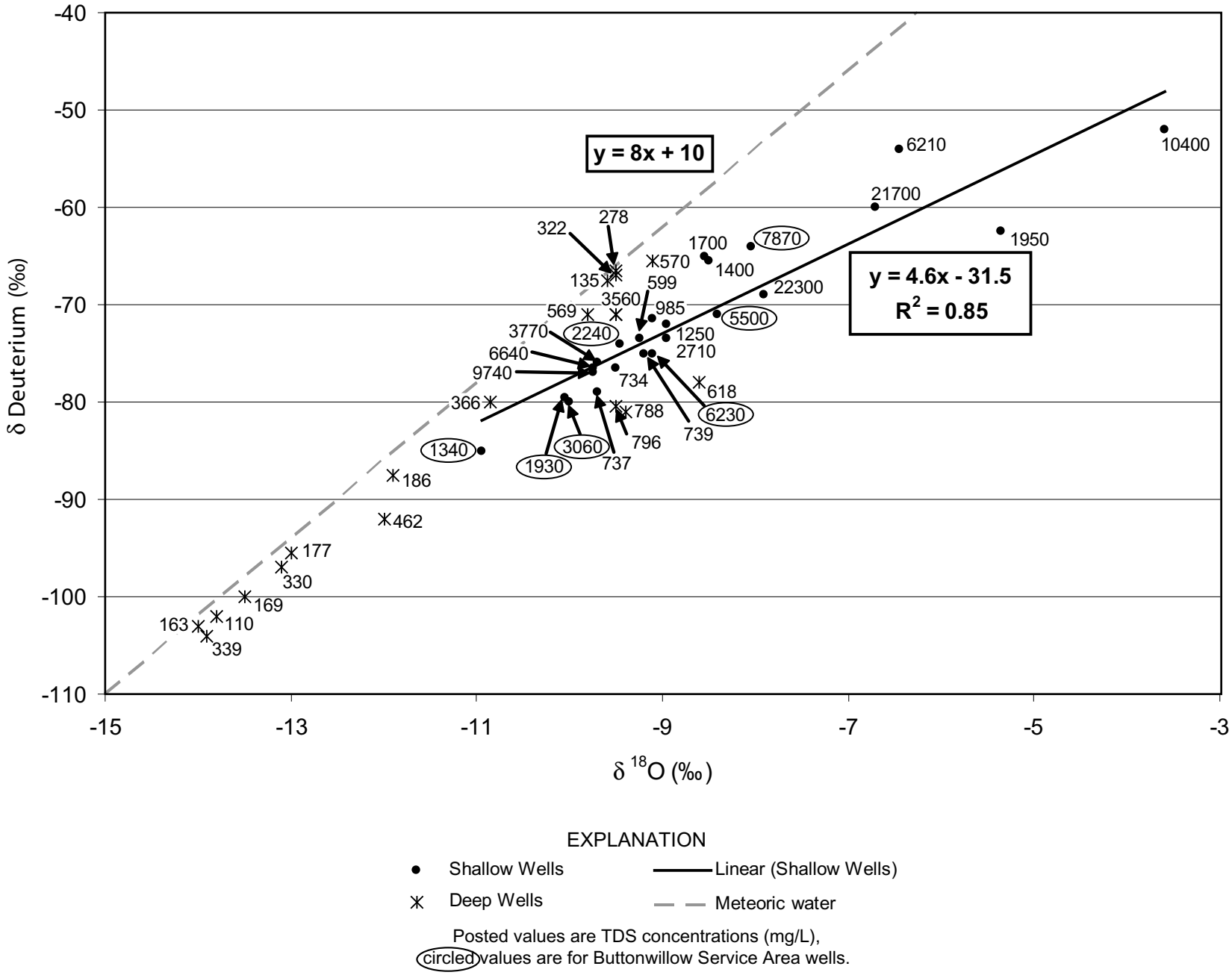
Soil and Water Figure 8. Map showing deep TDS concentrations in samples from deep and unknown depth wells and reported 1970-2007 composite TDS concentration contours for the pumped groundwater zone.



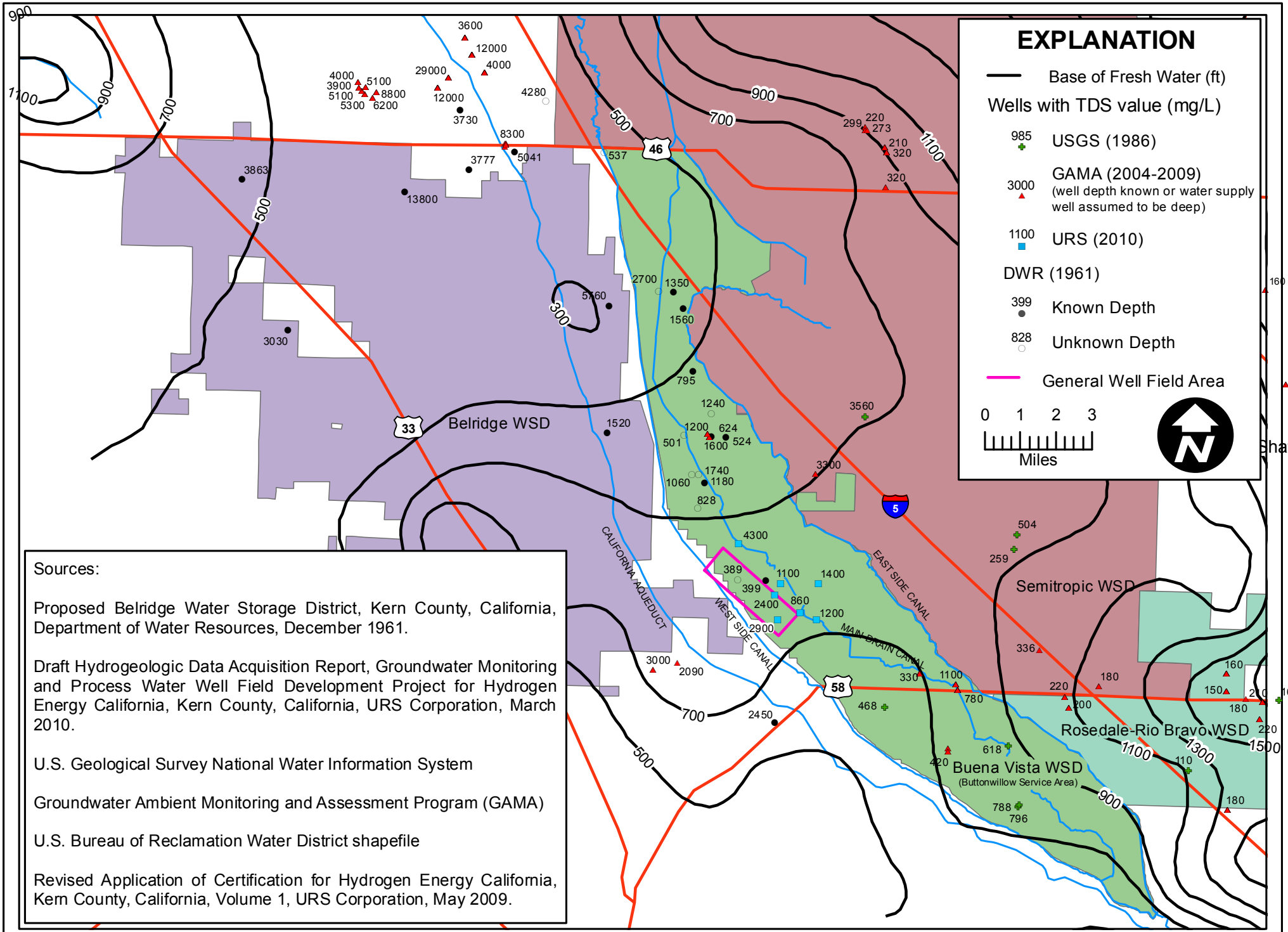
Soil and Water Figure 9. Map showing TDS concentrations in samples from deep and unknown depth wells and reported 2001 TDS concentration contours for the pumped groundwater zone.



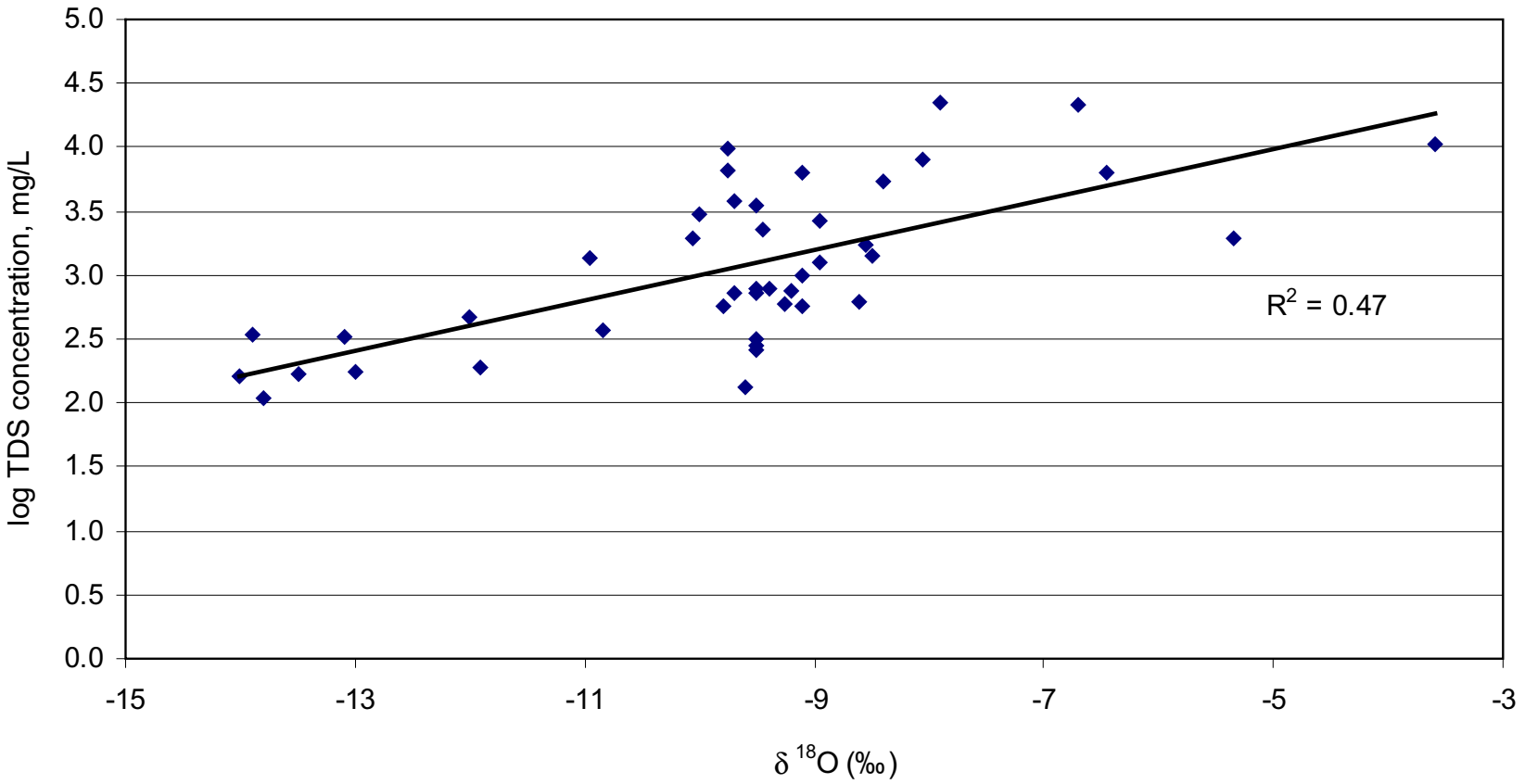
Soil and Water Figure 10. Map showing TDS concentrations in samples from shallow and unknown depth wells and reported concentration contours for the shallow perched aquifer.



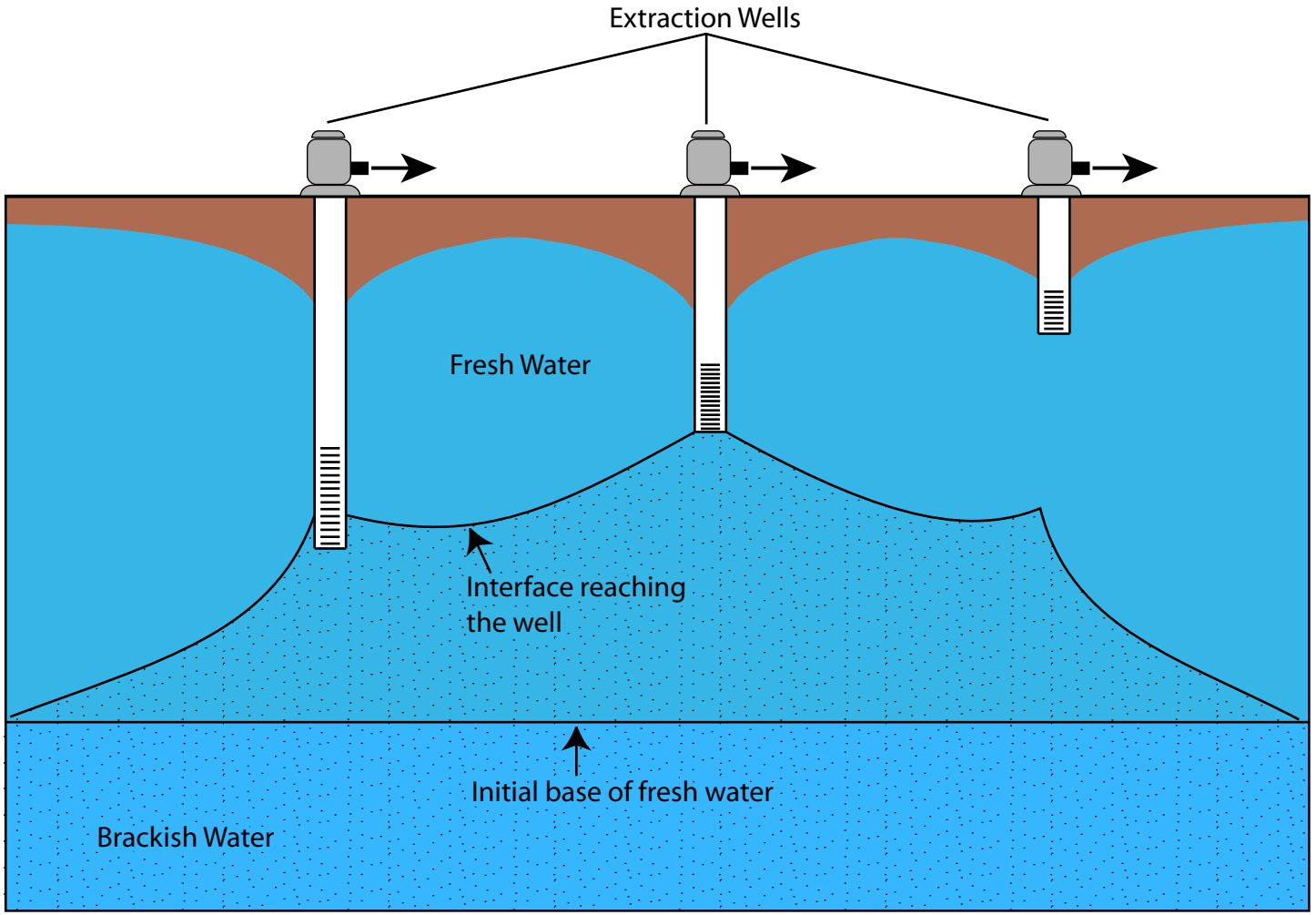
Soil and Water Figure 11. Relationships between δD and δ18O, TDS concentrations, and well depths using groundwater data collected by the USGS in 1986.



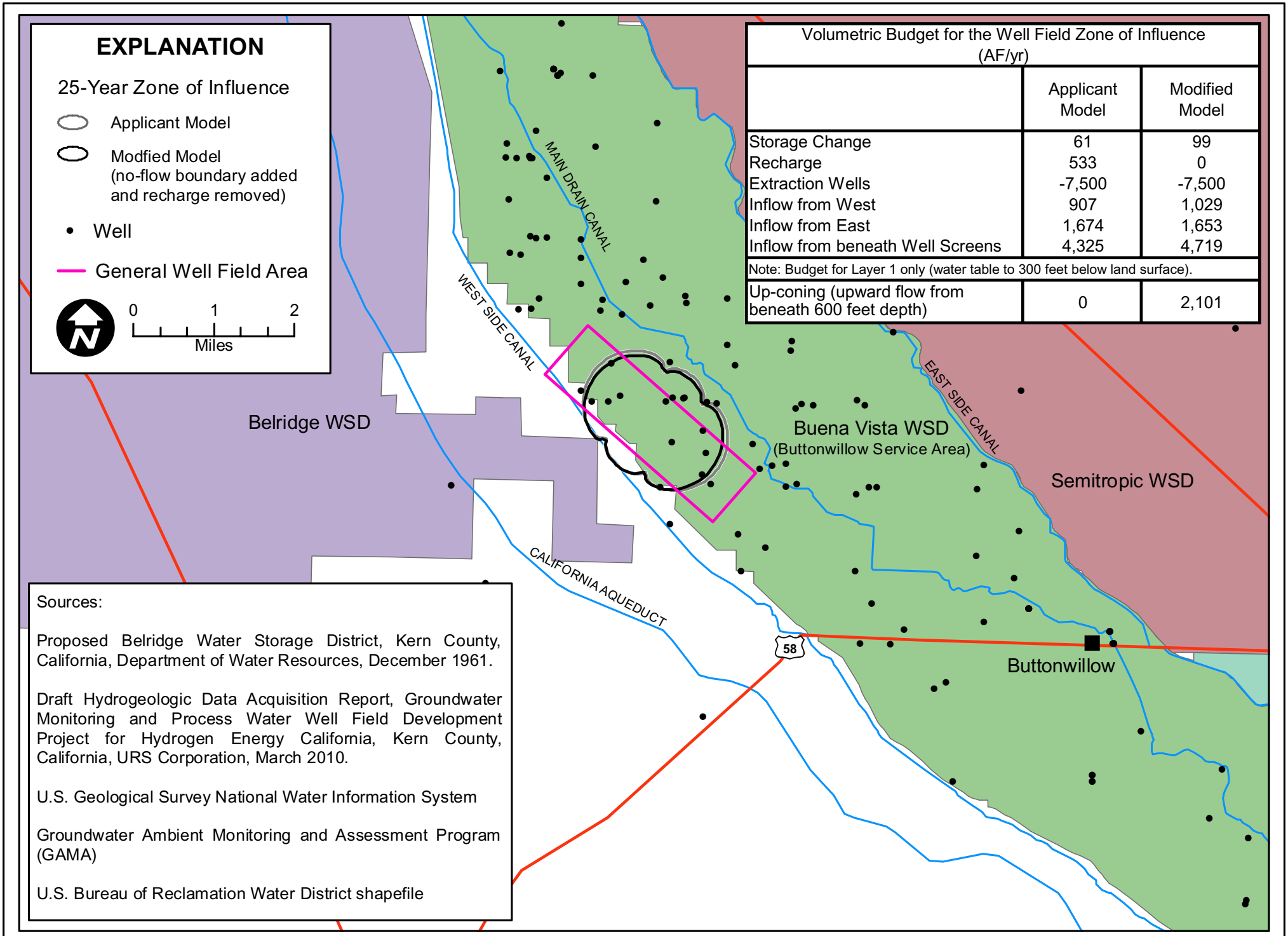
Soil and Water Figure 12. Map showing reported depth to the base of freshwater and TDS concentrations in samples from deep and unknown depth wells.



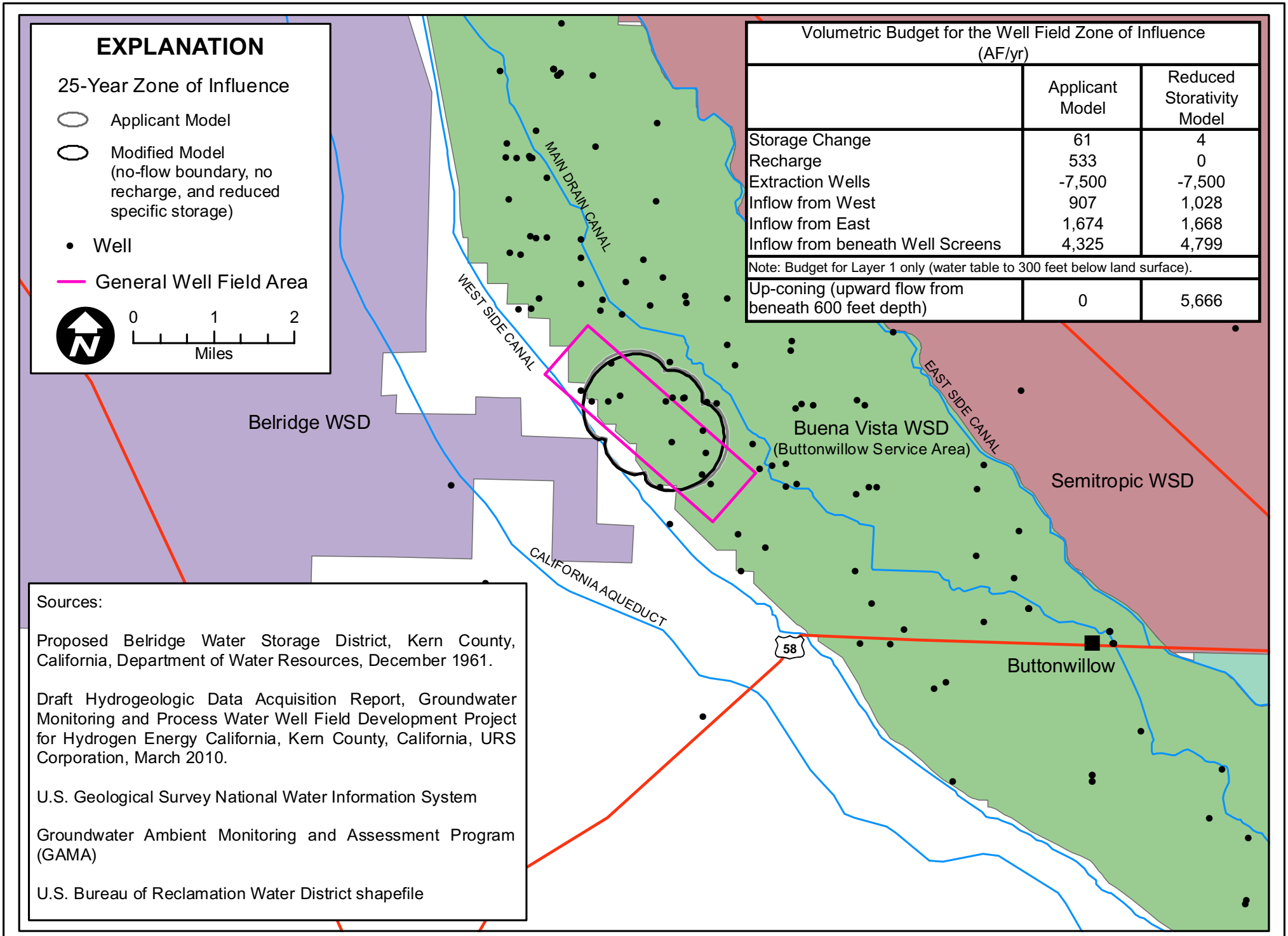
Soil and Water Figure 13. Relationship between TDS concentrations and δ18O fir groundwater samples collected by the USGS in 1986.



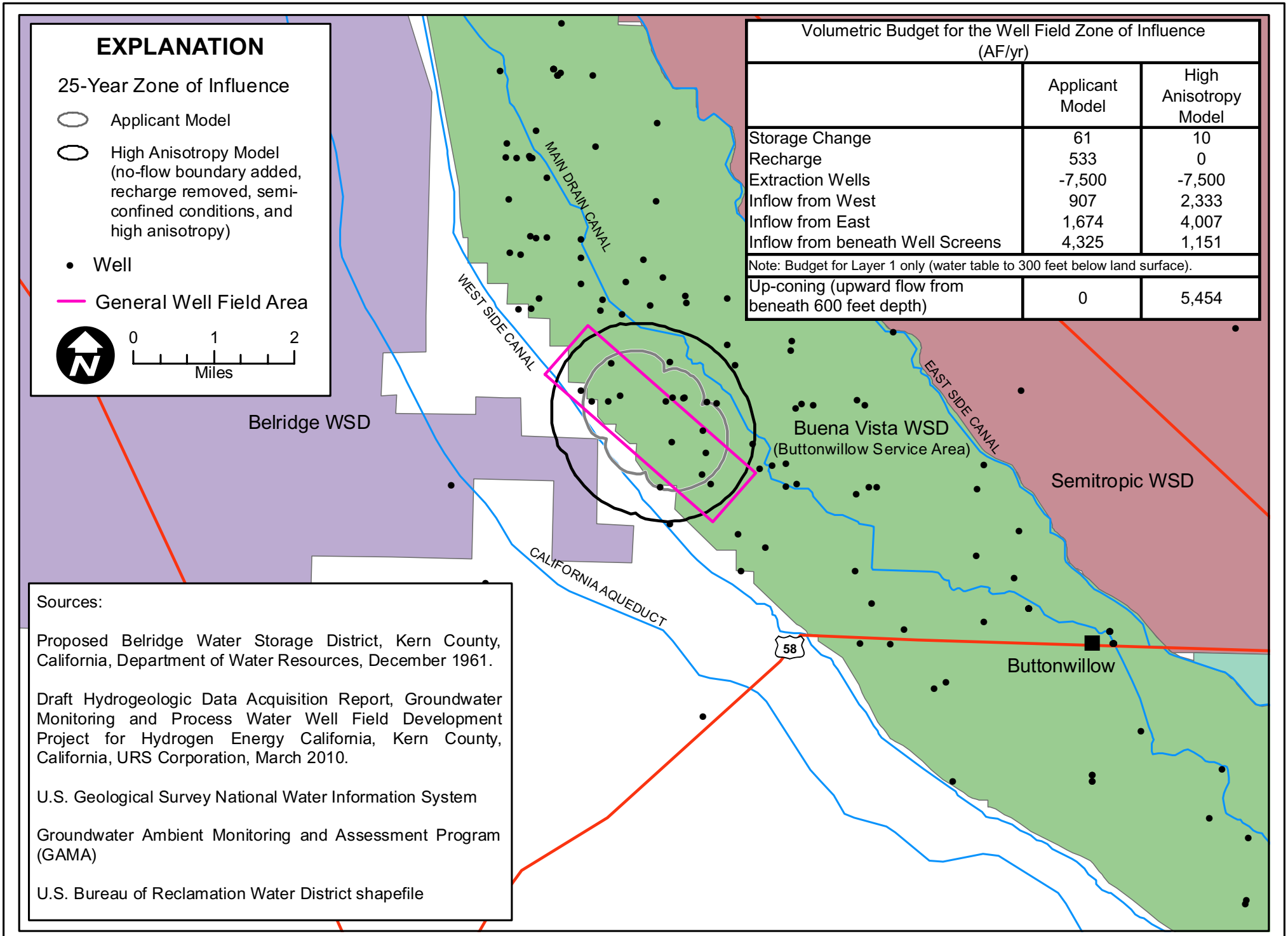
Soil and Water Figure 14. Conceptual illustration of up-coning beneath partially penetrating water supply wells.



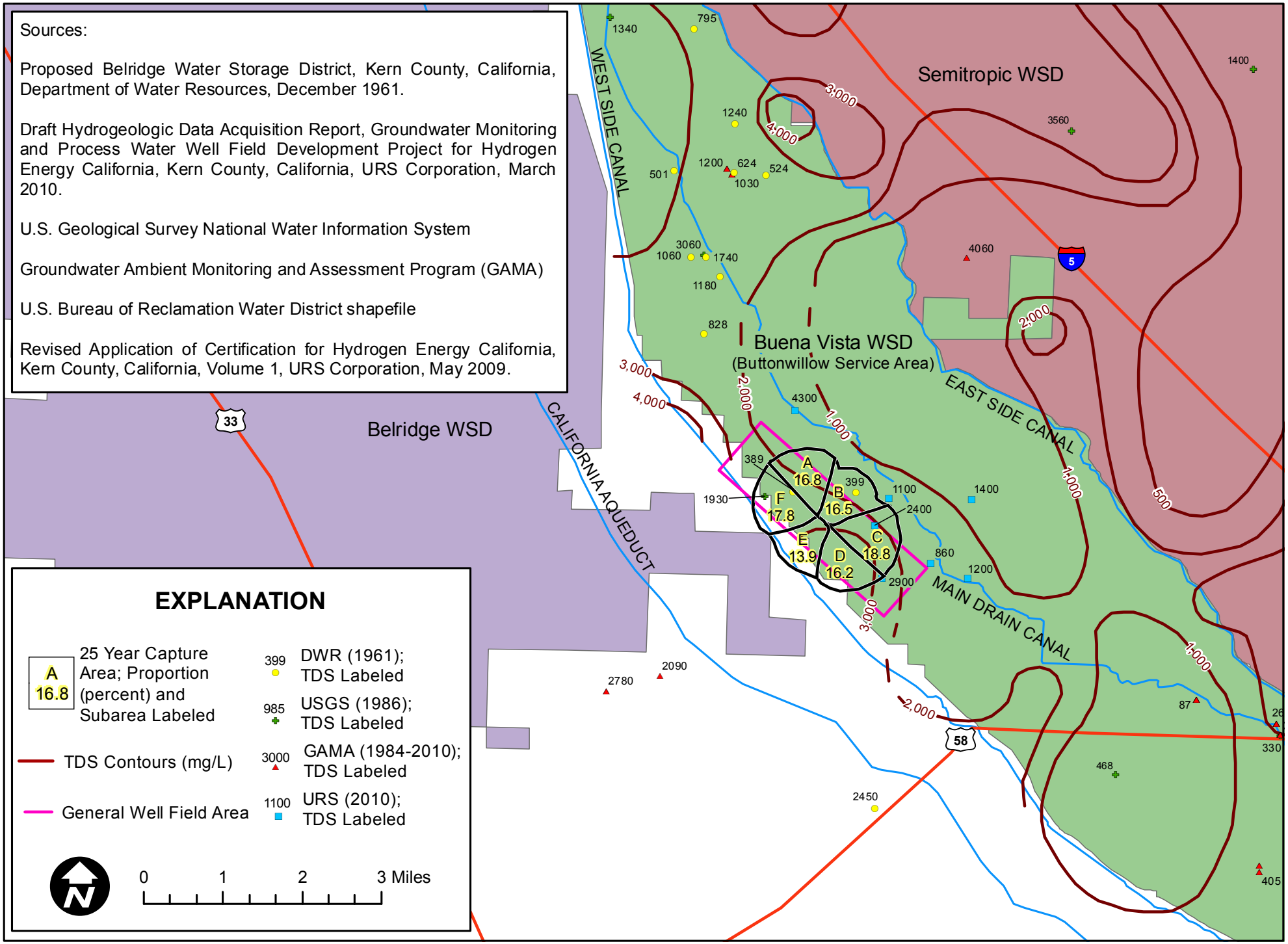
Soils and Water Figure 15. Simulated 25-year Zone of Influence (ZOI) and volumetric budget for the applicant model and staff-modified model (no-flow boundary and no recharge).



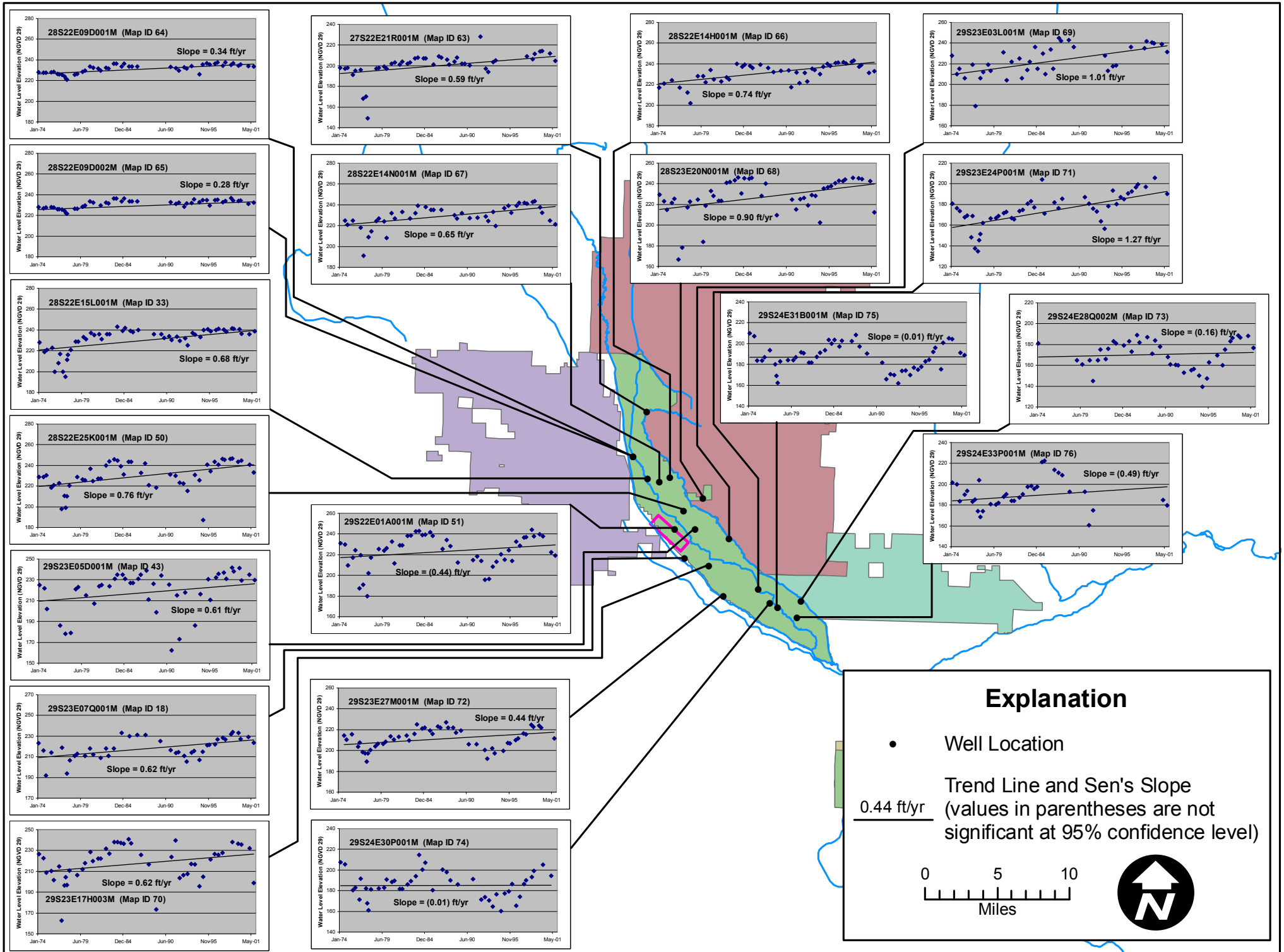
Soil and Water Figure 16. Simu lated 25-year Zone of Influence (ZOI) and volumetric budget for the applicant model and staff-modified model including reduced storativity (0.007).



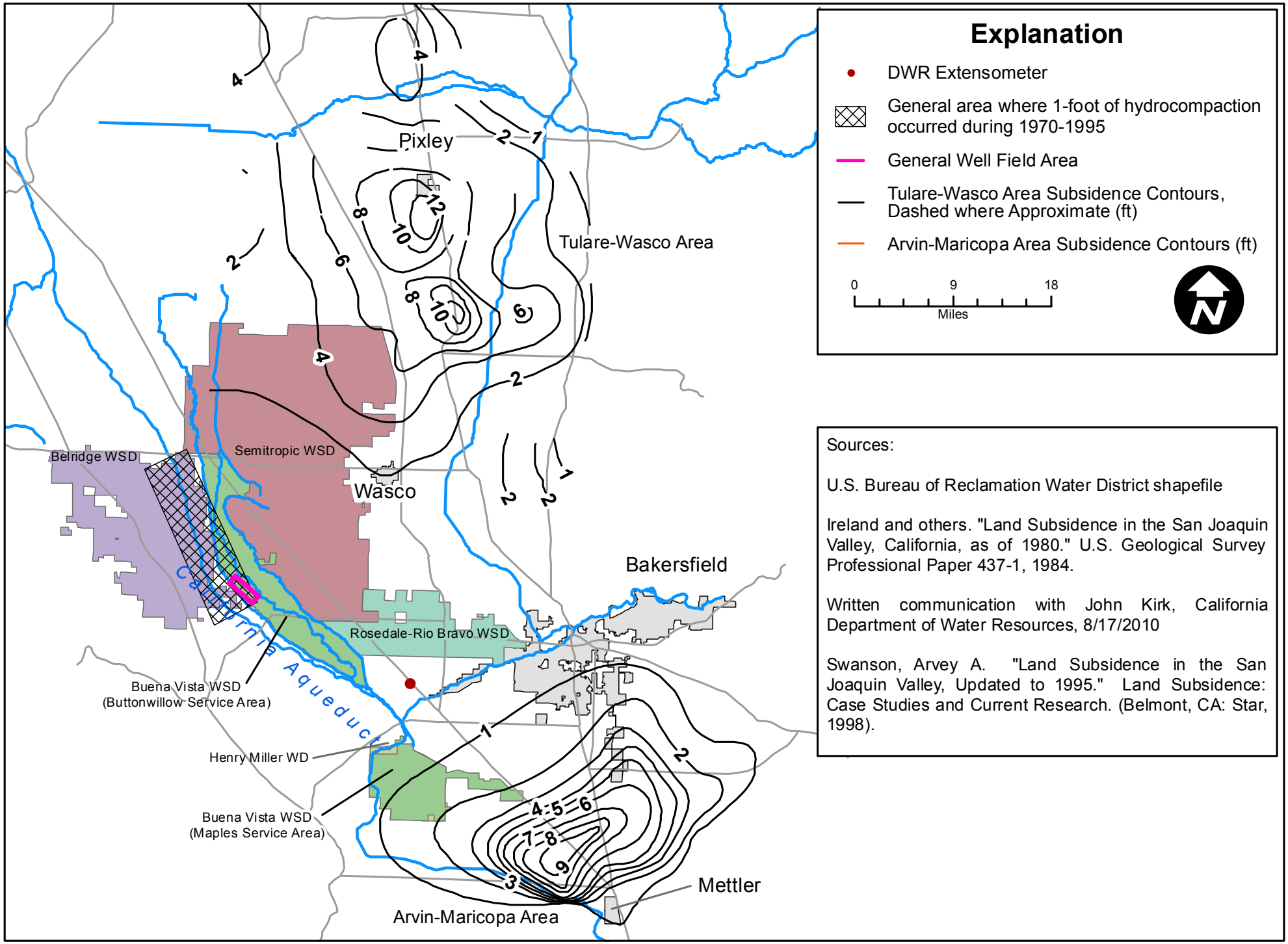
Soil and Water Figure 17. Simulated 25-year Zone of Influence (ZOI) and volumetric budget for the applicant model and staff-modified model and reduced storativity (0.007) with anisotropy increased to 1,000.



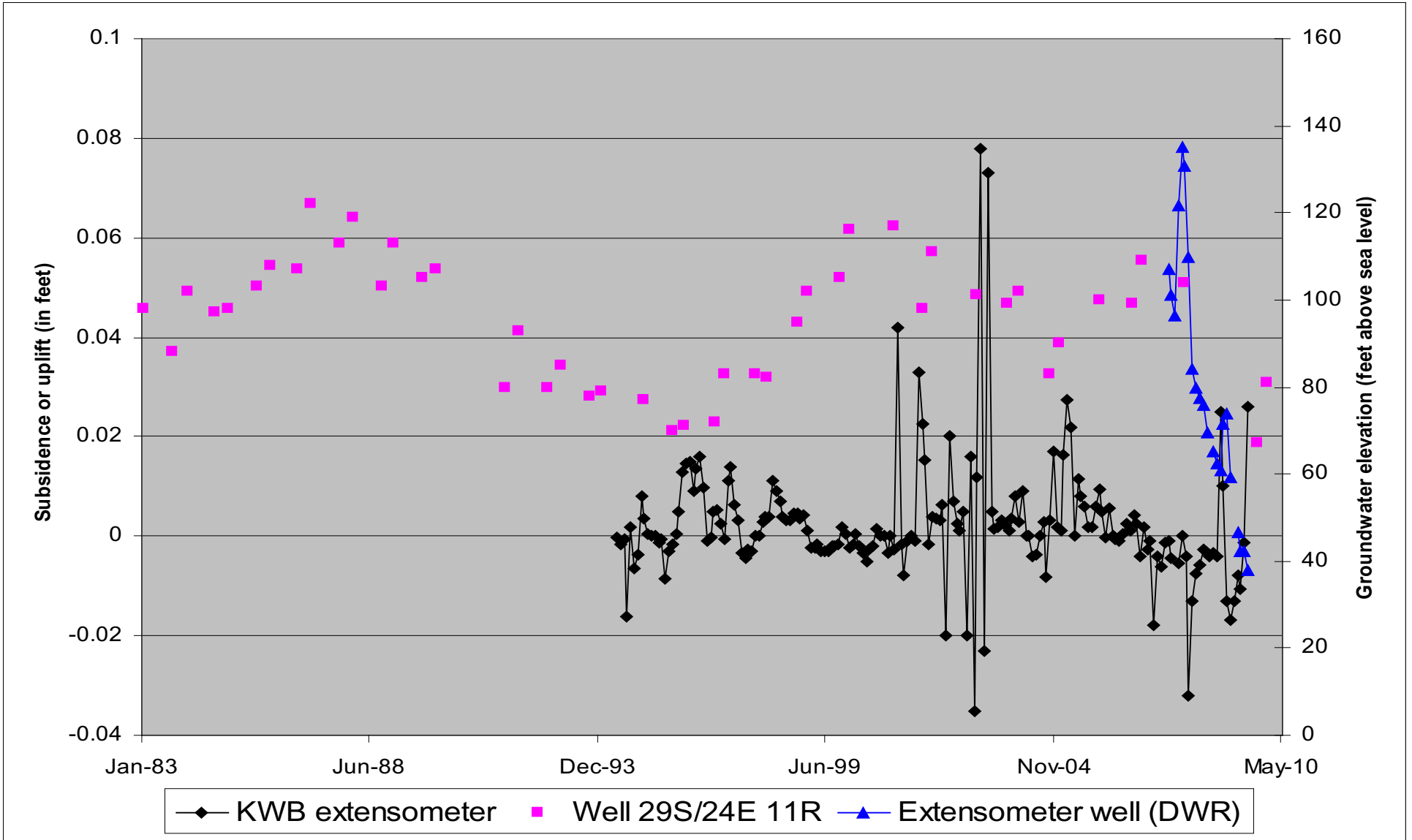
Soil and Water Figure 18. Composite 1970-2007 TDS concentration contours and 25-year Zone of Influence (ZOI) simulated by the applicant model.



Soil and Water Figure 19. Water level locations and trends in Buttonwillow Service Area, 1974-2001.



Soil and Water Figure 20. Historical subsidence/hydrocompaction areas and DWR extensometer location relative to BVWSD.



Sources:

Written communication with John Kirk, California Department of Water Resources (DWR), 8/17/2010.

California DWR Water Data Library

Soil and Water Figure 21. Water level changes in wells and observed aquifer compaction at the Kern Water Bank extensometer.