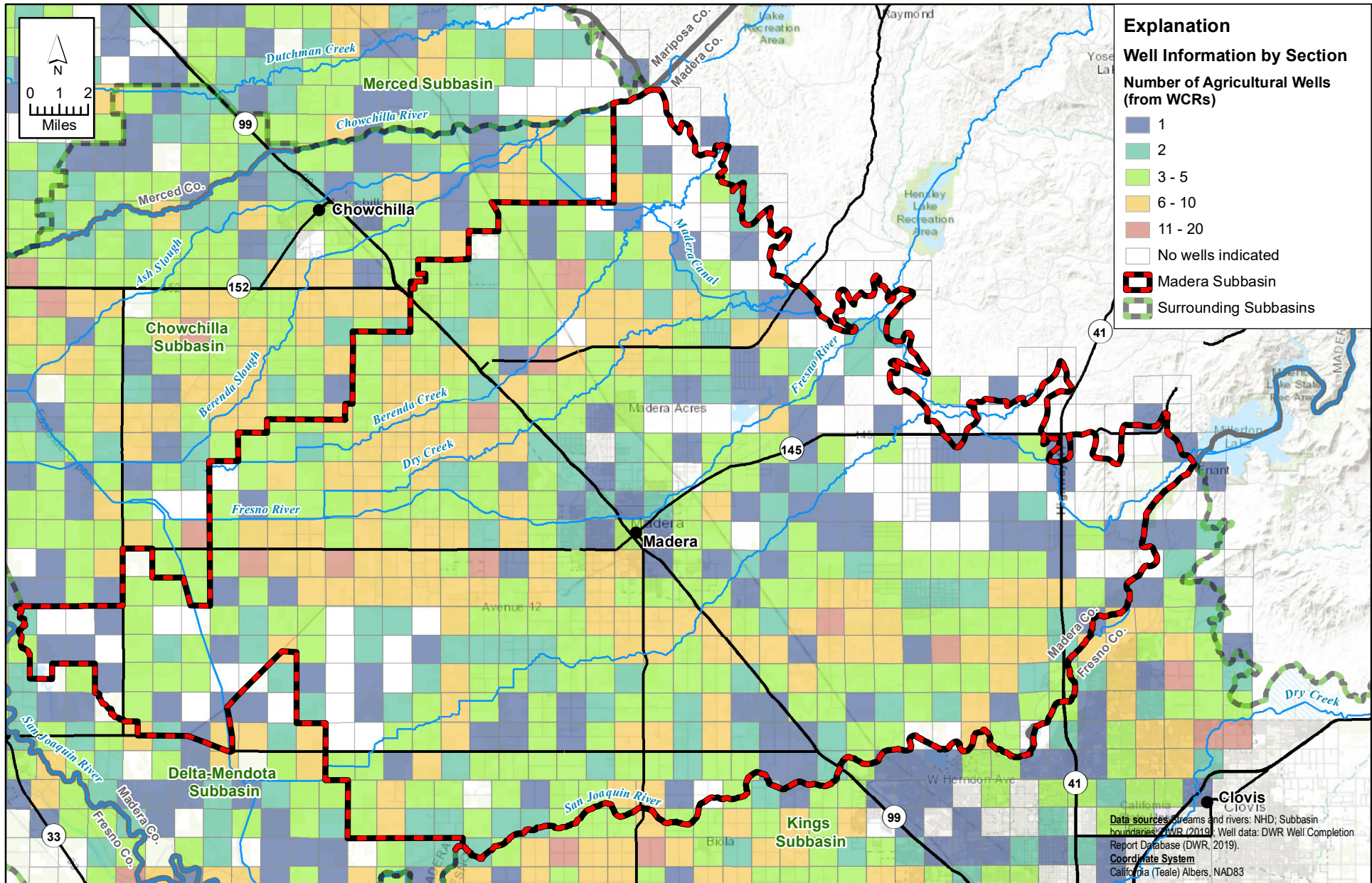


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-5 Madera Subbasin Wells By Section Dom Well Count.mxd

**FIGURE 2-5**  
**Map of Well Information by Section:**  
**Number of Domestic Wells (from WCR data)**

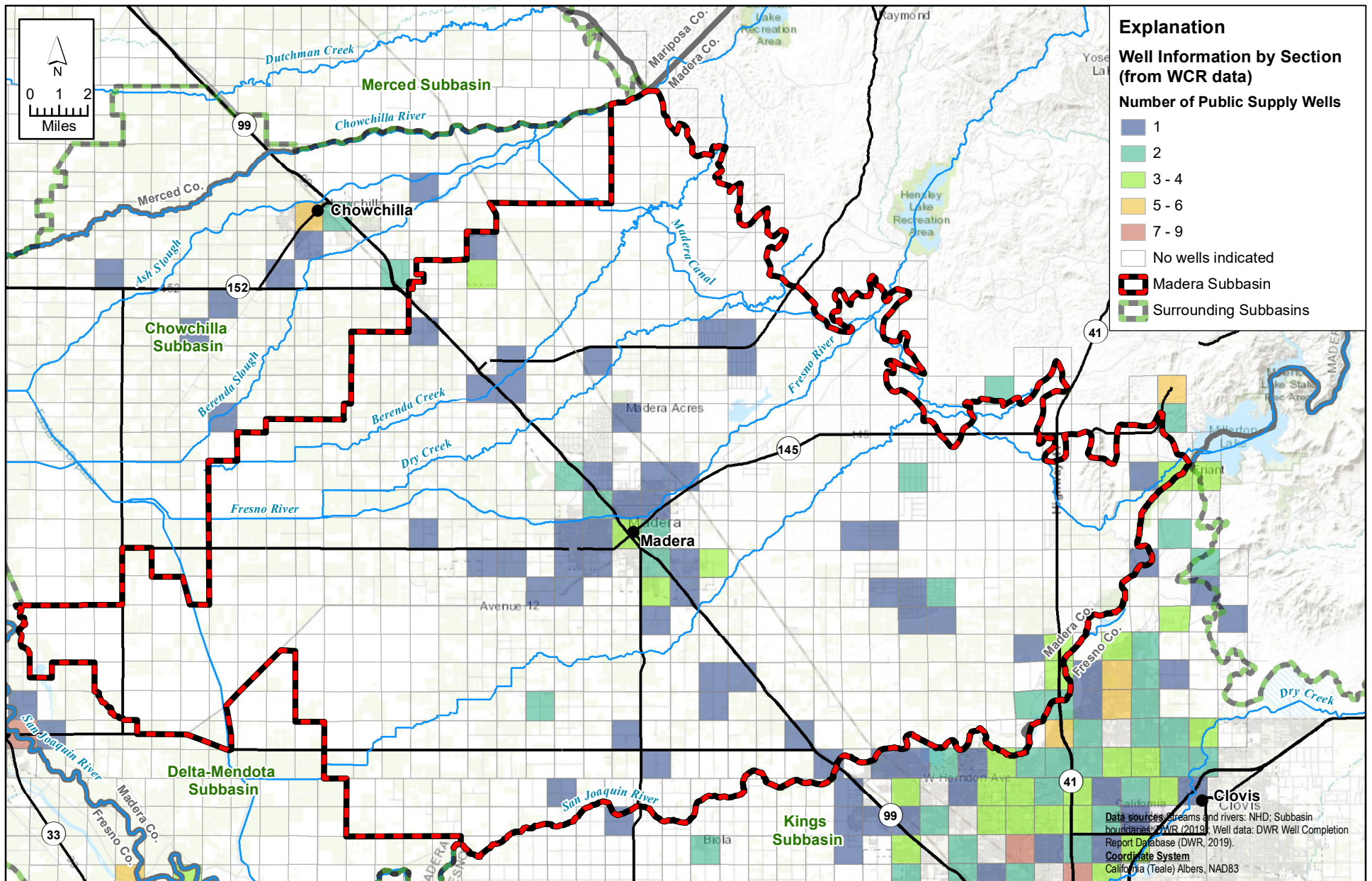
*Madera Subbasin*  
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X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-6 Madera Subbasin Wells By Section Ag Well Count.mxd

**FIGURE 2-6**  
**Map of Well Information by Section:**  
**Number of Agricultural Wells (from WCR data)**  
*Madera Subbasin*  
*Groundwater Sustainability Plan*

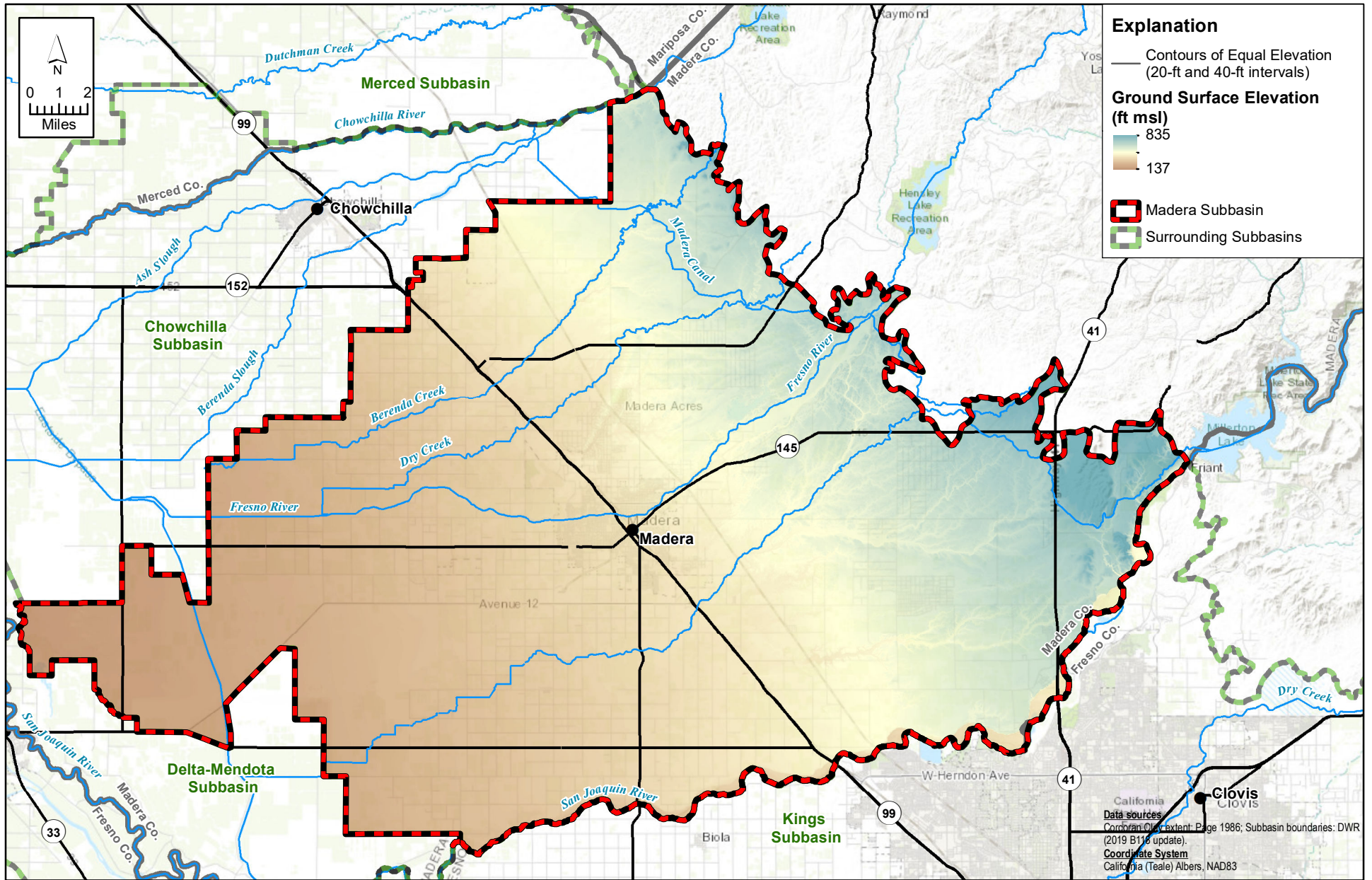


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-7 Madera Subbasin Wells By Section PWS Well Count.mxd



**FIGURE 2-7**  
**Map of Well Information by Section:**  
**Number of Public Supply Wells (from WCR data)**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

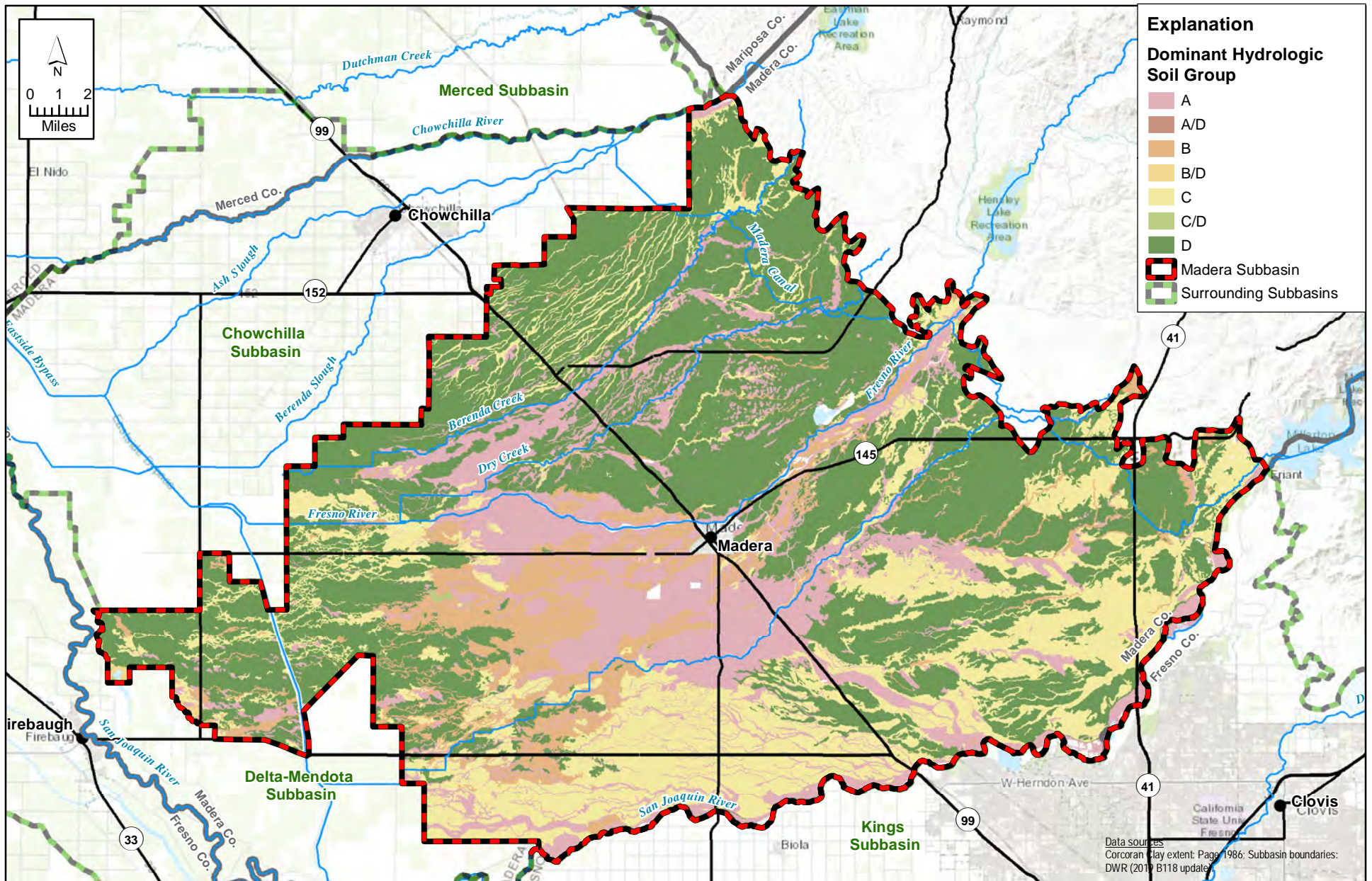


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-10 Madera Subbasin Topographic Map.mxd

**FIGURE 2-10**

**Topographic Map**





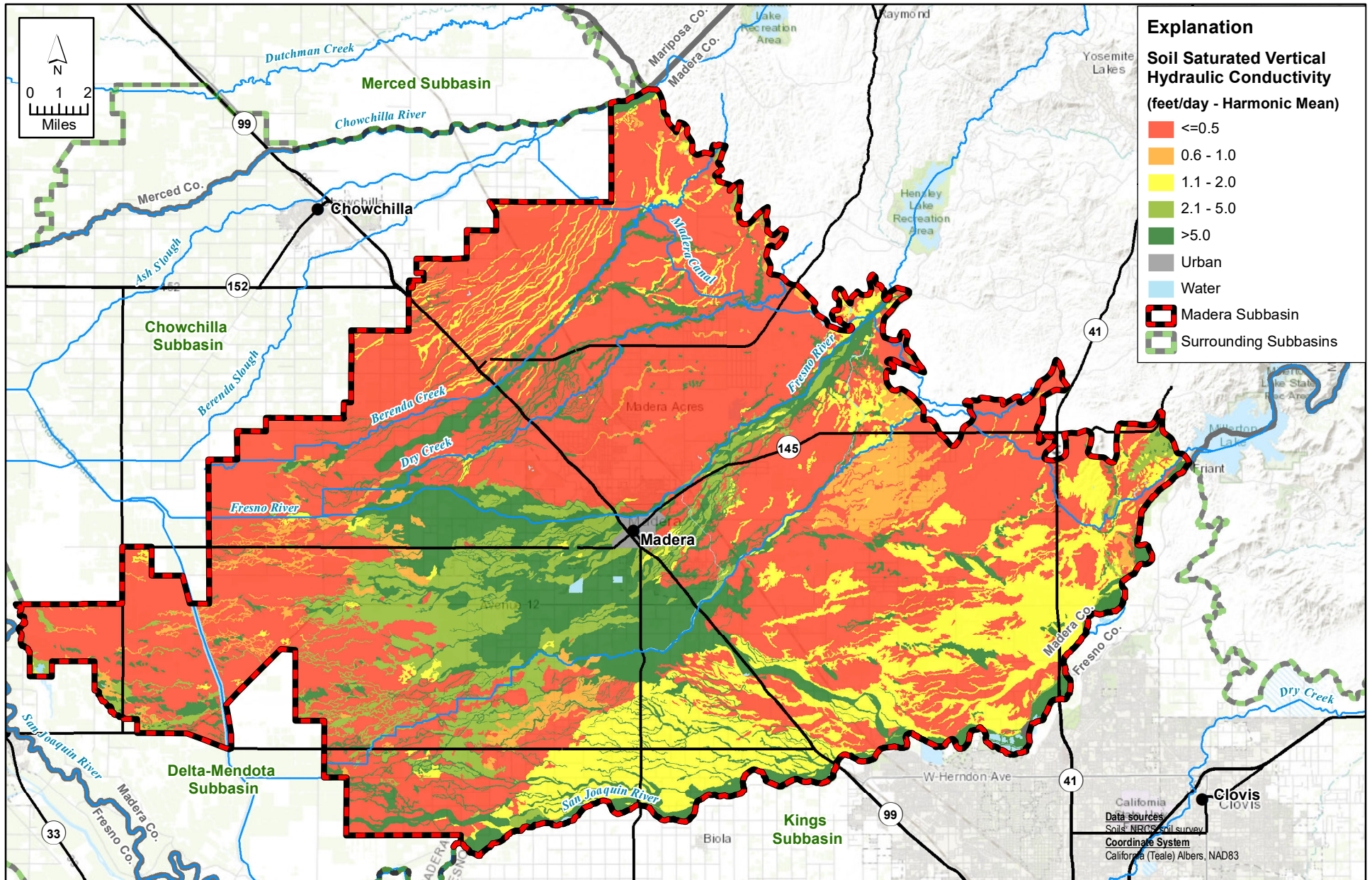
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-X Madera Subbasin Soil Unit Map.mxd

**FIGURE 2-11**

**Soil Hydrologic Units Map**

*Madera Subbasin  
 Groundwater Sustainability Plan*





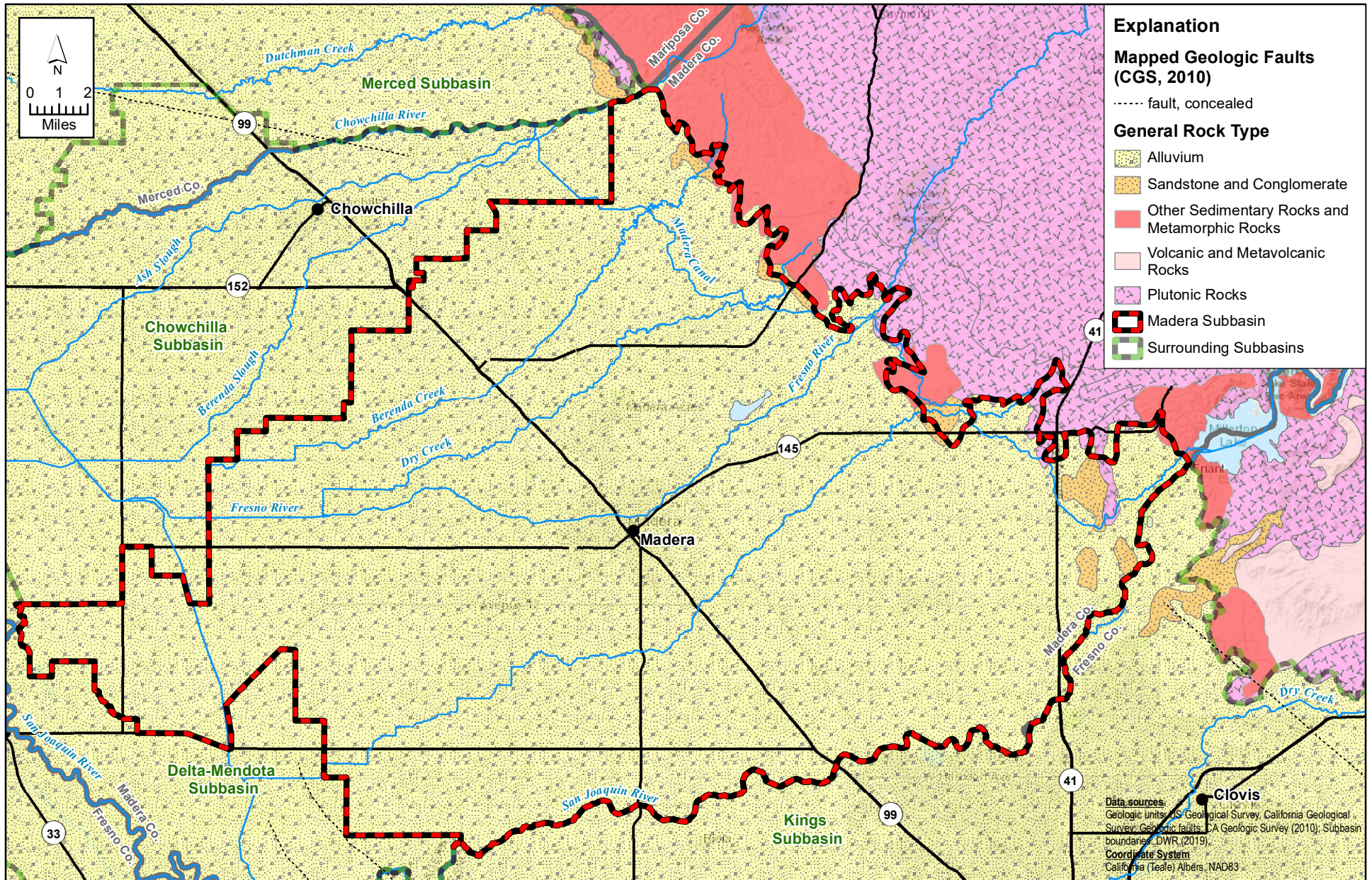
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-12 Madera Subbasin Soil Hydraulic Conductivity Map.mxd

**FIGURE 2-12**

**Soil Hydraulic Conductivity Map**

*Madera Subbasin  
Groundwater Sustainability Plan*





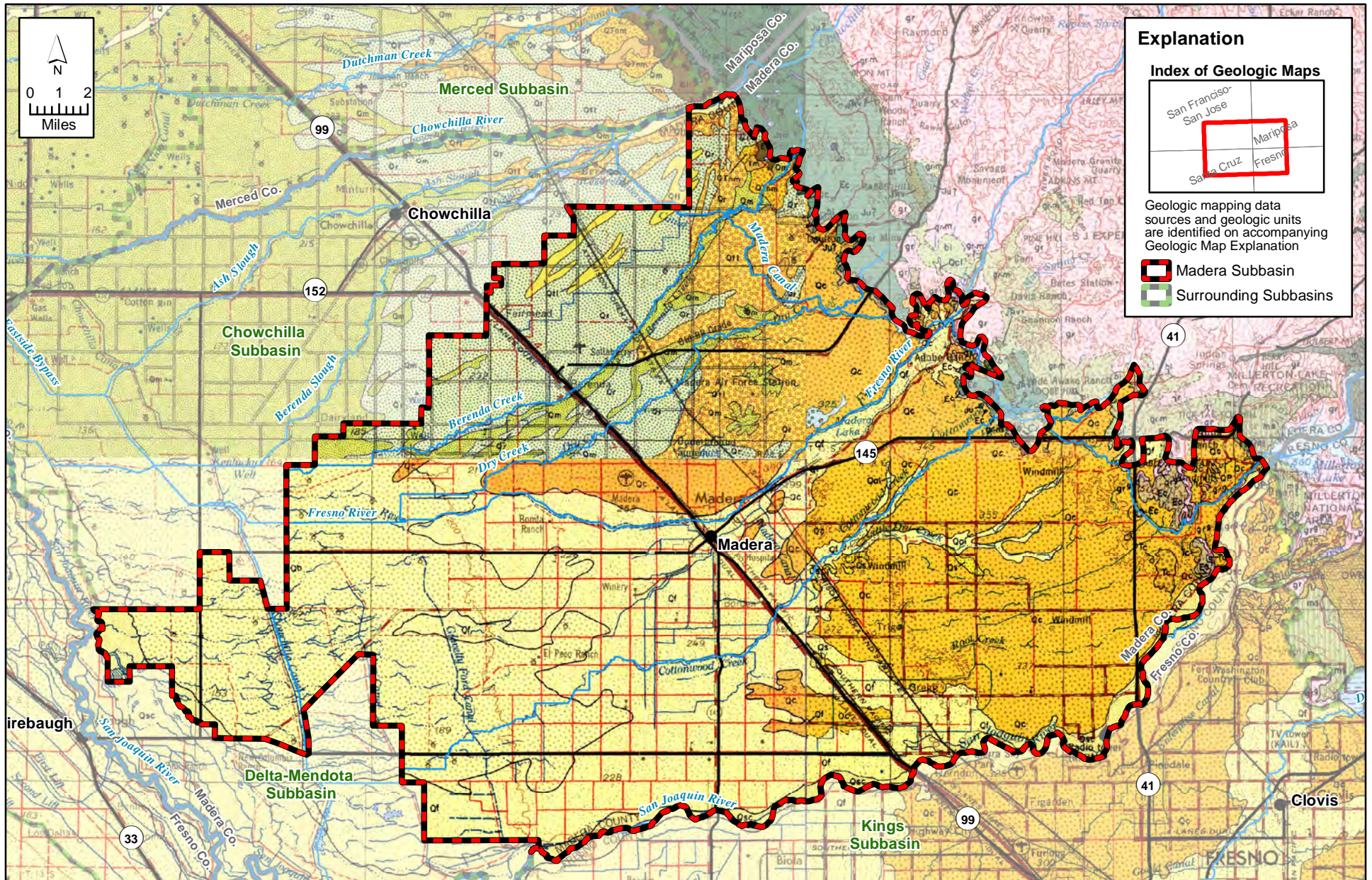
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-13 Madera Subbasin General Geologic Map.mxd

**FIGURE 2-13**

**General Geologic Map**

*Madera Subbasin  
 Groundwater Sustainability Plan*





X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-X Madera Subbasin Surficial Geology Map.mxd

FIGURE 2-14

Surficial Geology Map





















Madera Subbasin  
Groundwater Sustainability Plan



# Compiled Geologic Map Explanation San Francisco - San Jose Quadrangle

 Alluvium	 Mehrten Formation ( <i>Andesitic conglomerate</i> )
 Dos Palos Alluvium	 Valley Springs Formation ( <i>Rhyolitic tuff and sedimentary rocks</i> )
 Alluvial fan deposits	 Ione Formation ( <i>Quartzose sandstone and kaolinitic clay; mostly nonmarine</i> )
 San Luis Ranch Alluvium	 "Auriferous" Gravels
 Patterson Alluvium	 Locatelli Formation ( <i>Marine sandstone and conglomerate</i> )
 Turlock Lake Formation ( <i>Nonmarine sand, silt, and gravel</i> )	 Lower Cretaceous marine sandstone and shale
 Laguna Formation ( <i>Consolidated alluvium</i> )	 Granitic rocks
 Modesto Formation	 Gabbroic rocks
 Riverbank Formation	 Ultramafic rocks
 Los Banos Alluvium	 Mariposa Formation ( <i>Slate, graywacke, and conglomerate; marine</i> )
 North Merced Gravel ( <i>Thin pediment veneer</i> )	 Salt Springs and Merced Falls Slates
 Jasper Point Formation ( <i>Chert, tuff, pillow basalt; marine</i> )	 Jurassic(?) metasedimentary rocks
 Metasedimentary rocks*	 Copper Hill Volcanics
 Crystalline limestone and dolomite*	 Logtown Ridge Volcanics
 Calaveras Complex ( <i>Metasedimentary rocks</i> )	 Gopher Ridge Volcanics
 Metavolcanic rocks*	 Penon Blanco Volcanics
 Table Mountain Latite	 Jurassic metavolcanic rocks

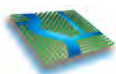
## Santa Cruz, Mariposa, and Fresno Quadrangles

 Alluvium	 Eocene nonmarine
 Stream channel deposits	 Eocene marine
 Fan deposits	 Tertiary volcanic: $T_v^r$ —rhyolite; $T_v^a$ —andesite; $T_v^b$ —basalt; $T_v^p$ —pyroclastic rocks
 Basin deposits	 Upper Jurassic marine
 Pleistocene nonmarine	 Pre-Cretaceous metamorphic rocks (ls = limestone or dolomite)
 Plio-Pleistocene nonmarine	 Pre-Cretaceous metasedimentary rocks
 Pleistocene volcanic: $Q_{pv}^r$ —rhyolite; $Q_{pv}^a$ —andesite; $Q_{pv}^b$ —basalt; $Q_{pv}^p$ —pyroclastic rocks	 Pre-Cenozoic granitic and metamorphic rocks
 Tertiary nonmarine	 Paleozoic metavolcanic rocks
 Permian metavolcanic rocks	 Carboniferous metavolcanic rocks

Geologic Map compiled from:

1. Wagner, D.L., Bortugno, E.J., and Mc Junkin, R.D., 1991, Geologic Map of the San Francisco - San Jose Quadrangle, California Geological Survey, Regional Geologic Map No. 5A, 1:250,000 scale.
2. Jennings, C.W. and Strand, R.G., 1958, Geologic Atlas of California - Santa Cruz Quadrangle, California Geological Survey, Geologic Atlas of California Map No. 020, 1:250,000 scale.
3. Strand, R.G., 1967, Geologic Atlas of California - Mariposa Quadrangle, California Geological Survey, Geologic Atlas of California Map No. 009, 1:250,000 scale.
4. Matthews, R.A. and Burnett, J.L., 1965, Geologic Atlas of California - Fresno Quadrangle, California Geological Survey, Geologic Atlas of California Map No. 005, 1:250,000 scale.

X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-X Madera Subbasin Surficial Geology Map Explanation.mxd



**DAVIDS**  
ENGINEERING, INC

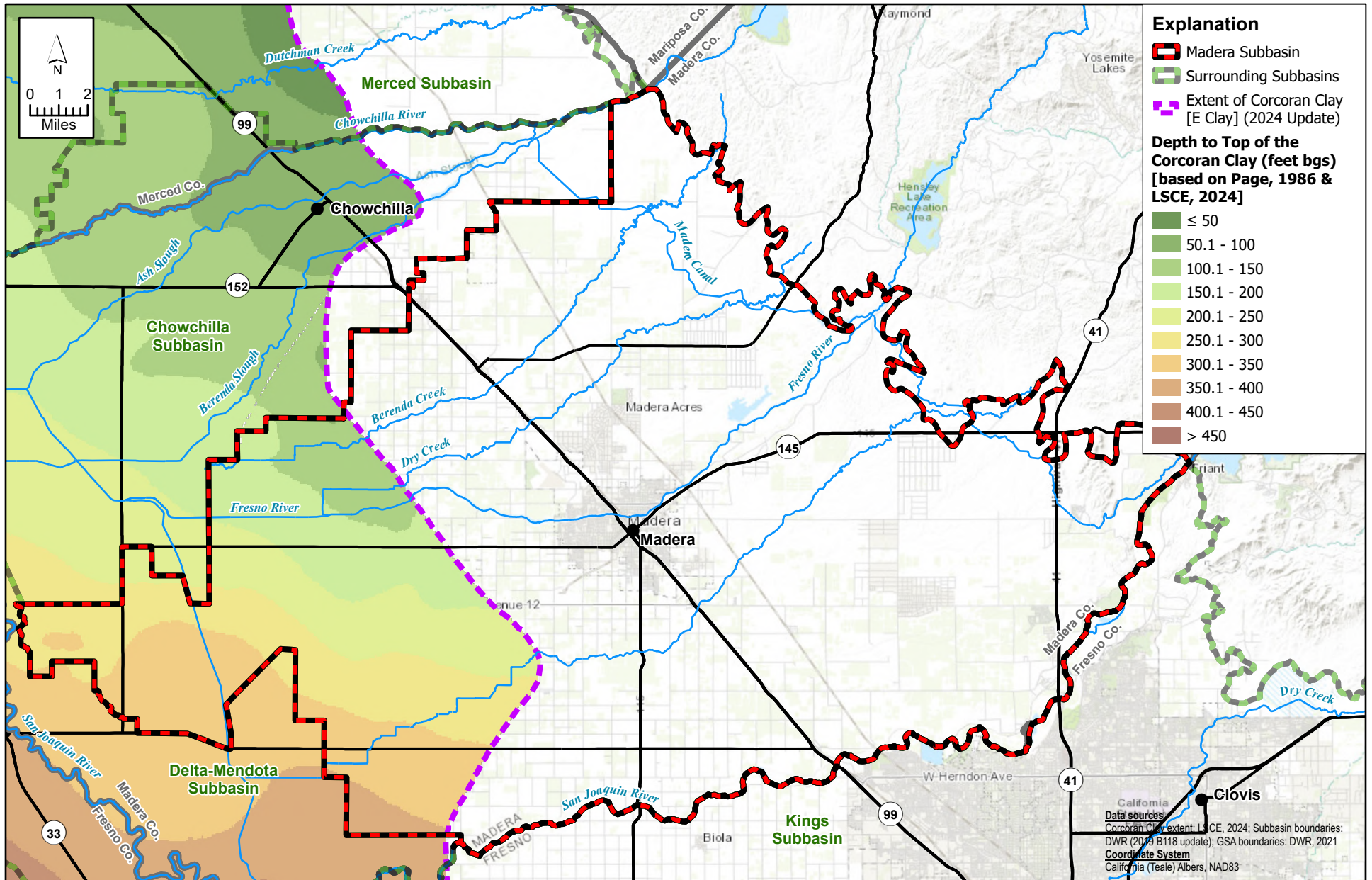


**Luhdorff & Scalmanini**  
Consulting Engineers

## FIGURE 2-14 EXPLANATION

### Surficial Geology Map Explanation

Madera Subbasin  
Groundwater Sustainability Plan



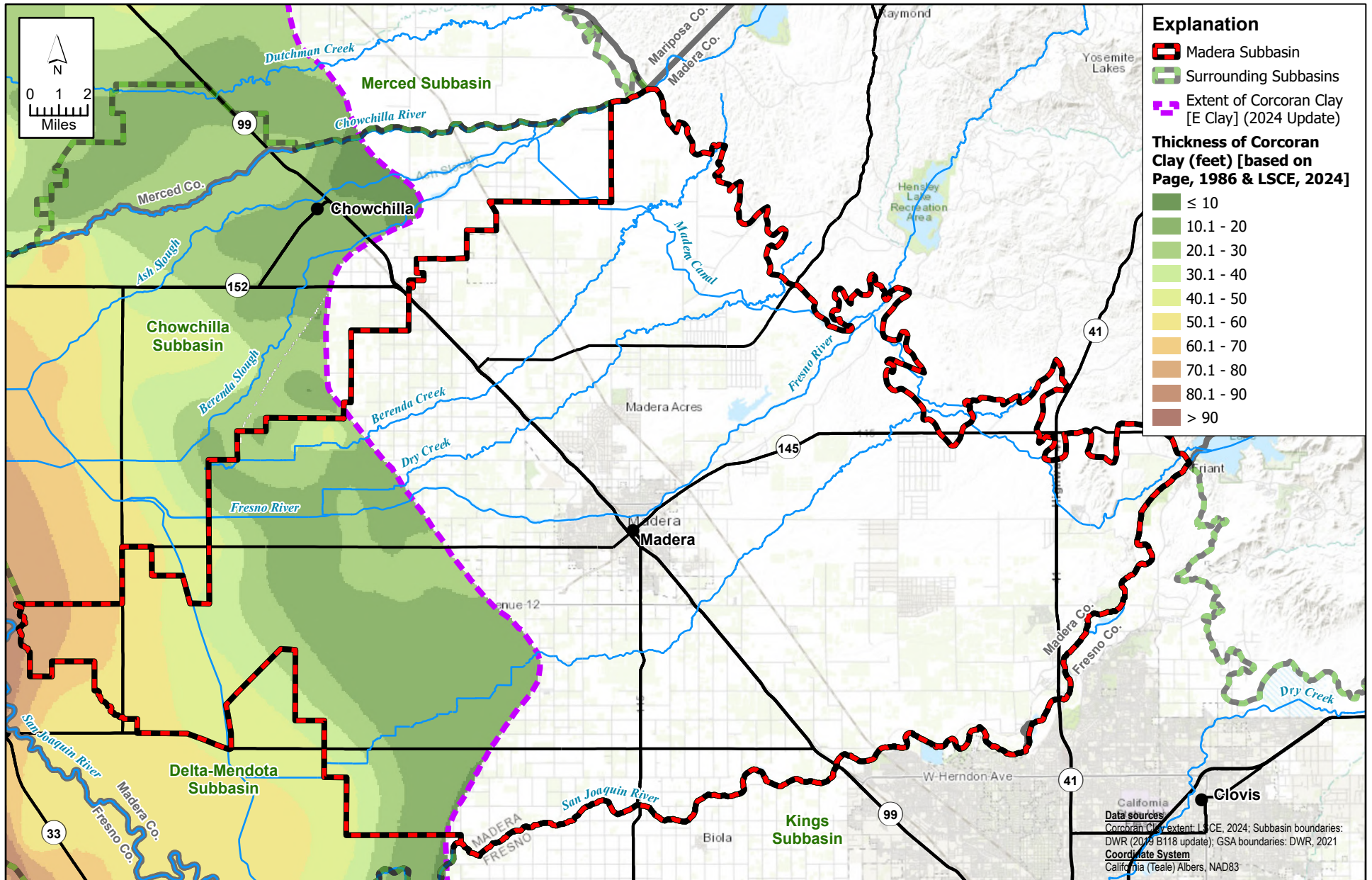
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\GIS\MAD\_Five\_Year\_Update\MAD\_Five\_Year\_Update.aprx; Corcoran Clay\_DepthTop

**FIGURE 2-15**

**Extent and Depth to the Top of the Corcoran Clay**

*Madera Subbasin  
Groundwater Sustainability Plan - First Plan Amendment*





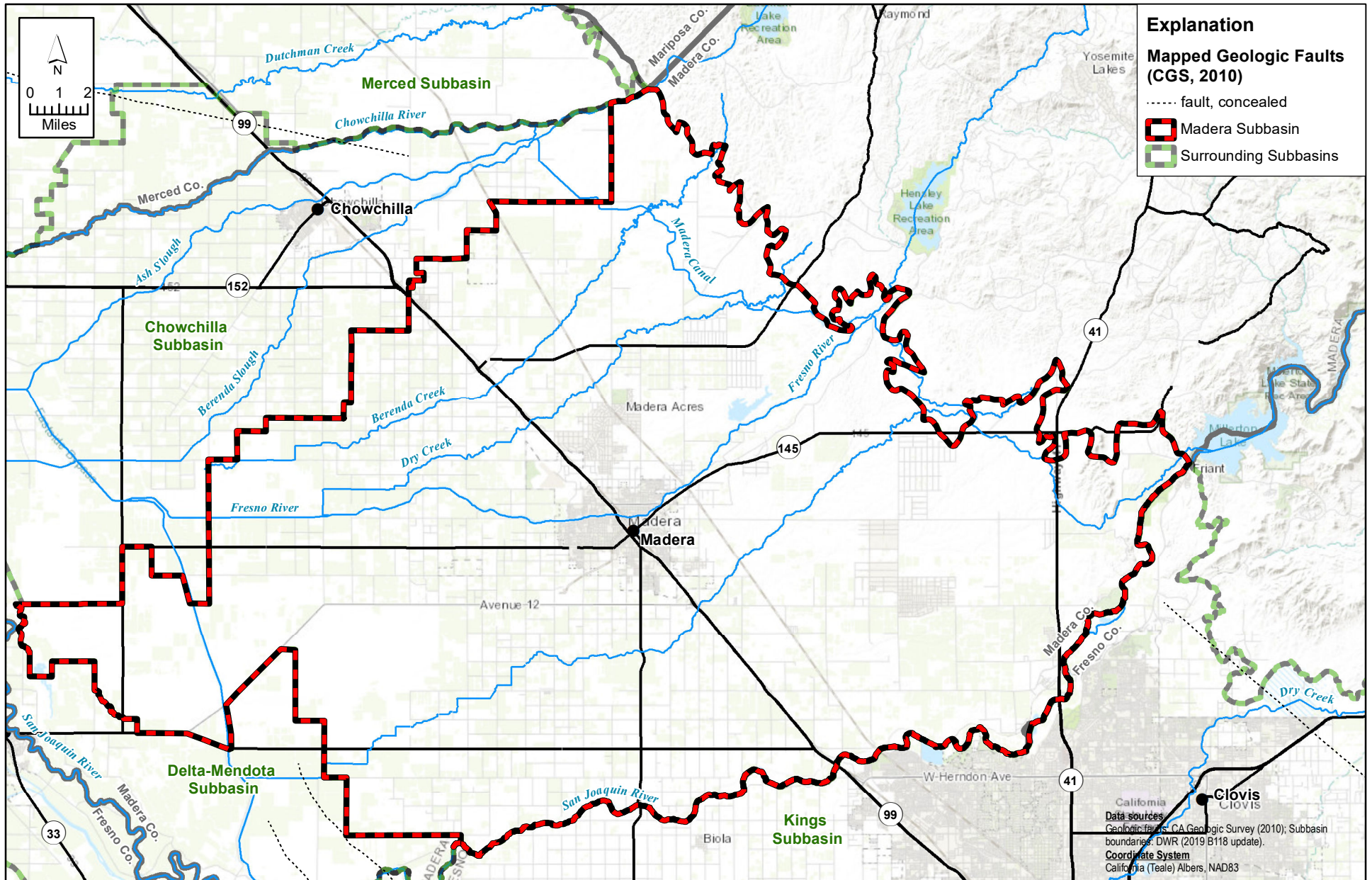
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\GIS\MAD\_Five\_Year\_Update\MAD\_Five\_Year\_Update.aprx; Corcoran Clay\_Thickness

**FIGURE 2-16**

**Thickness of the Corcoran Clay**

*Madera Subbasin  
 Groundwater Sustainability Plan - First Plan Amendment*



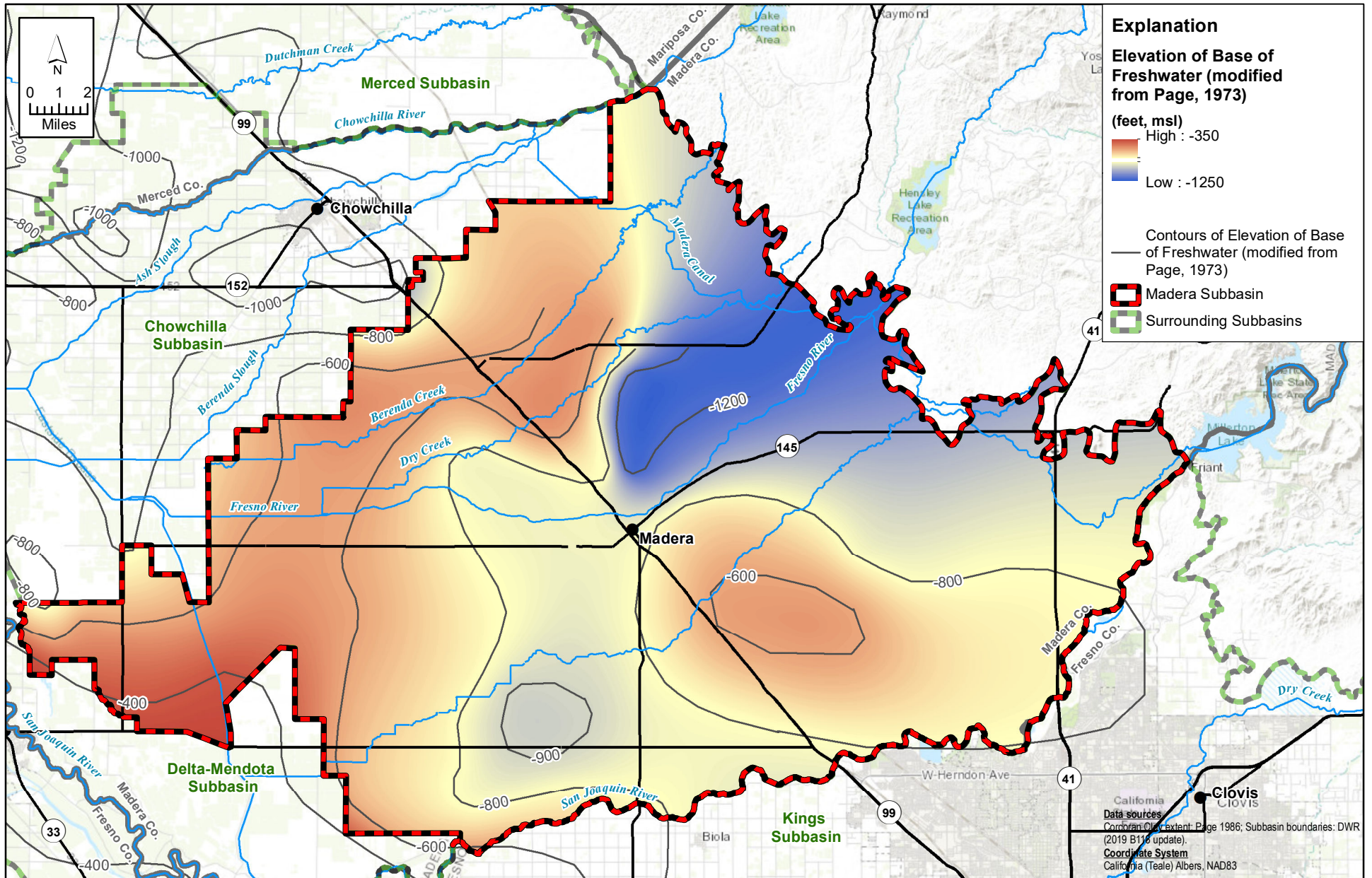


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-17 Madera Subbasin Geologic Fault Map.mxd

**FIGURE 2-17**

**Geologic Fault Map**



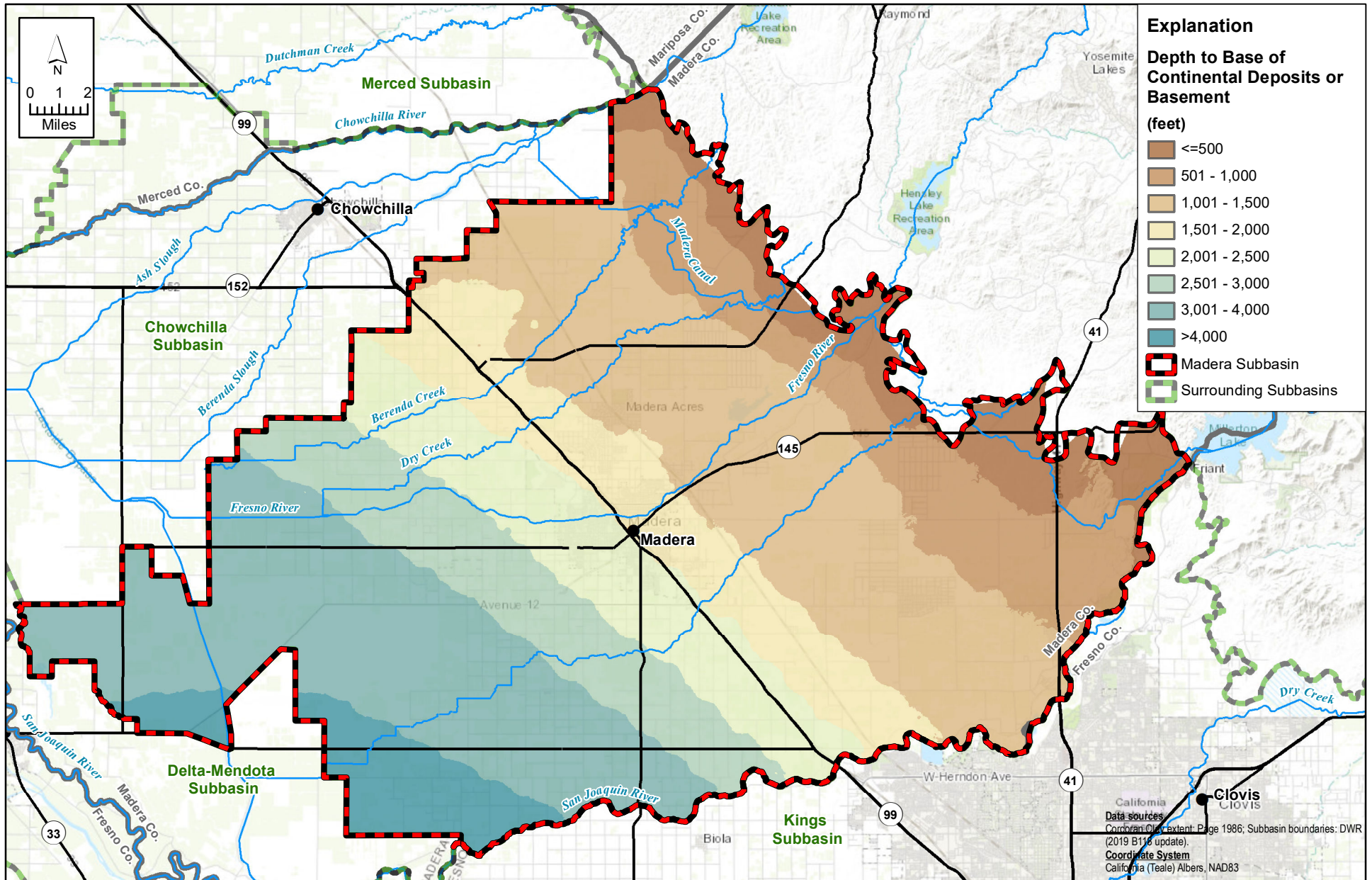


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-18 Madera Subbasin Base of Freshwater Map.mxd



**FIGURE 2-18**  
**Elevation of Base of Freshwater:**  
**Modified from Page (1973)**

*Madera Subbasin*  
*Groundwater Sustainability Plan*



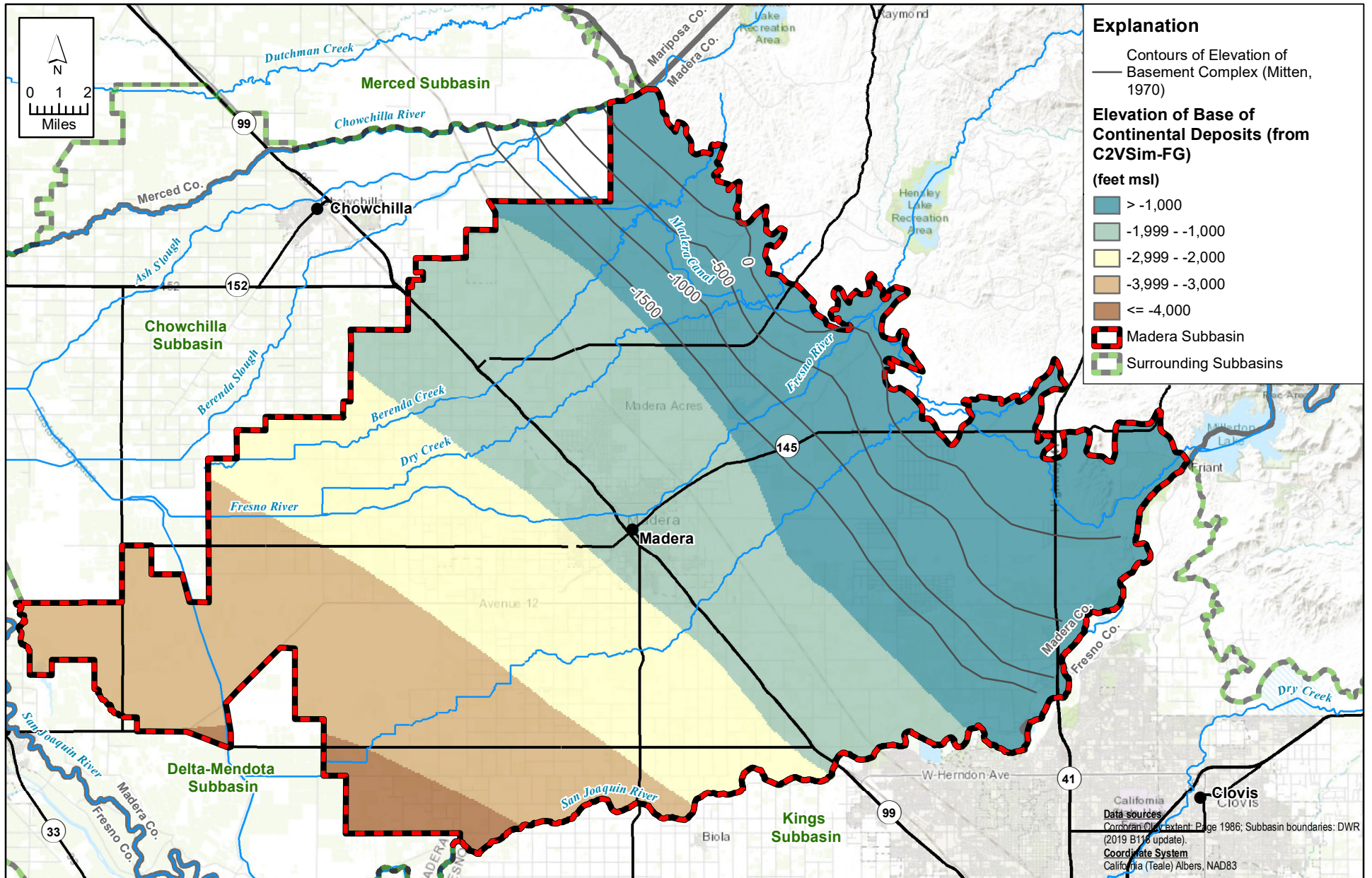
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-19 Madera Subbasin Depth to Basement Map.mxd

**FIGURE 2-19**



**Depth to Base of Continental Deposits or Basement Complex**

*Madera Subbasin  
Groundwater Sustainability Plan*

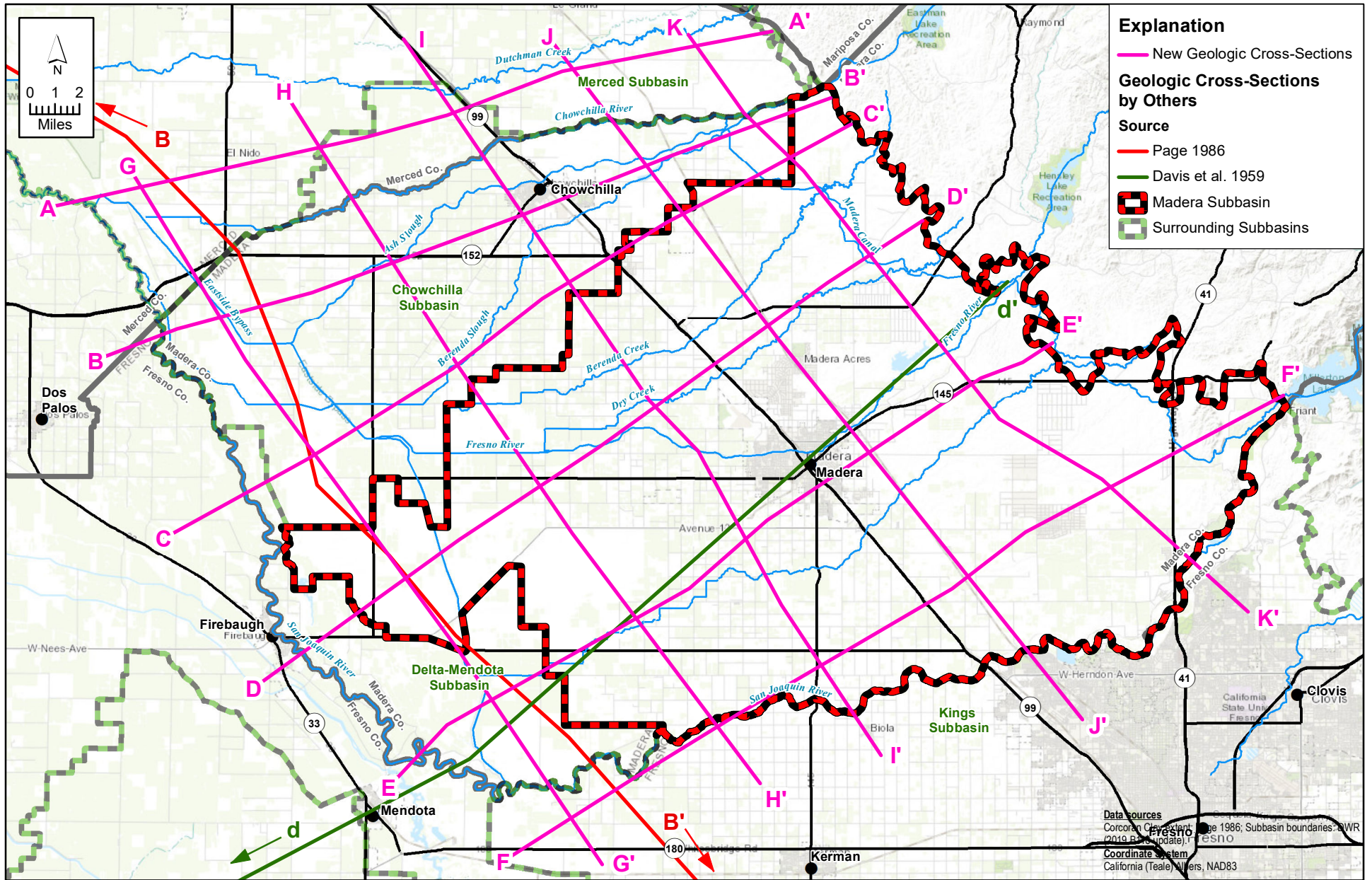


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-20 Madera Subbasin Elevation of Basement Complex Map.mxd

**FIGURE 2-20**  
**Elevation of Top of Basement Complex (from Mitten, 1970) and**  
**Bottom of Continental Deposits (from C2VSim-FG, 2018)**

Madera Subbasin  
 Groundwater Sustainability Plan





X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-21 Madera Subbasin Cross Section Location Map.mxd

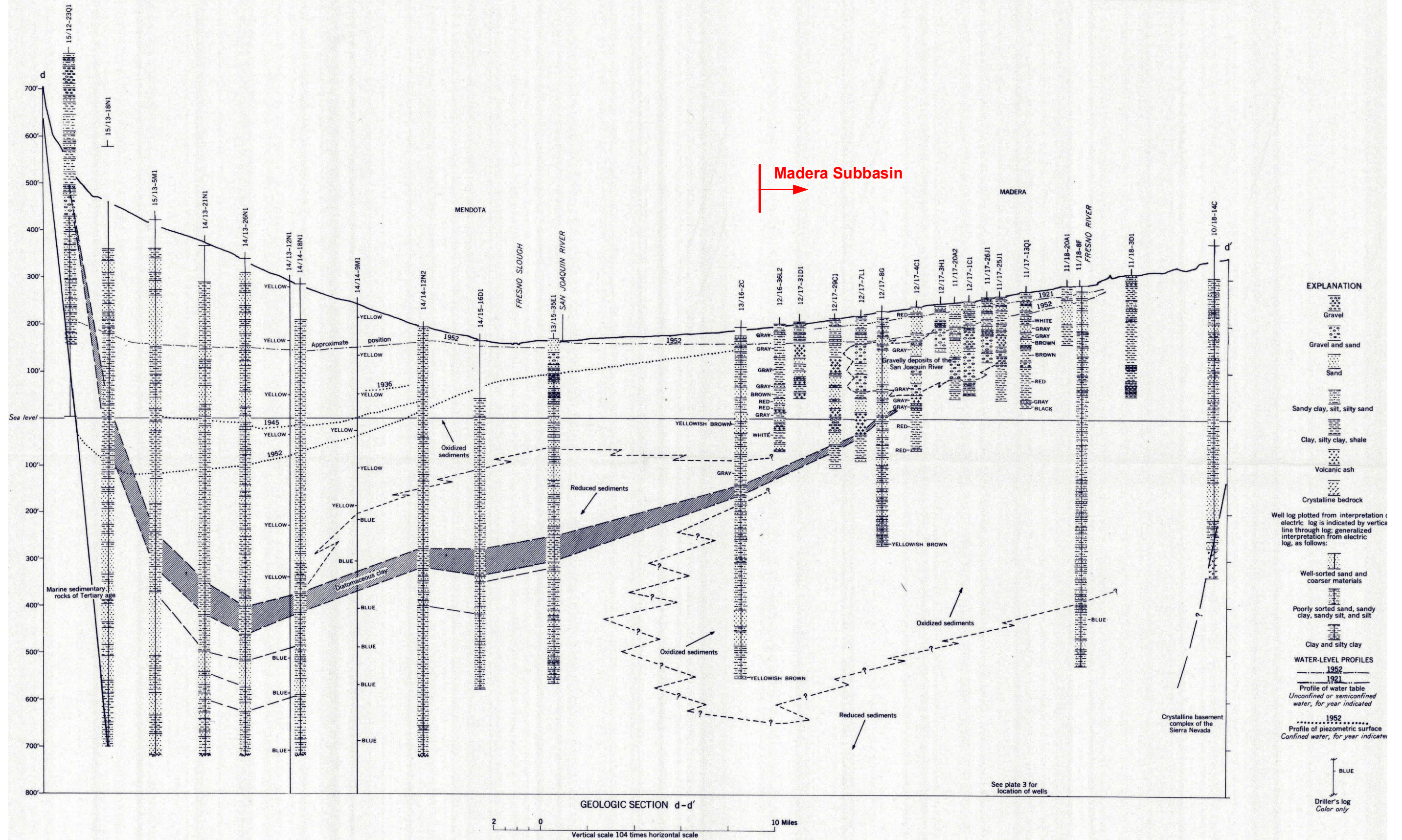
**FIGURE 2-21**

**Geologic Cross-Section Location Map**

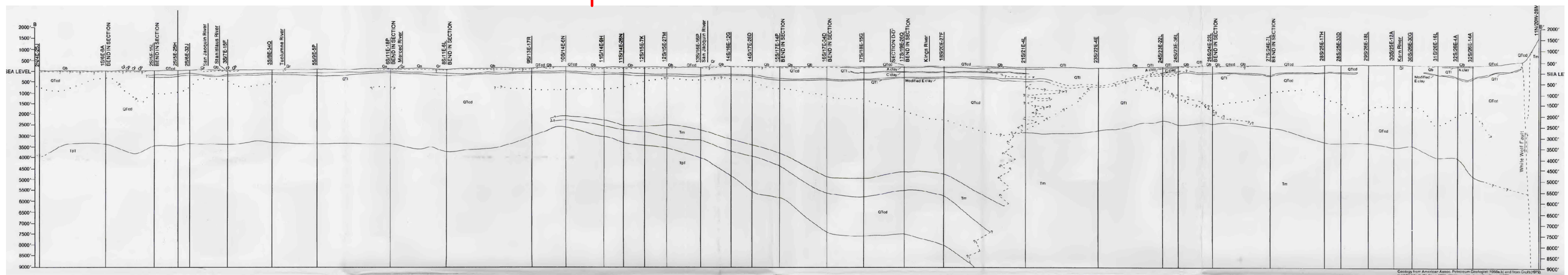
*Madera Subbasin  
 Groundwater Sustainability Plan*



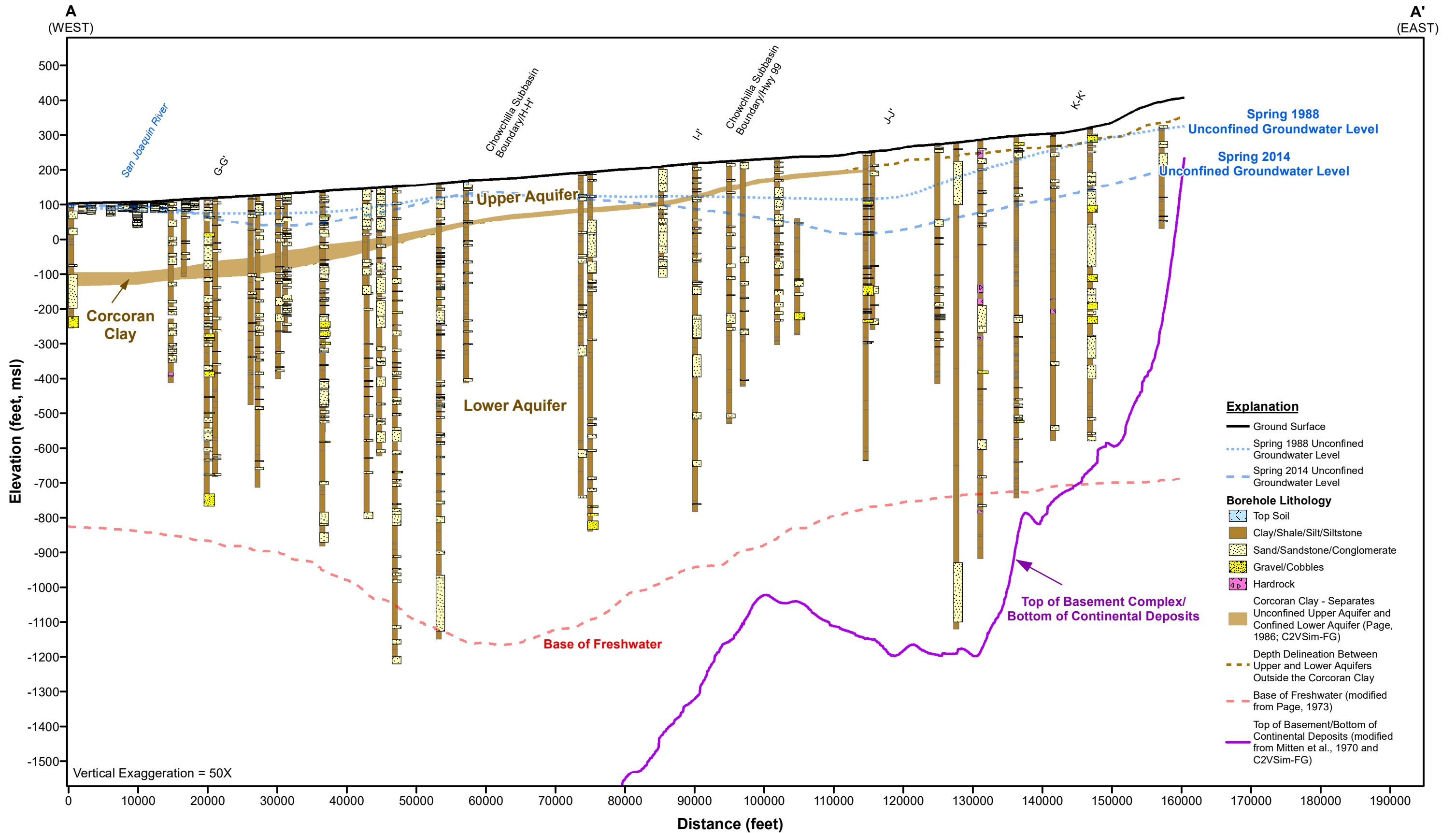




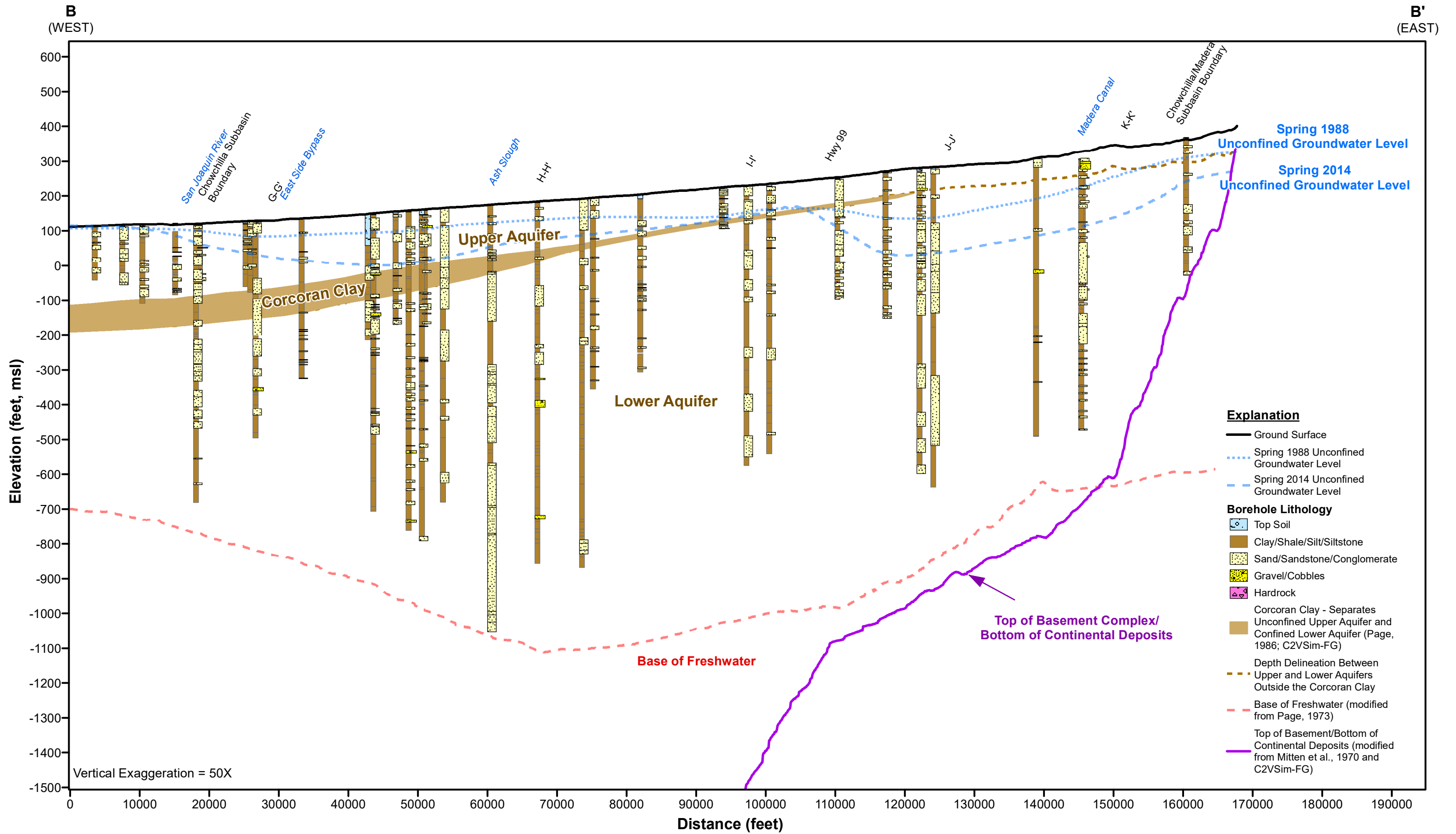
Madera Subbasin



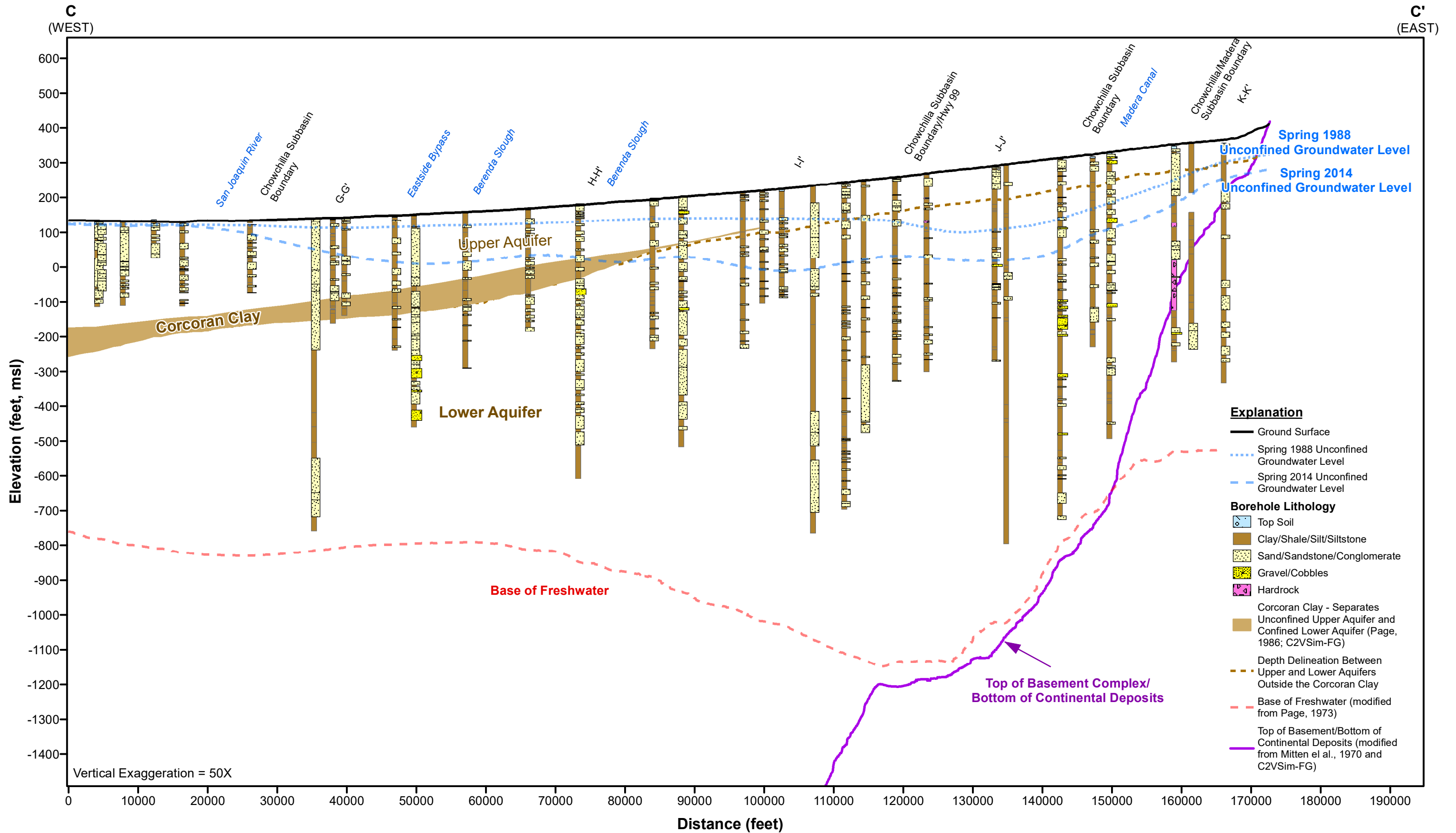
SAN JOAQUIN VALLEY SECTION B - B' and D - D'		B - B'
Qs	<b>Sand dunes (Holocene)</b> Windblown sand and dune sand	Description at left
Qb	<b>Flood-basin deposits (Holocene)</b> Clay, silt, and some sand;	Near northern end of section consist of muck, peat, and other organic soils
Qr	<b>River deposits (Holocene)</b> Gravel, sand, silt, and minor amounts of clay; deposited along channels, flood plains, and natural levees of main streams.	Description at left
QTI	<b>Lacustrine and marsh deposits (Pliocene to Holocene)</b> Clay, silt, and some sand; in subsurface include three widespread clays: A clay (Pleistocene and Holocene?), C clay (Pleistocene); and modified E clay (Pleistocene), includes Corcoran Clay Member of Tulare Formation	Description at left
QTcd	<b>Continental rocks and deposits (Oligocene to Holocene)</b> Heterogeneous mix of generally poorly sorted clay, silt, sand, and gravel, some beds of claystone, siltstone, sandstone, and conglomerate...	On this section, principal unit, continental rocks and deposits (Miocene to Holocene); in northern part of section may include continental rocks and deposits (Miocene and Pliocene)-mostly Mehrten Formation or an equivalent, and continental rocks and deposits (Oligocene and Miocene)-mostly Valley Springs Formation or an equivalent. Include continental rocks and deposits (Miocene and Pliocene)-chiefly the Chanac Formation (Miocene) at extreme southern end of section, and the Zilch Formation of informal subsurface usage, which is considered to be the continental equivalent of the Marine Temblor Formation (Oligocene and Miocene)
Tm	<b>Marine rocks and deposits (Eocene, Oligocene, Miocene, and Pliocene)</b> Sand, clay, silt, sandstone, shale, mudstone, and siltstone. On these section include marine rocks and deposits of Miocene and Pliocene age only	Description at left
TpT	<b>Continental and marine rocks and deposits (Pre-Tertiary to Oligocene)</b> Continental rocks and deposits of clay, shale, sand, sandstone and conglomerate; marine rocks and deposits of clay, shale, sandstone, and conglomerate...	On this section include marine rocks and deposits of Eocene and Oligocene age, also include some Paleocene marine rocks. Include continental rocks and deposits (Eocene to Miocene)- chiefly Walker Formation (Eocene to Miocene) at depths off the section - greater than 13,000ft, where the Walker Formation underlies Eocene, marine sediments. Include marine rocks (Pre-Tertiary)
pTgm	<b>Granitic and metamorphic rocks (Pre-Tertiary)</b> Granitic rocks with some mafic intrusive rocks, and metasedimentary and metavolcanic rocks. Include granitic rocks (Pre-Tertiary) and metamorphic rocks (Pre-Tertiary)	Not present



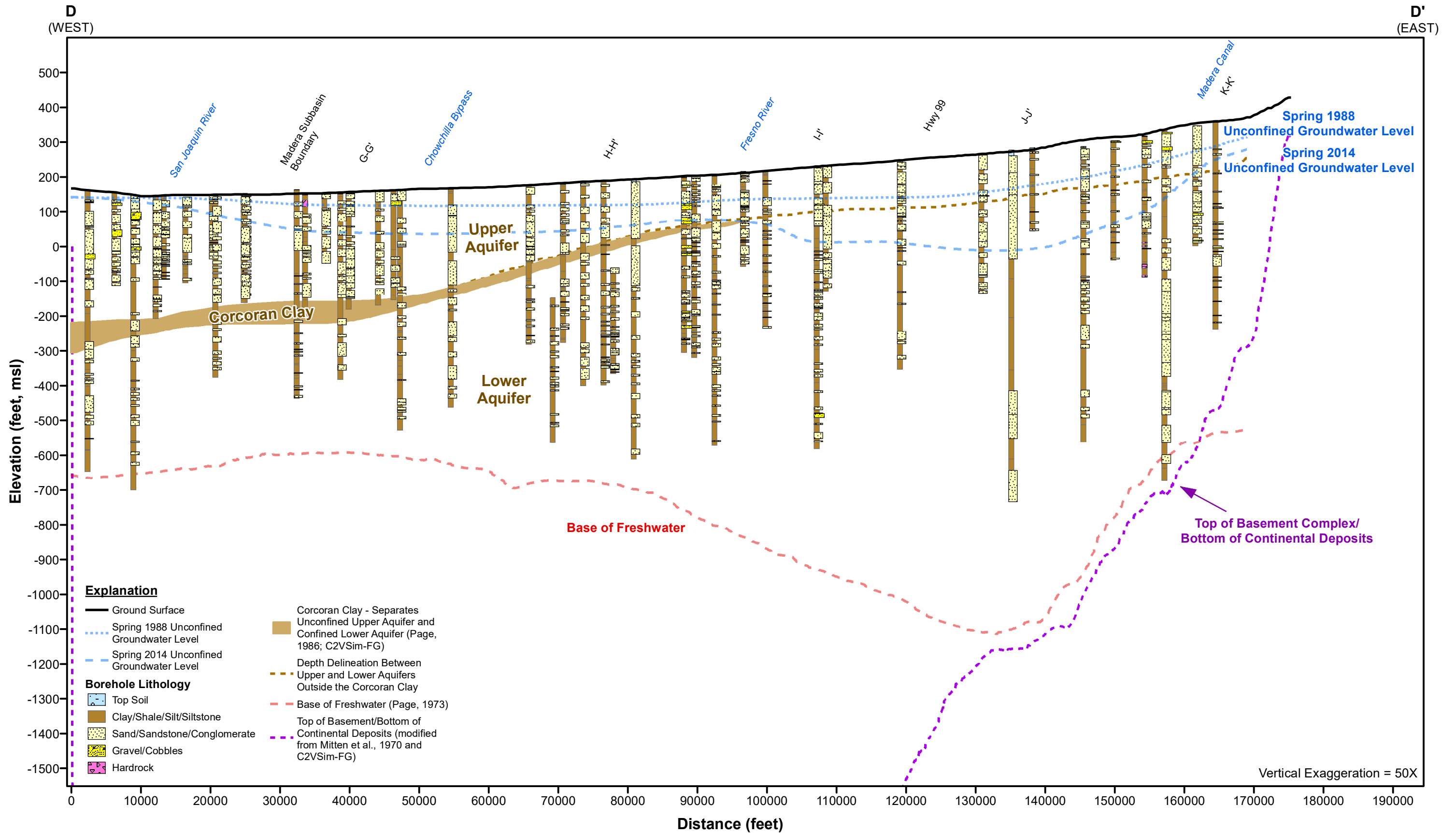
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-24 CrossSection\_LSCE\_A.mxd



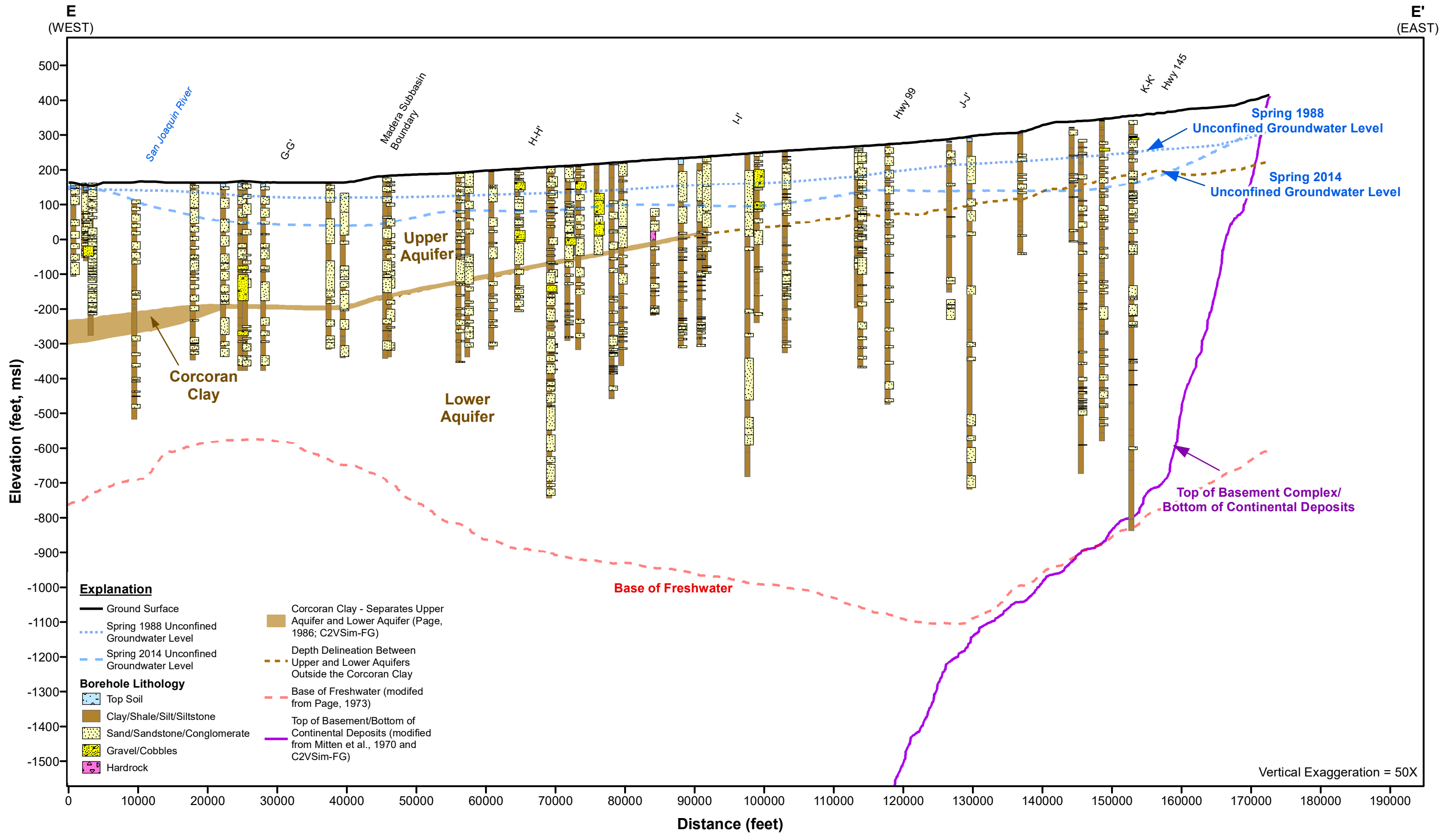
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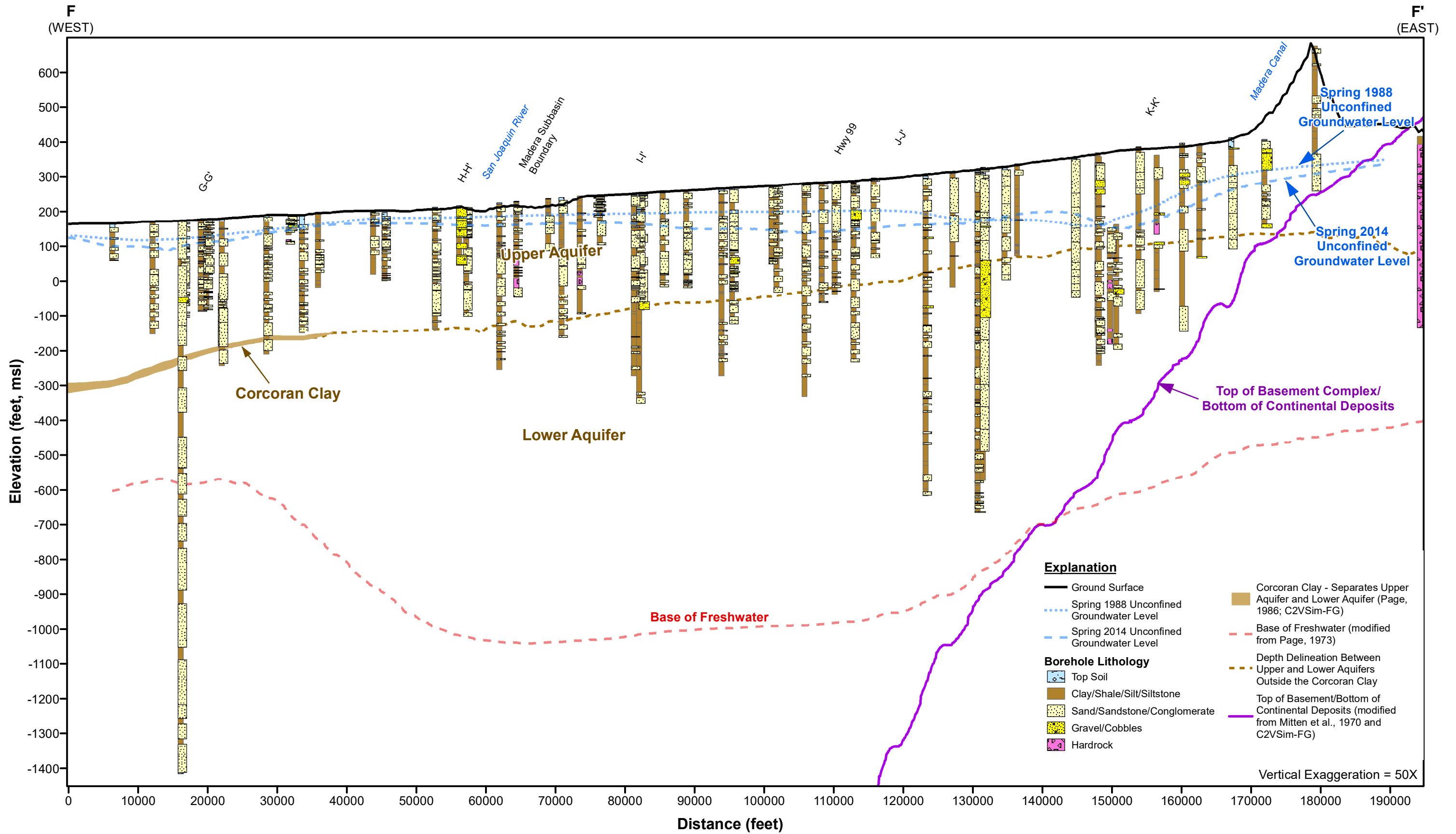
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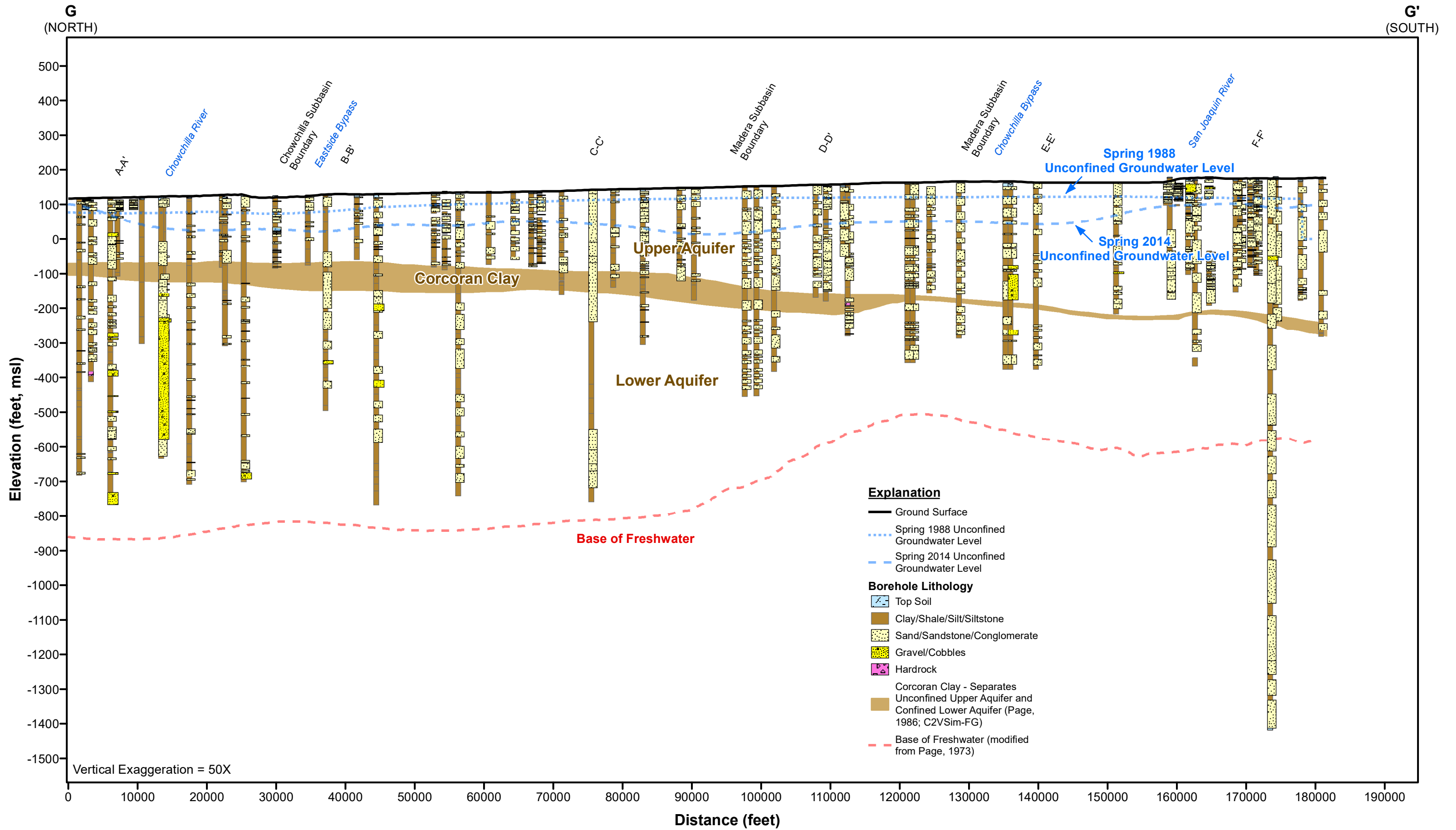
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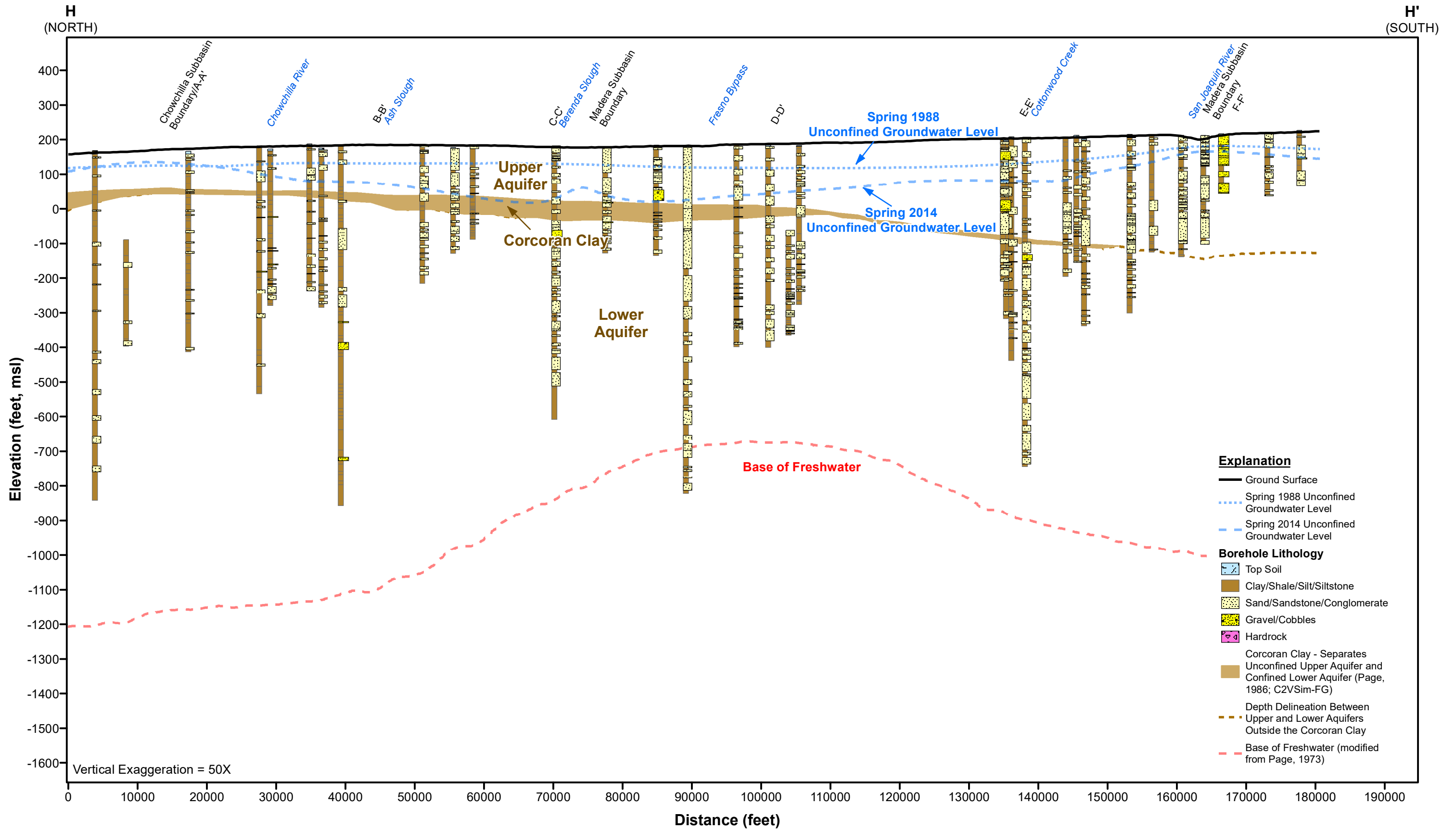
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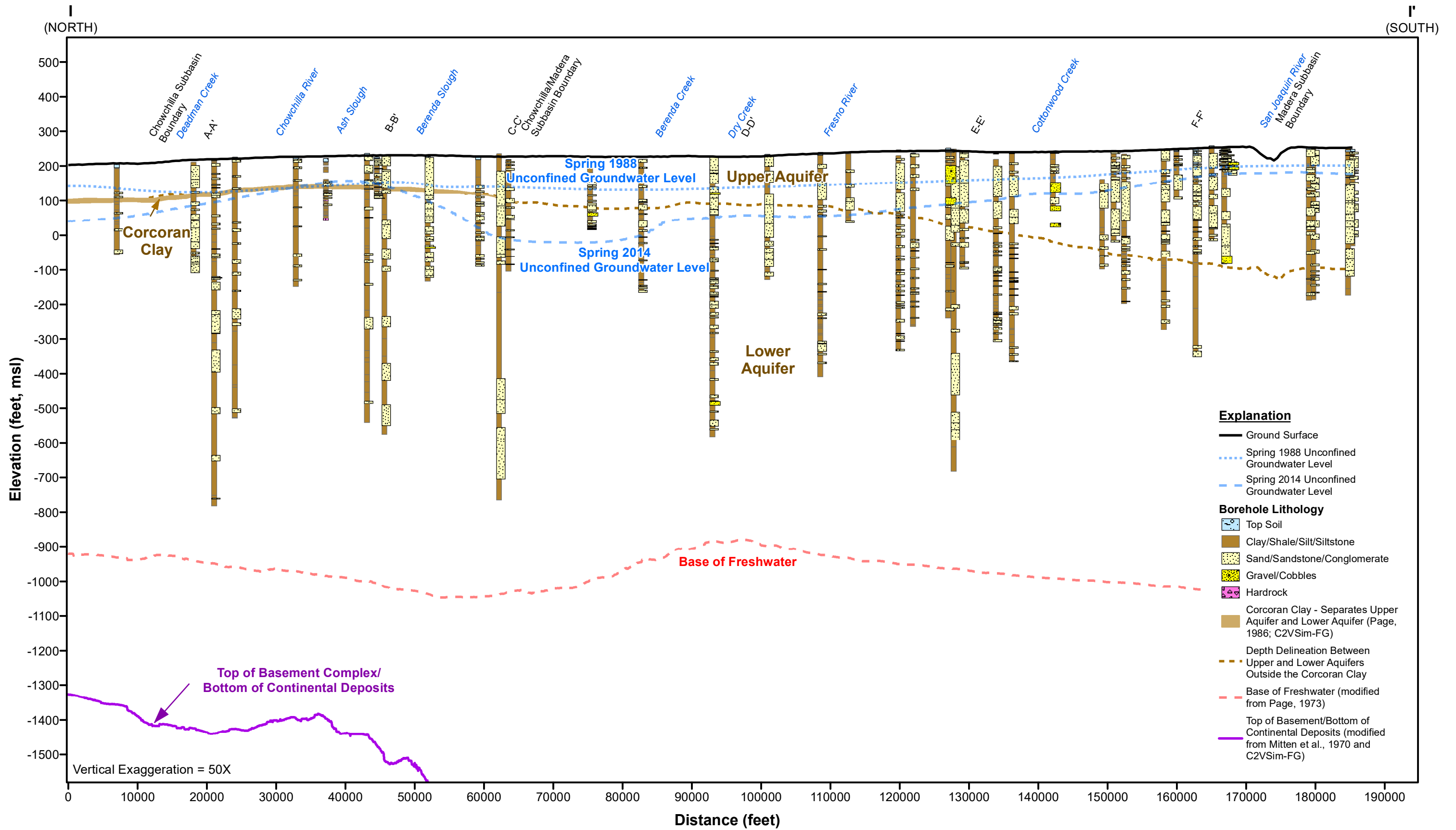




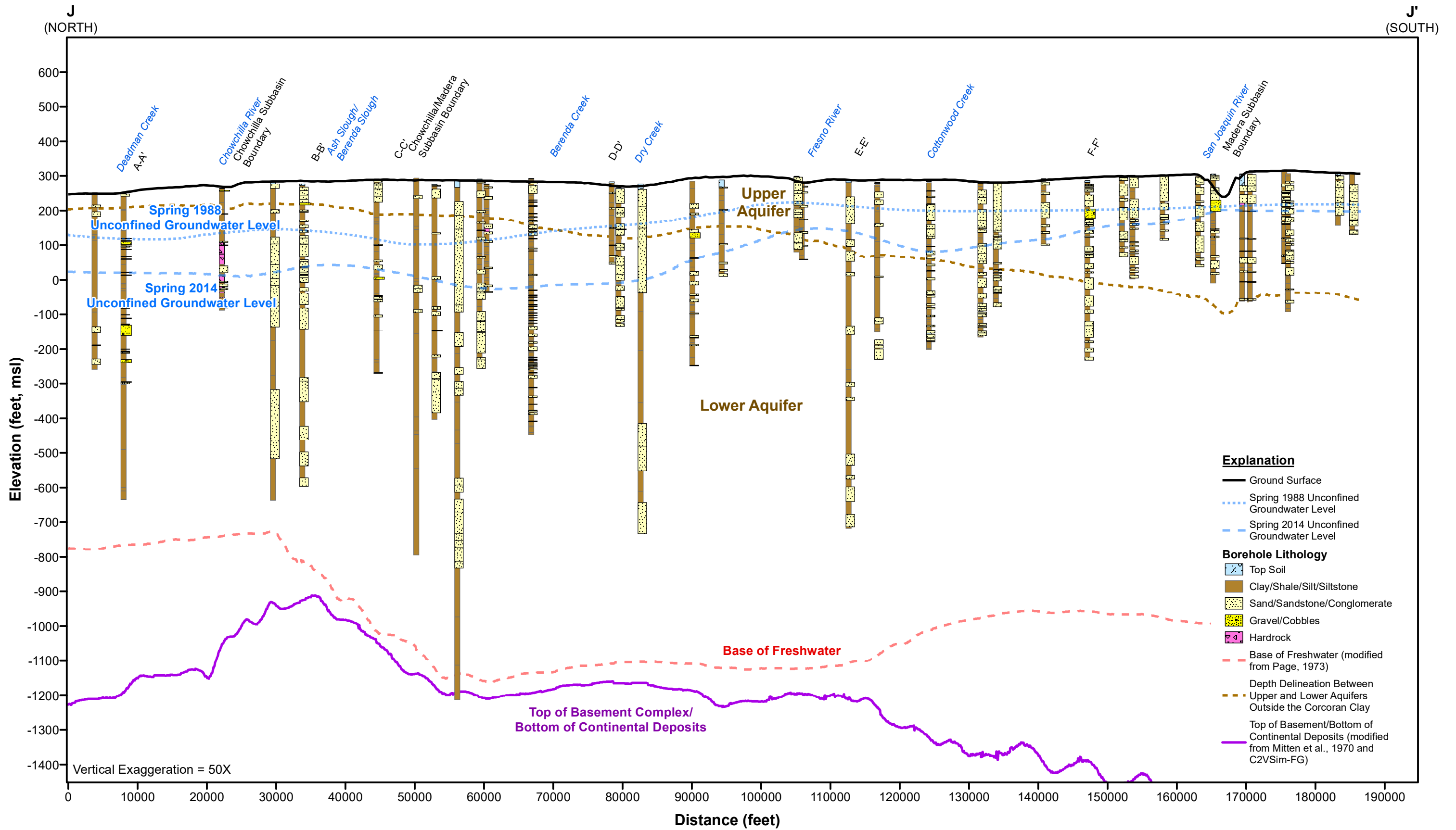
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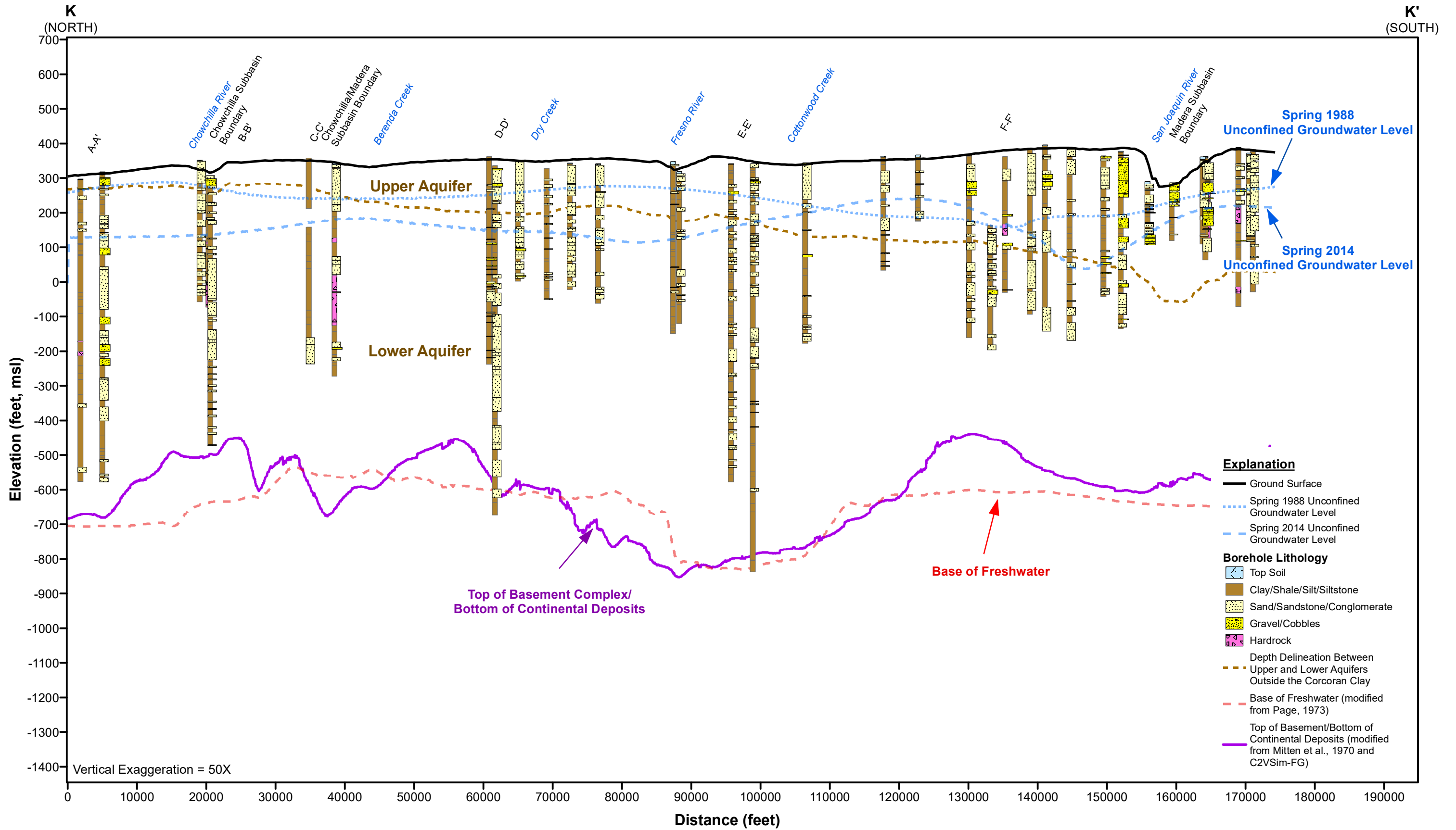
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-31 CrossSection\_LSCE\_H.mxd



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-32 CrossSection\_LSCE\_I.mxd



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-33 CrossSection\_LSCE\_J.mxd



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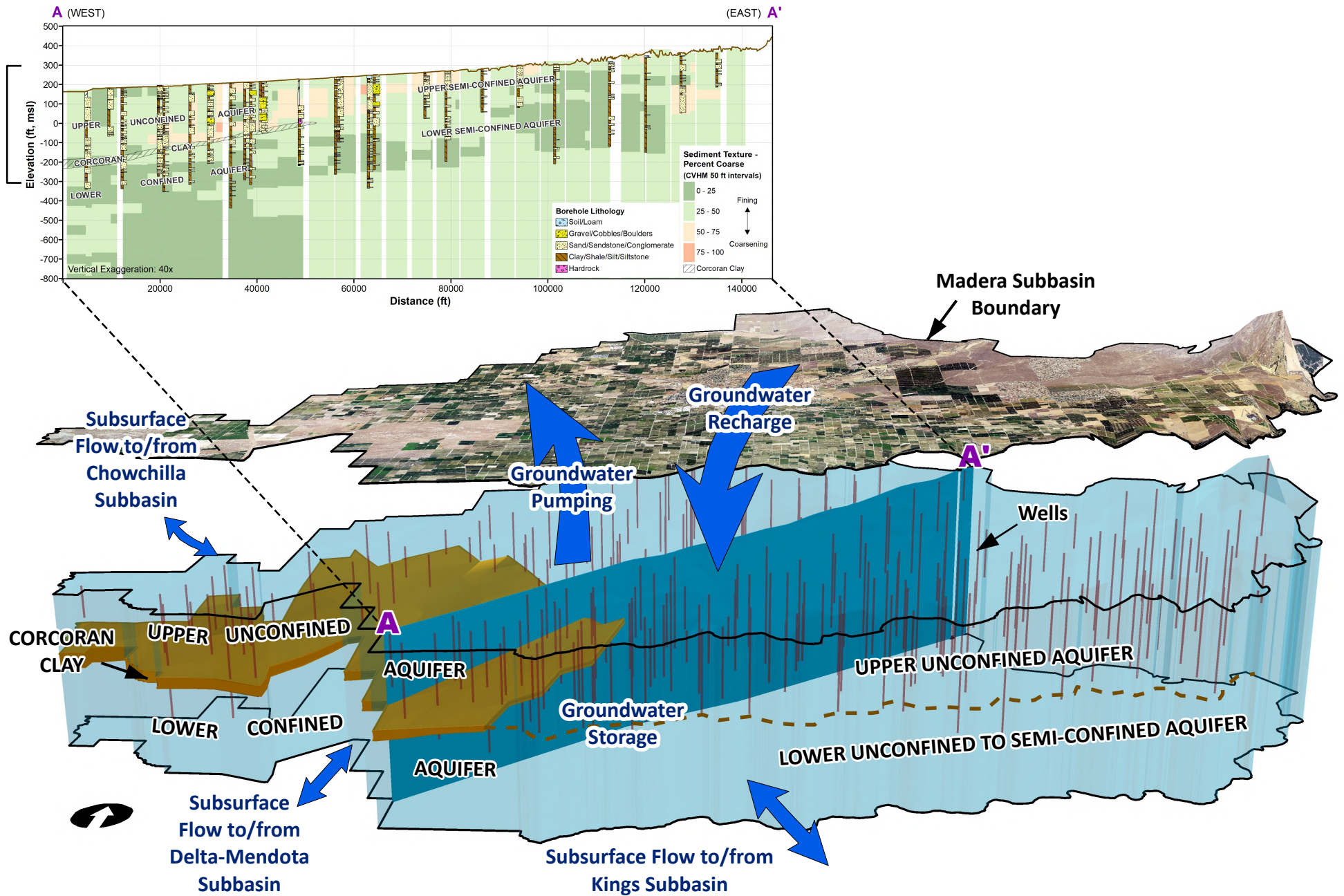
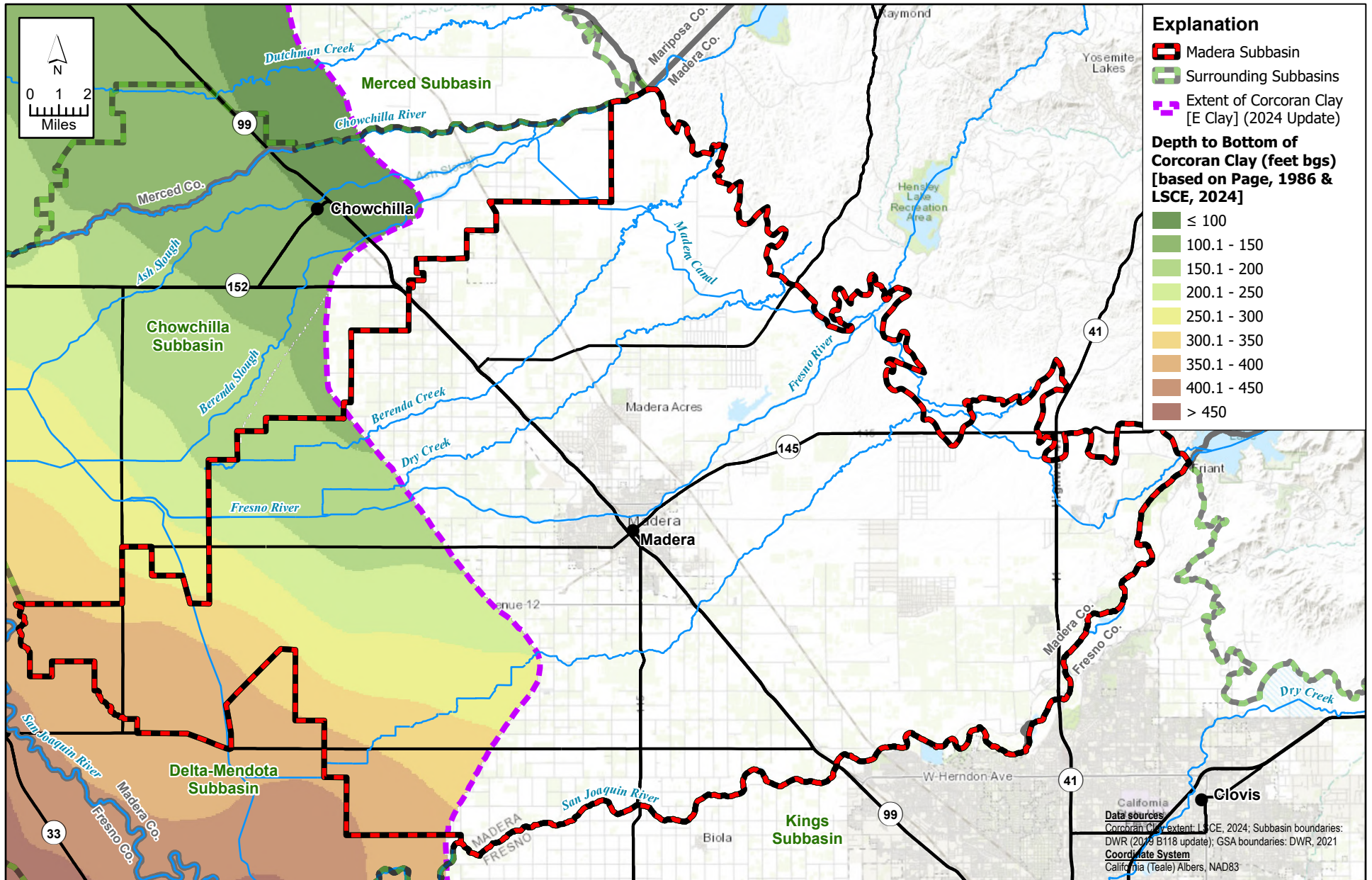


FIGURE 2-35

Conceptual Hydrogeologic System

Madera Subbasin  
Groundwater Sustainability Plan - First Plan Amendment



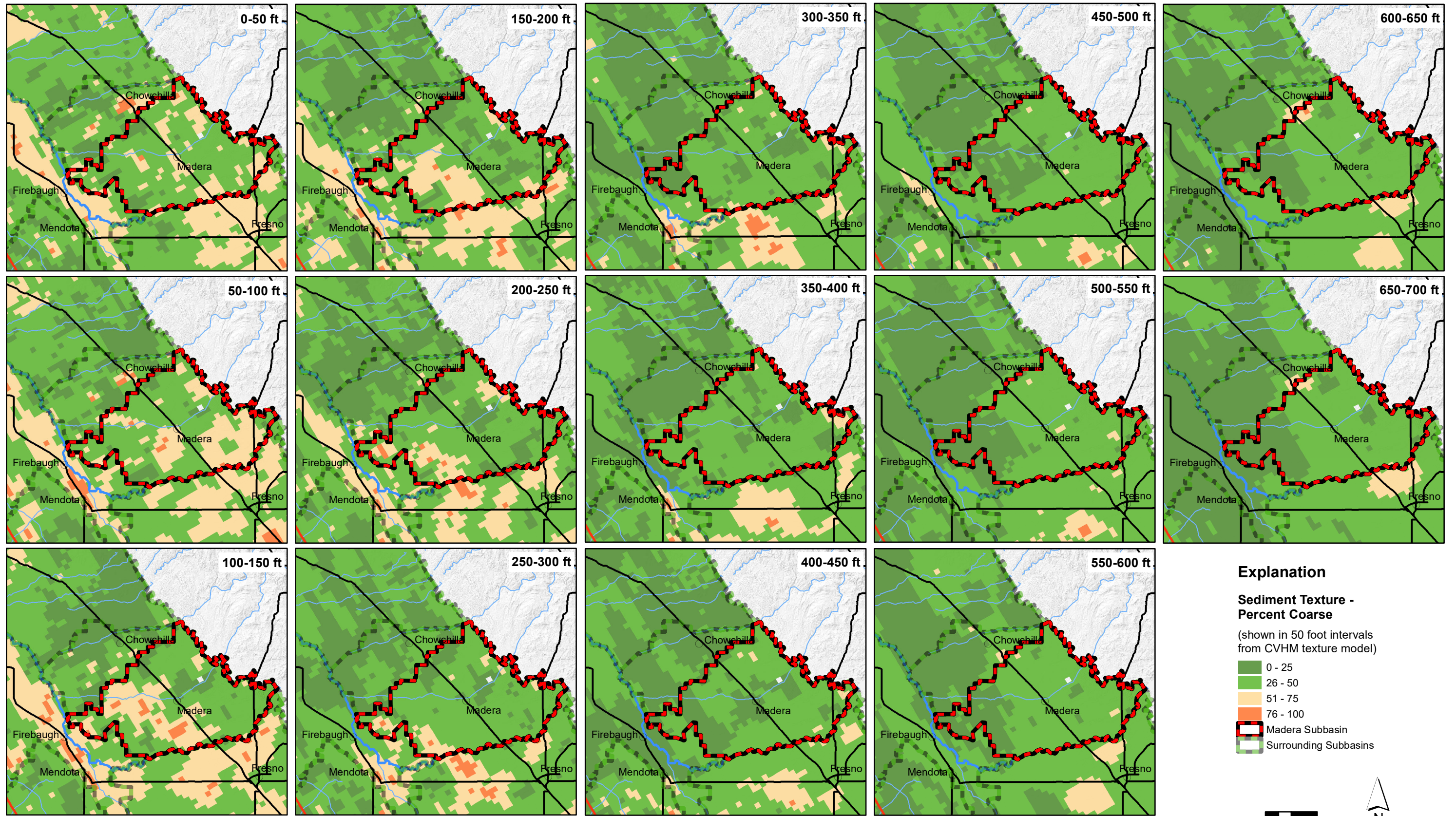


X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\GIS\MAD\_Five\_Year\_Update\MAD\_Five\_Year\_Update.aprx; Corcoran Clay\_DepthBot

**FIGURE 2-36**

**Extent of Confined Lower Aquifer**

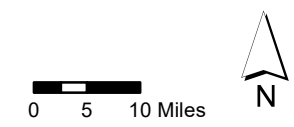




**Explanation**

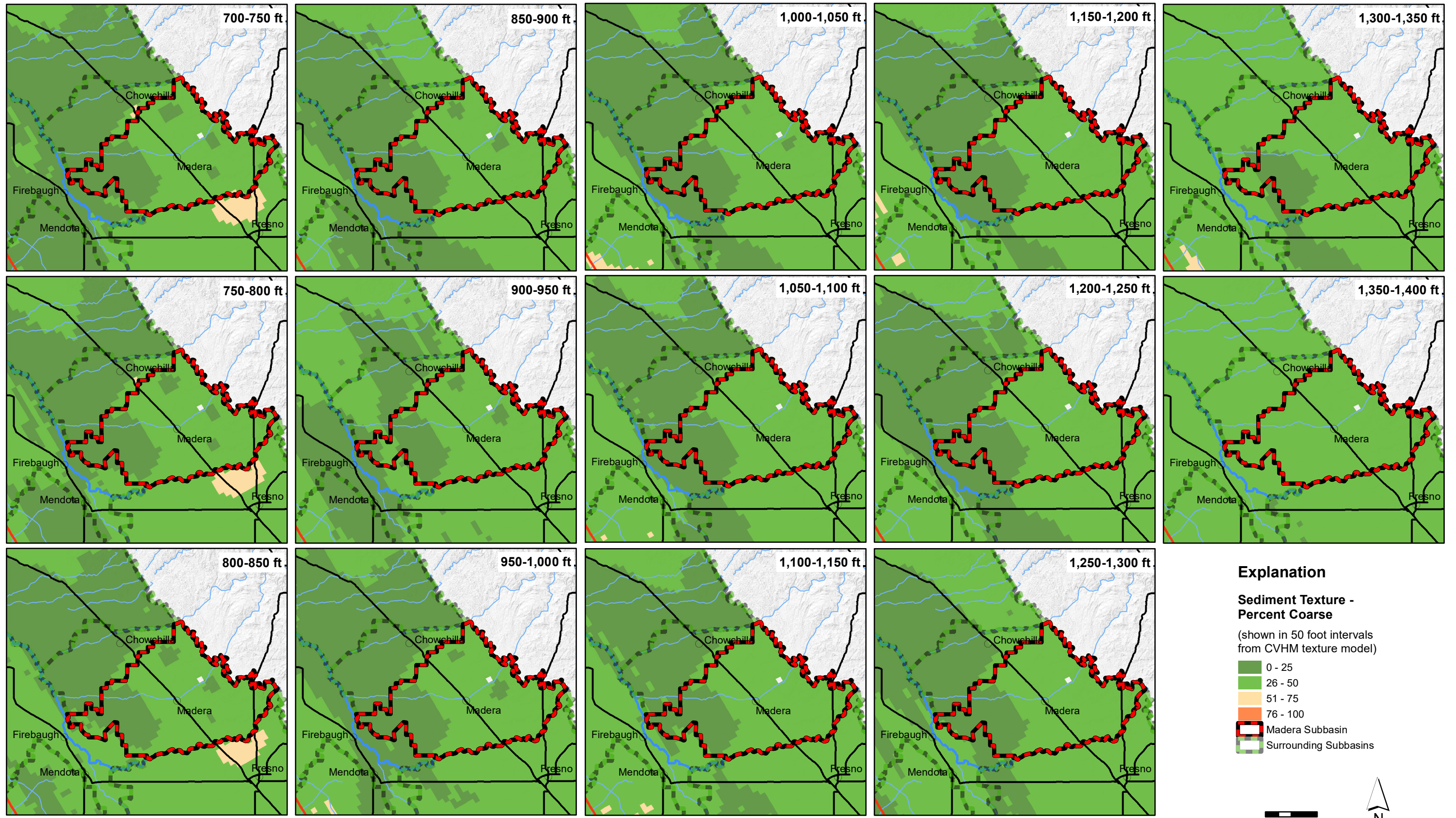
**Sediment Texture - Percent Coarse**  
 (shown in 50 foot intervals from CVHM texture model)

- 0 - 25
- 26 - 50
- 51 - 75
- 76 - 100
- Madera Subbasin
- Surrounding Subbasins



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-36 CVHM Sediment Texture Model 0 to 700.mxd



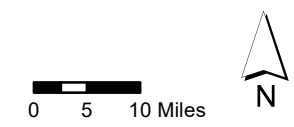


**Explanation**

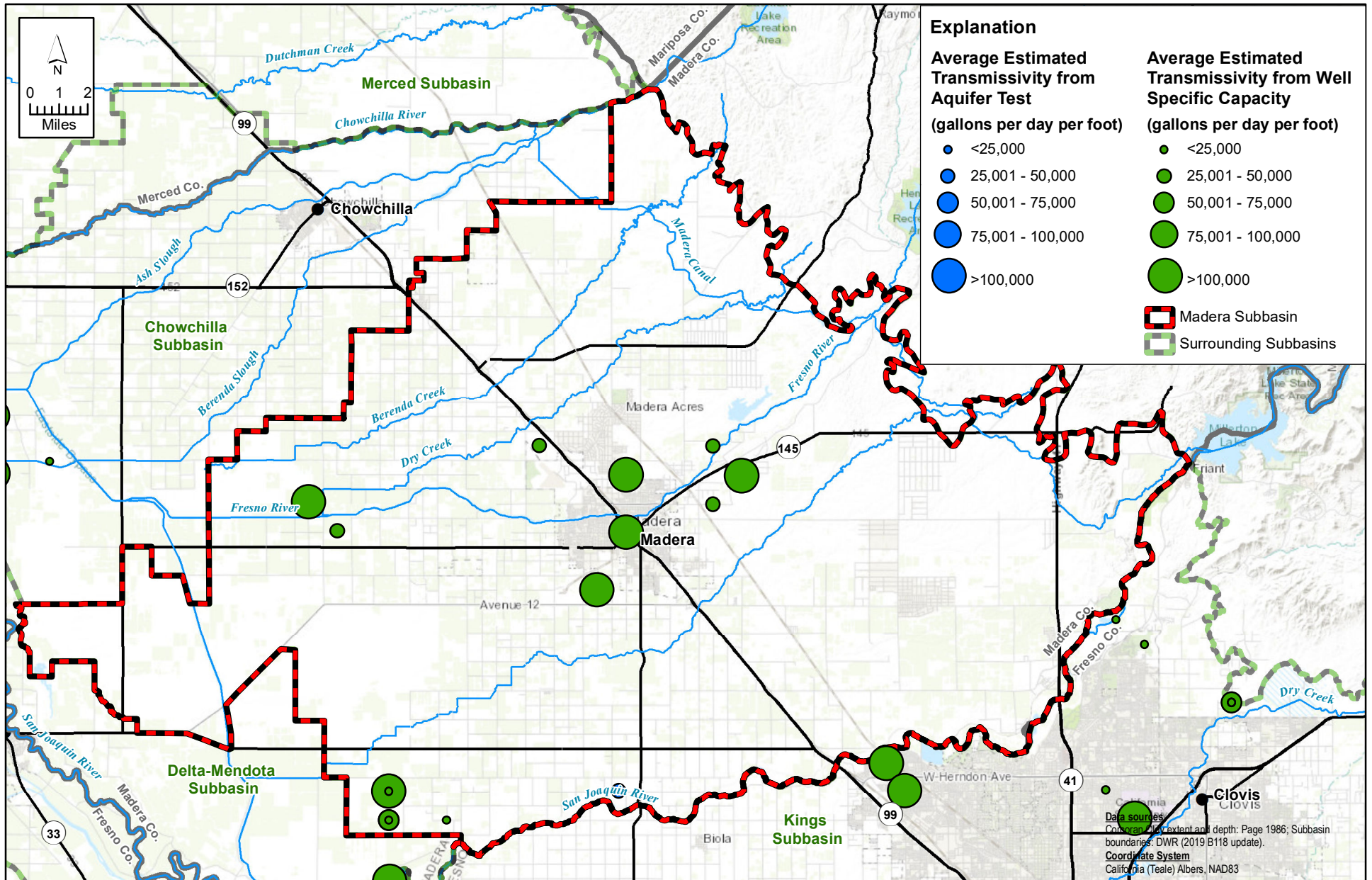
**Sediment Texture - Percent Coarse**  
 (shown in 50 foot intervals from CVHM texture model)

- 0 - 25
- 26 - 50
- 51 - 75
- 76 - 100

Madera Subbasin  
 Surrounding Subbasins



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-37 CVHM Sediment Texture Model 700 to 1400.mxd

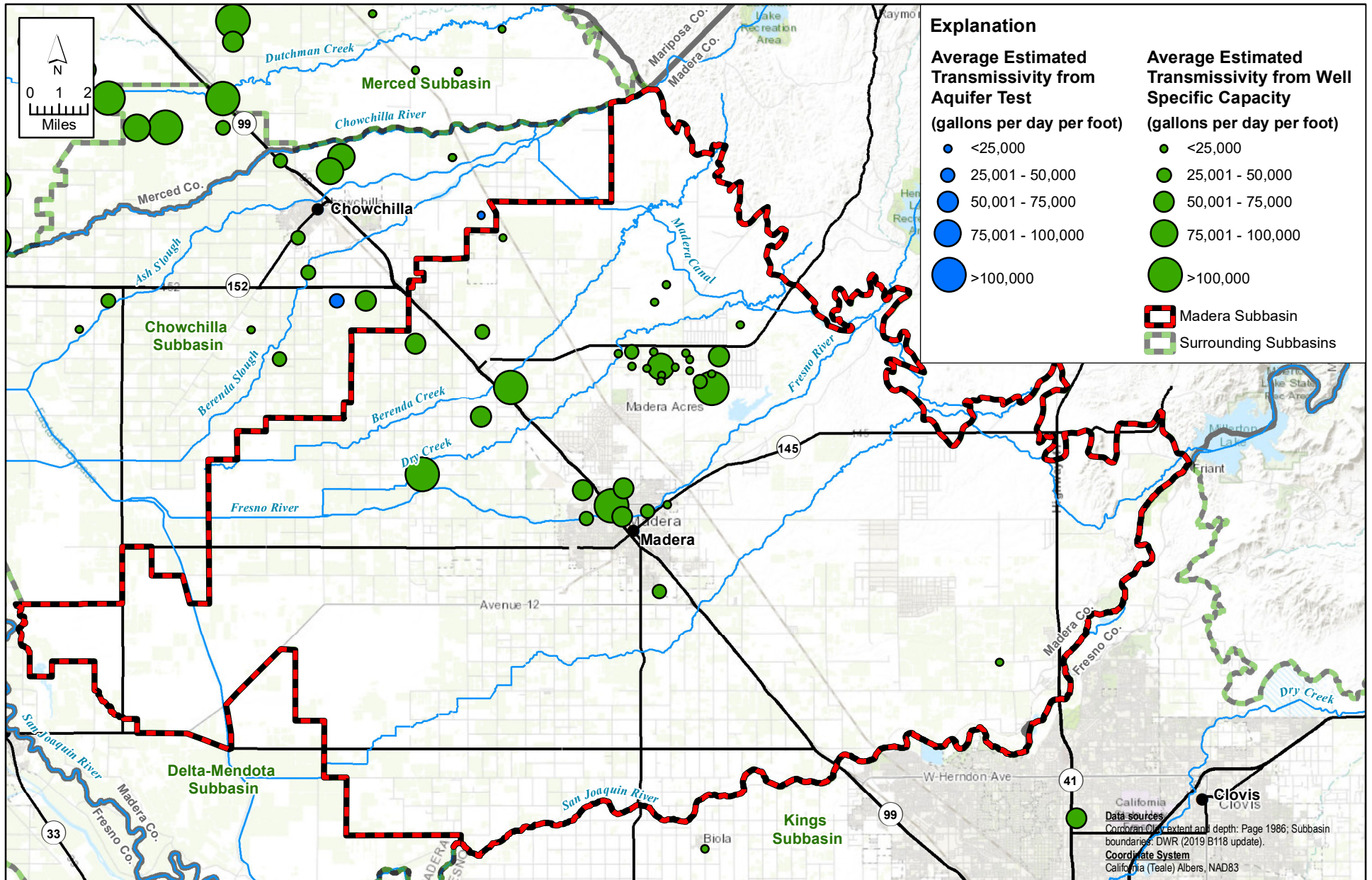


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-38 Madera Subbasin Aquifer Property Data\_Upper.mxd



**FIGURE 2-39**  
**Map of Well Test Aquifer Property Data:**  
**Upper Aquifer**

*Madera Subbasin  
 Groundwater Sustainability Plan*

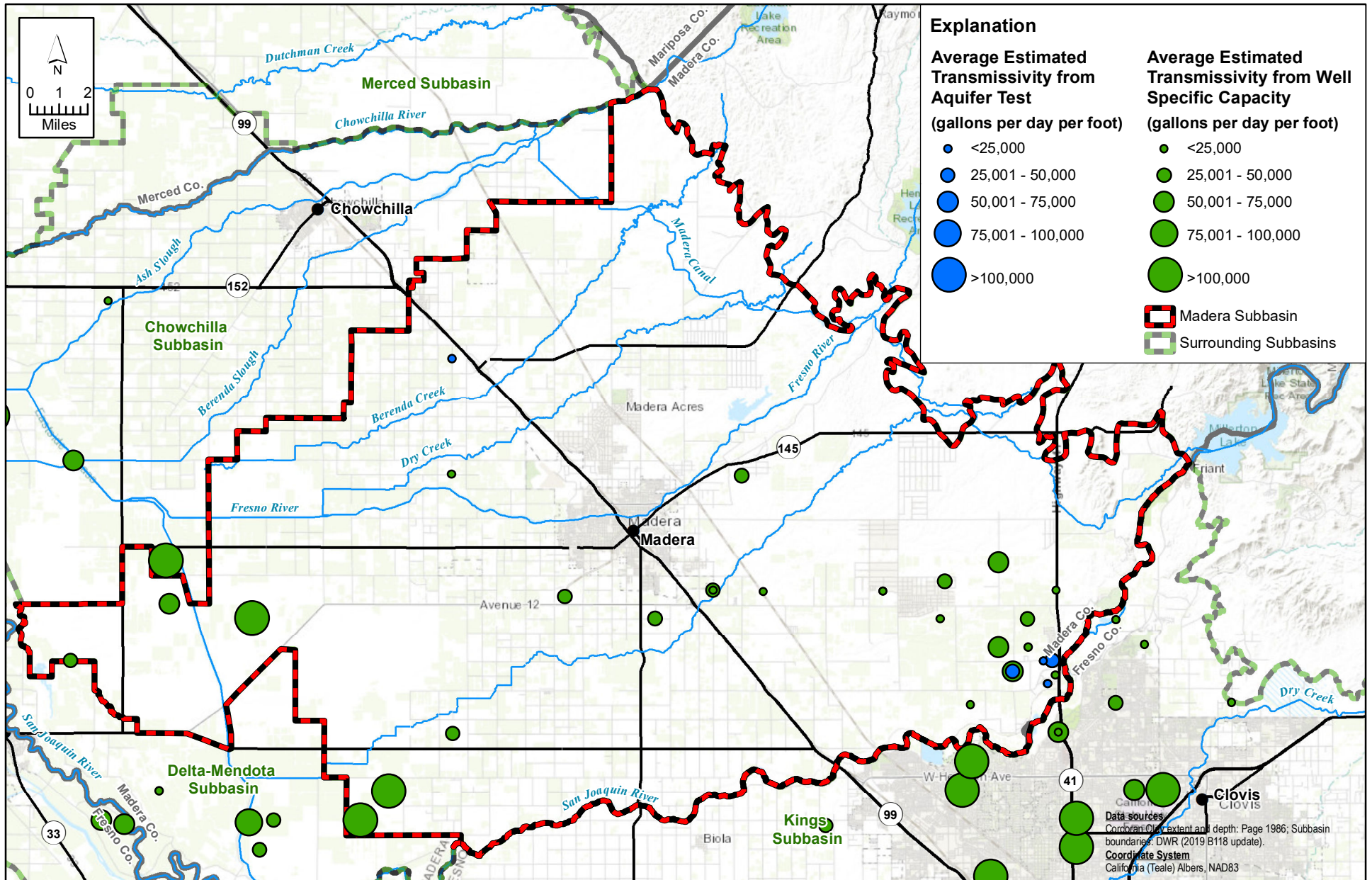


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-39 Madera Subbasin Aquifer Property Data\_Lower.mxd



**FIGURE 2-40**  
**Map of Well Test Aquifer Property Data:**  
**Lower Aquifer**

Madera Subbasin  
 Groundwater Sustainability Plan

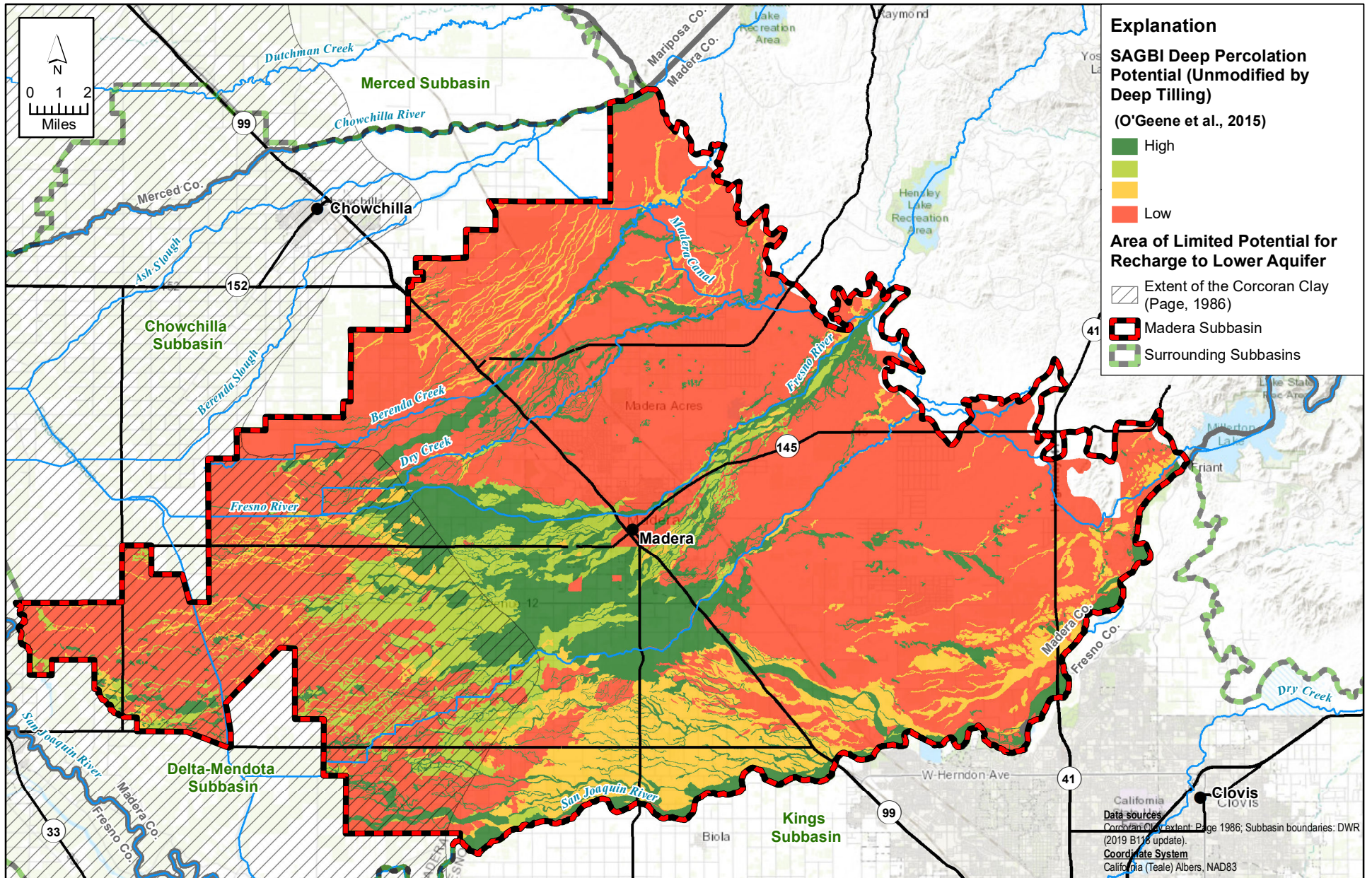


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-40 Madera Subbasin Aquifer Property Data\_CompositeUnknown.mxd



**FIGURE 2-41**  
**Map of Well Test Aquifer Property Data:**  
**Composite Wells or Unknown Depth**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

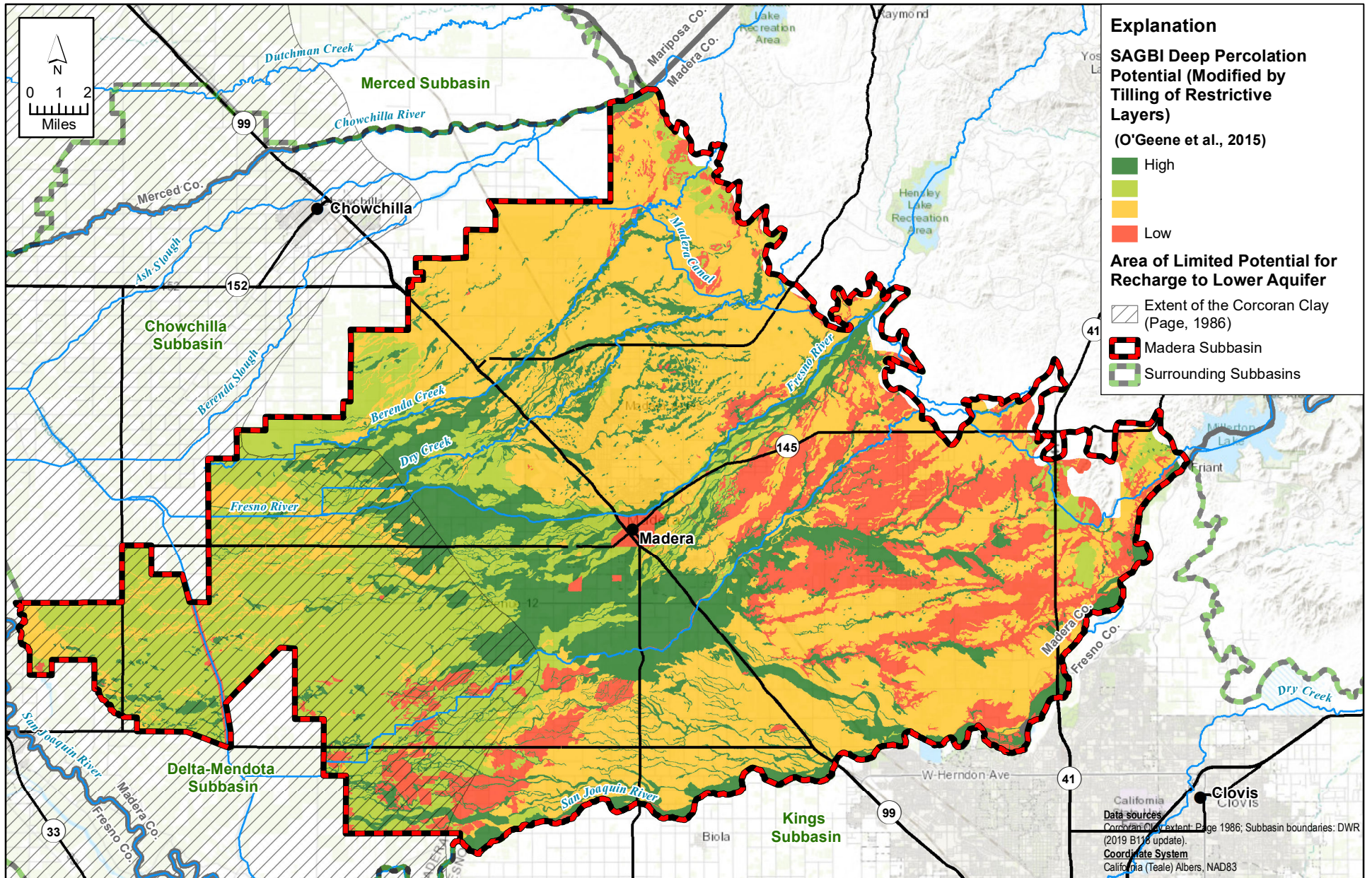


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-41 Madera Subbasin SAGBI Higher Recharge Potential Areas\_unmodified.mxd



**FIGURE 2-42**  
**SAGBI Deep Percolation Potential:**  
**Unmodified by Tilling**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

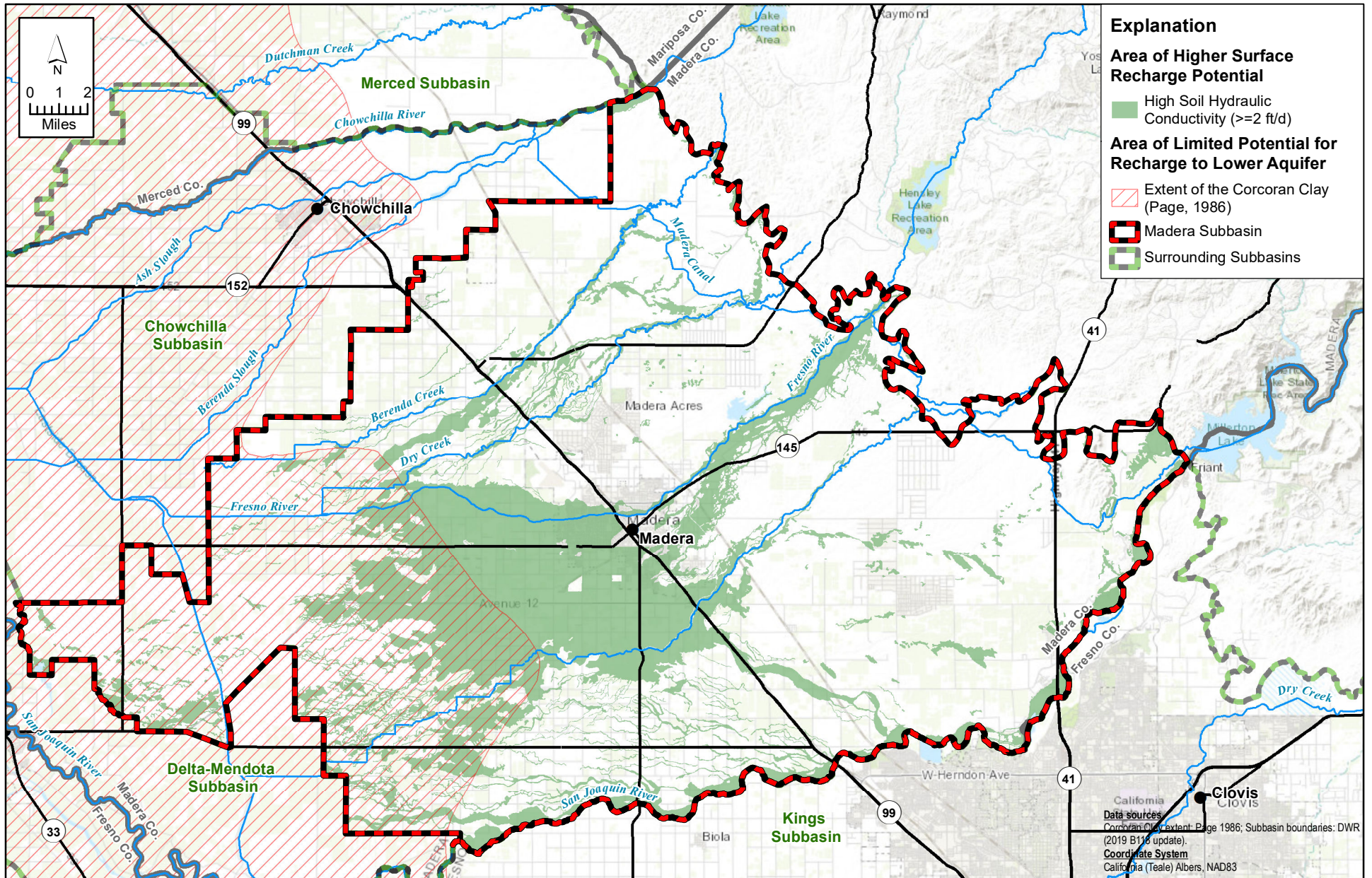


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**FIGURE 2-43**

**SAGBI Deep Percolation Potential:  
Modified by Tilling of All Restrictive Layers**  
Madera Subbasin  
Groundwater Sustainability Plan



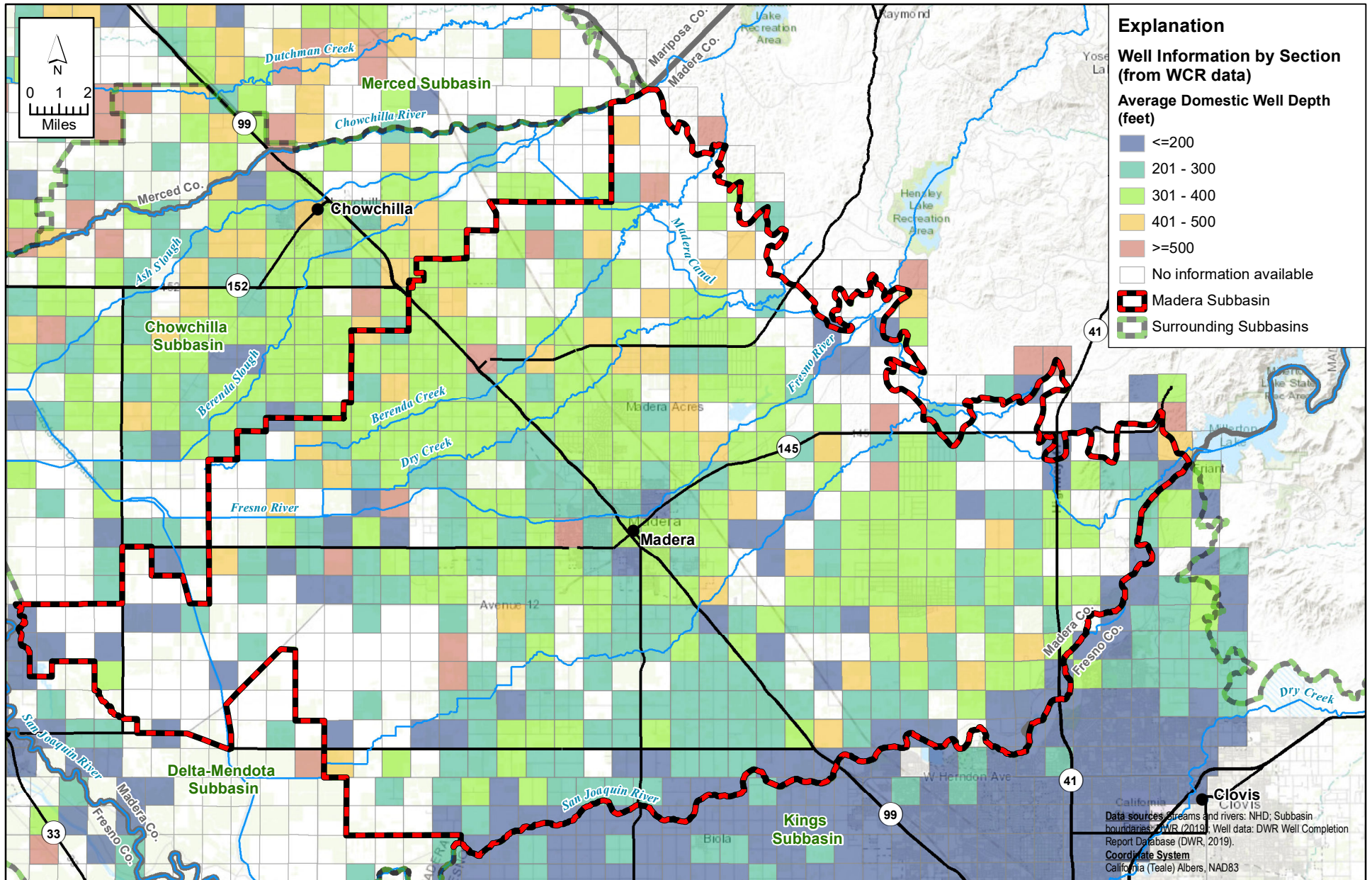


**FIGURE 2-44**

**Areas of Higher Recharge Potential**

*Madera Subbasin  
 Groundwater Sustainability Plan*





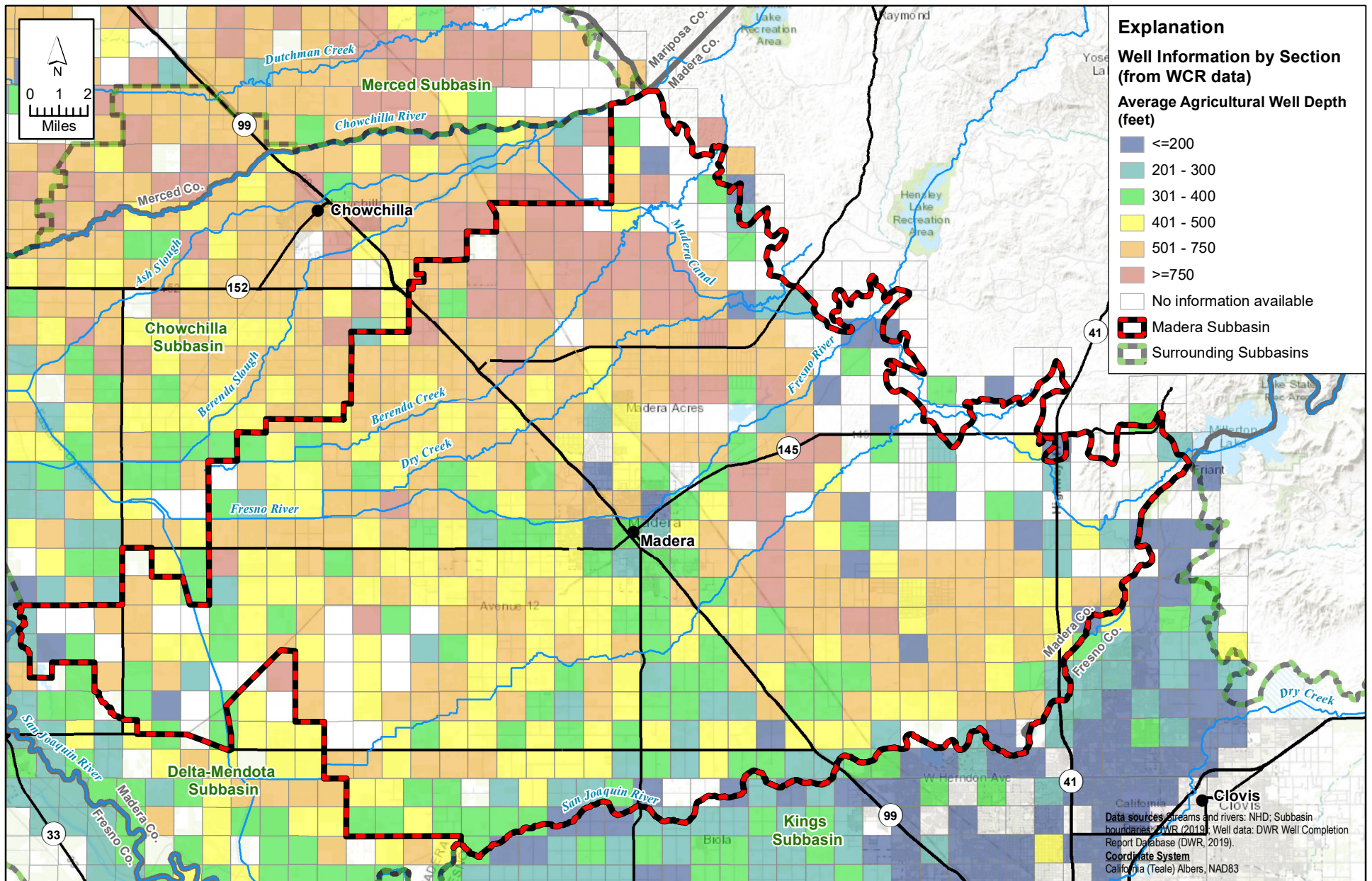
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-44 Madera Subbasin Wells By Section Dom Well Depth.mxd



**FIGURE 2-45**  
**Map of Well Information by Section:**  
**Average Domestic Well Depth (from WCR data)**

*Madera Subbasin*  
*Groundwater Sustainability Plan*



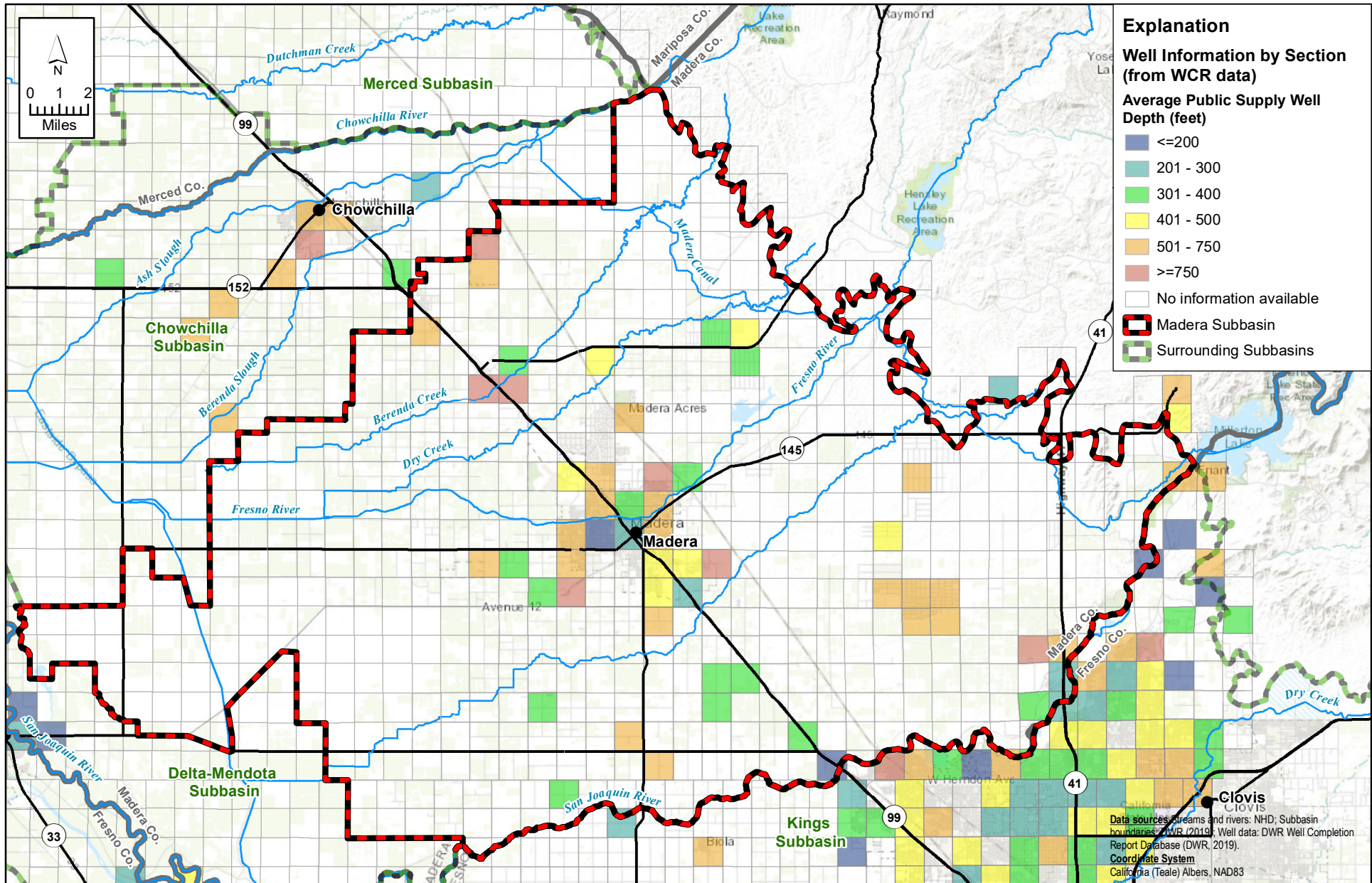


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-45 Madera Subbasin Wells By Section Ag Well Depth.mxd



**FIGURE 2-46**  
**Map of Well Information by Section:**  
**Average Agricultural Well Depth (from WCR data)**

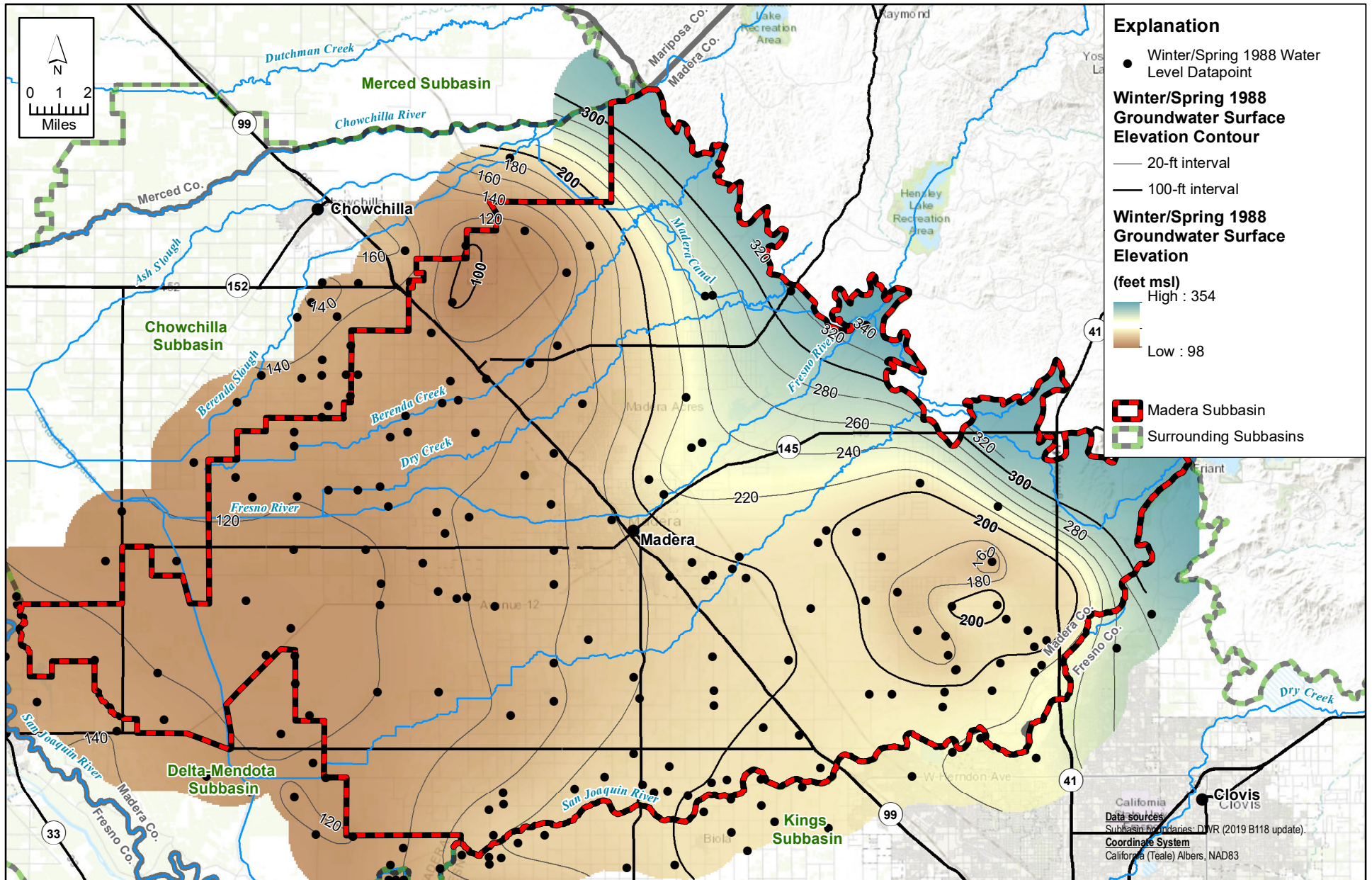
*Madera Subbasin*  
*Groundwater Sustainability Plan*



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-46 Madera Subbasin Wells By Section PWS Well Depth.mxd

**FIGURE 2-47**  
**Map of Well Information by Section:**  
**Average Public Supply Well Depth (from WCR data)**  
*Madera Subbasin*  
*Groundwater Sustainability Plan*



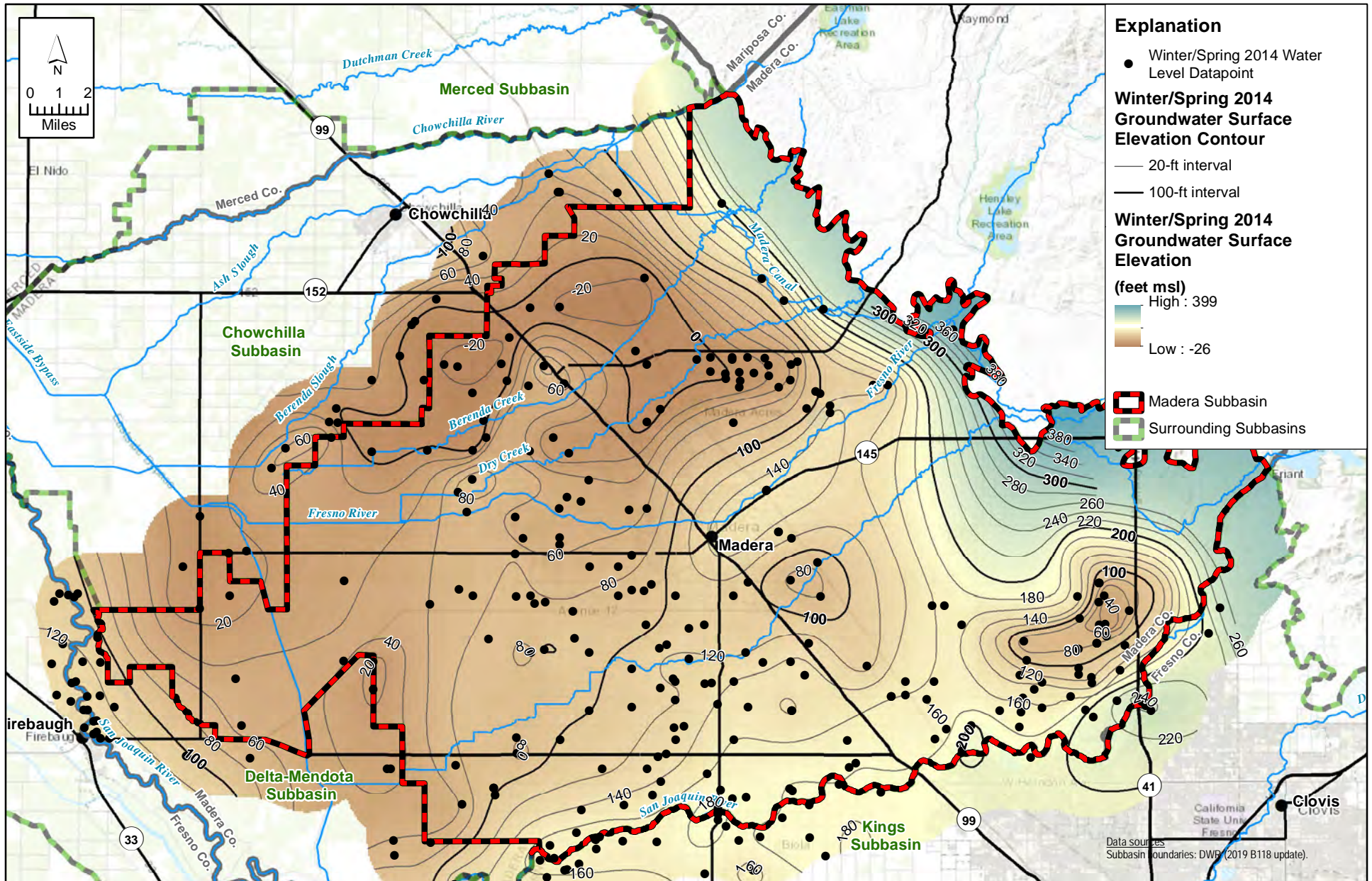


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-47 Madera Subbasin SpW1988 GWEL Contours\_Unconfined.mxd



**FIGURE 2-48**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 1988 - Unconfined Groundwater**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

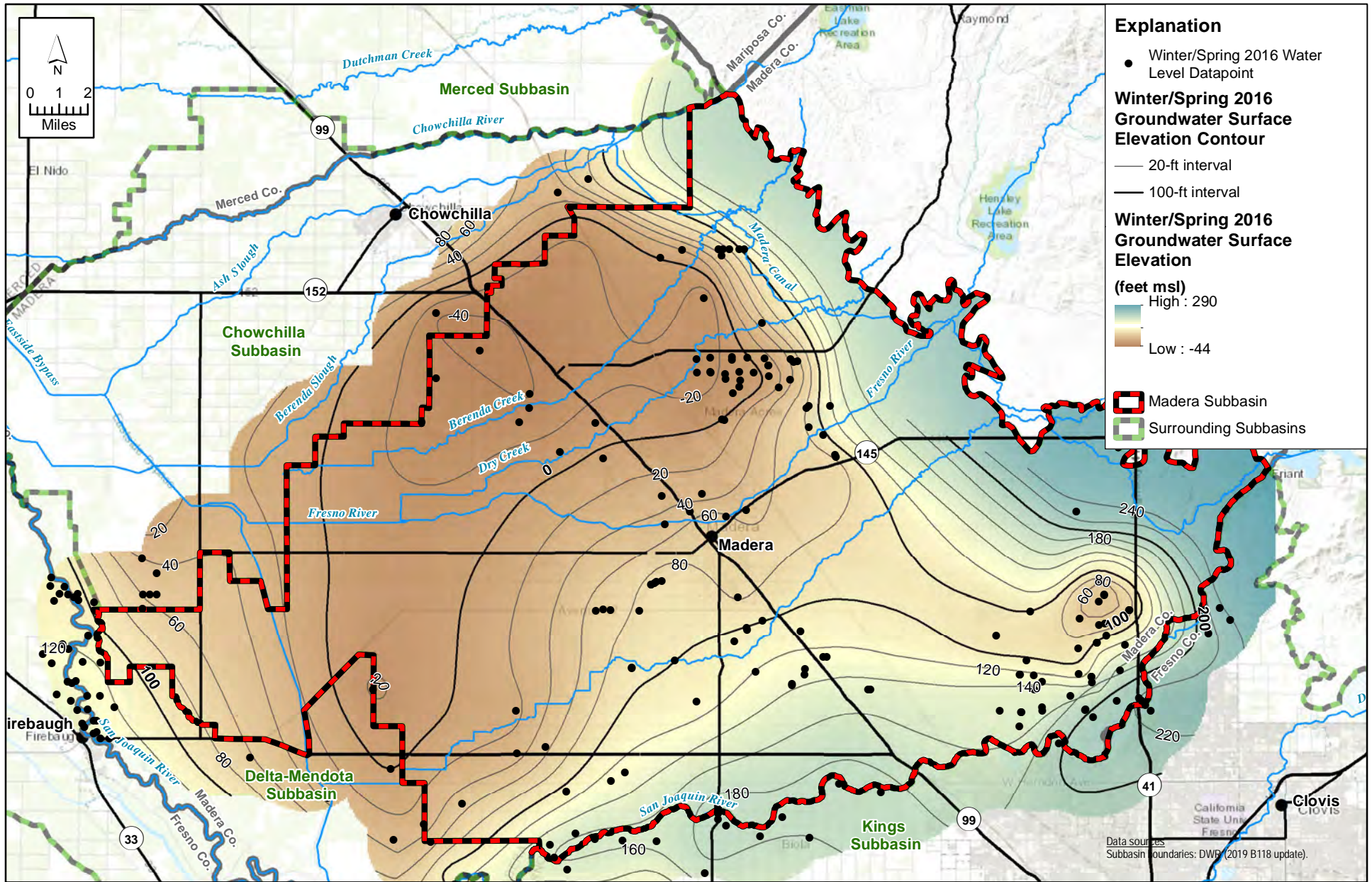


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**FIGURE 2-49**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2014 - Unconfined Groundwater**

Madera Subbasin  
 Groundwater Sustainability Plan

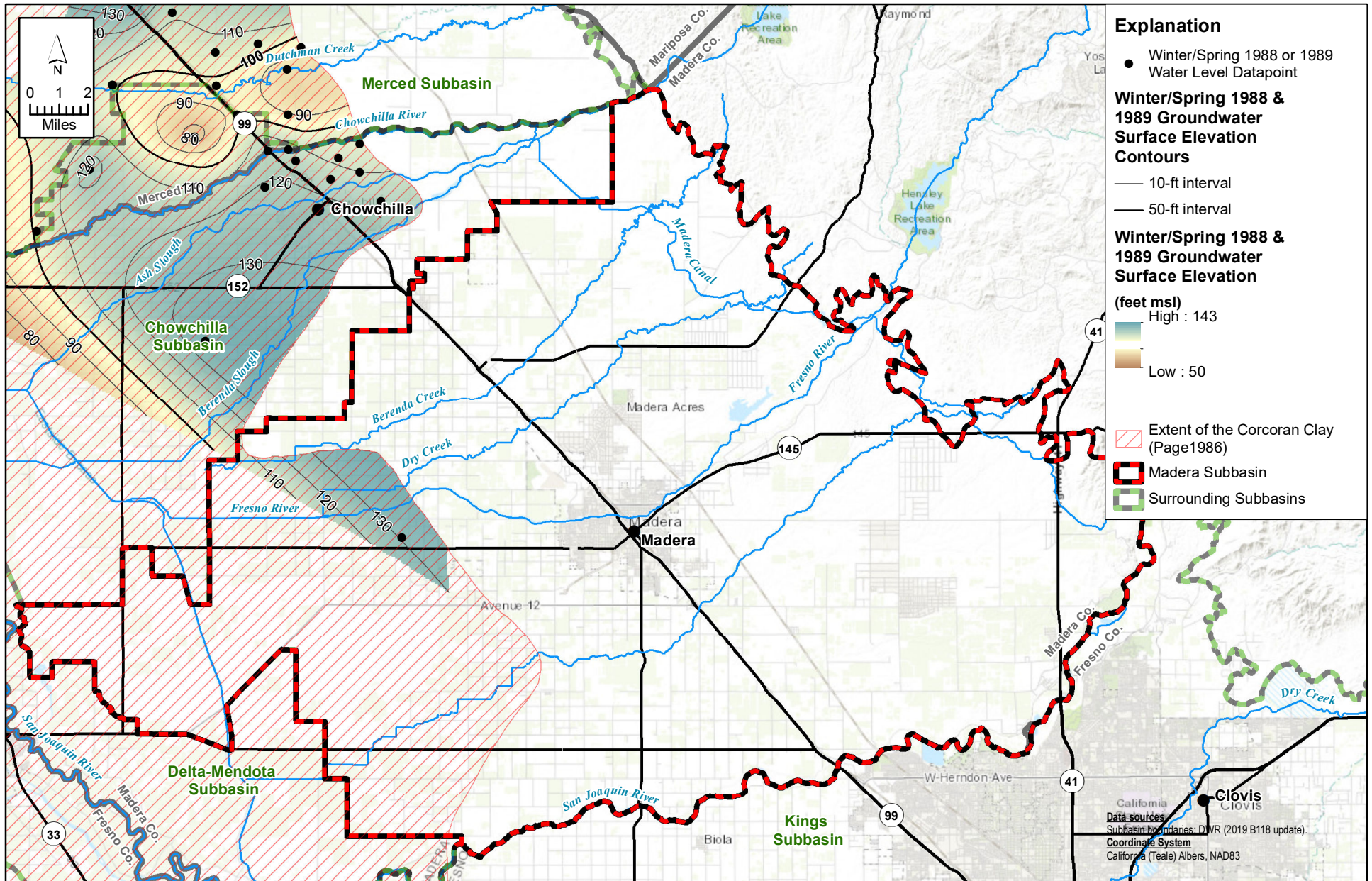


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-X Madera Subbasin SpW2016 GWEL Contours\_Unconfined.mxd



**FIGURE 2-50**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2016 - Unconfined Groundwater**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

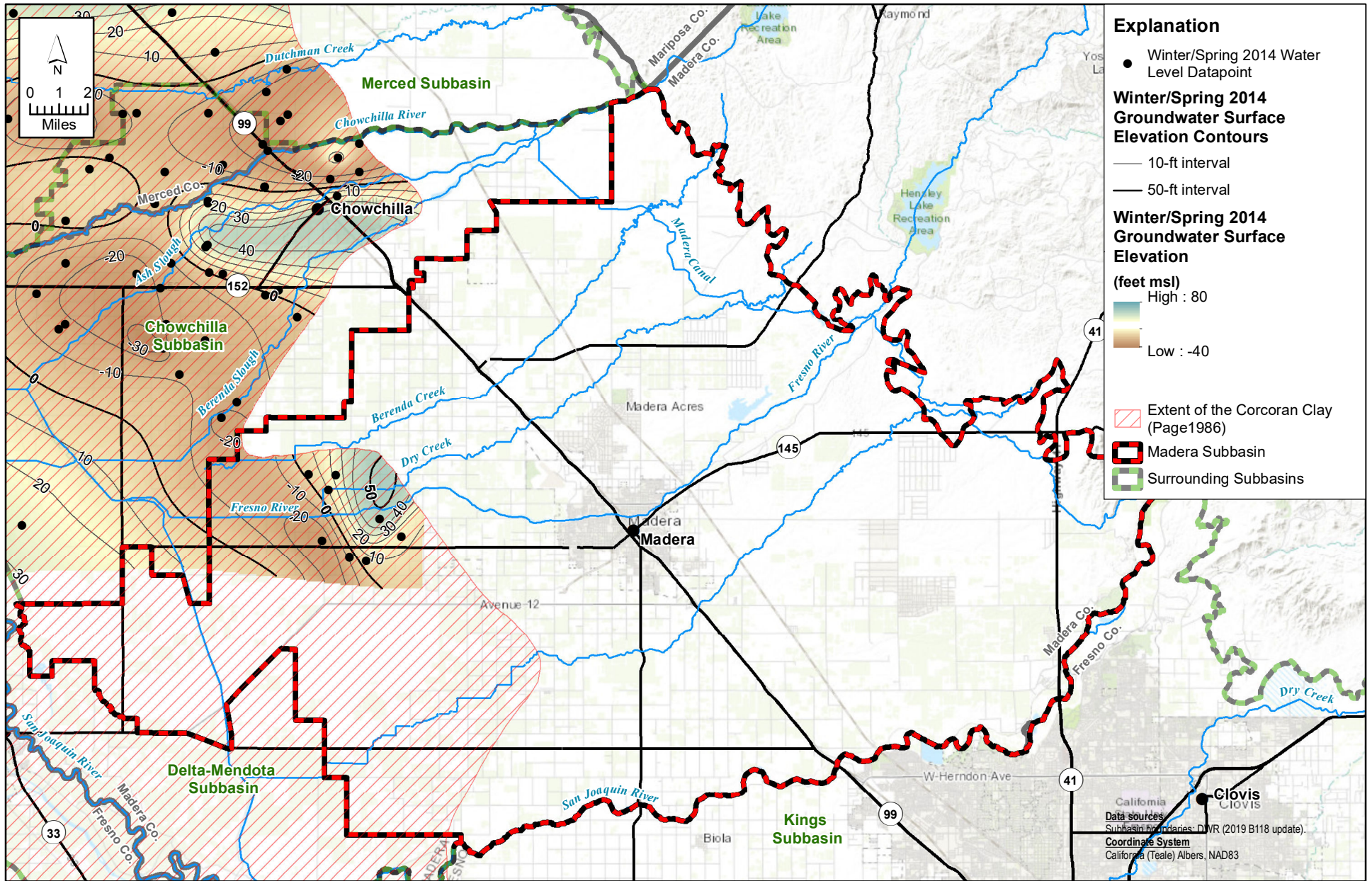


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**FIGURE 2-51**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 1988 and 1989 - Lower Aquifer within Corcoran Clay**

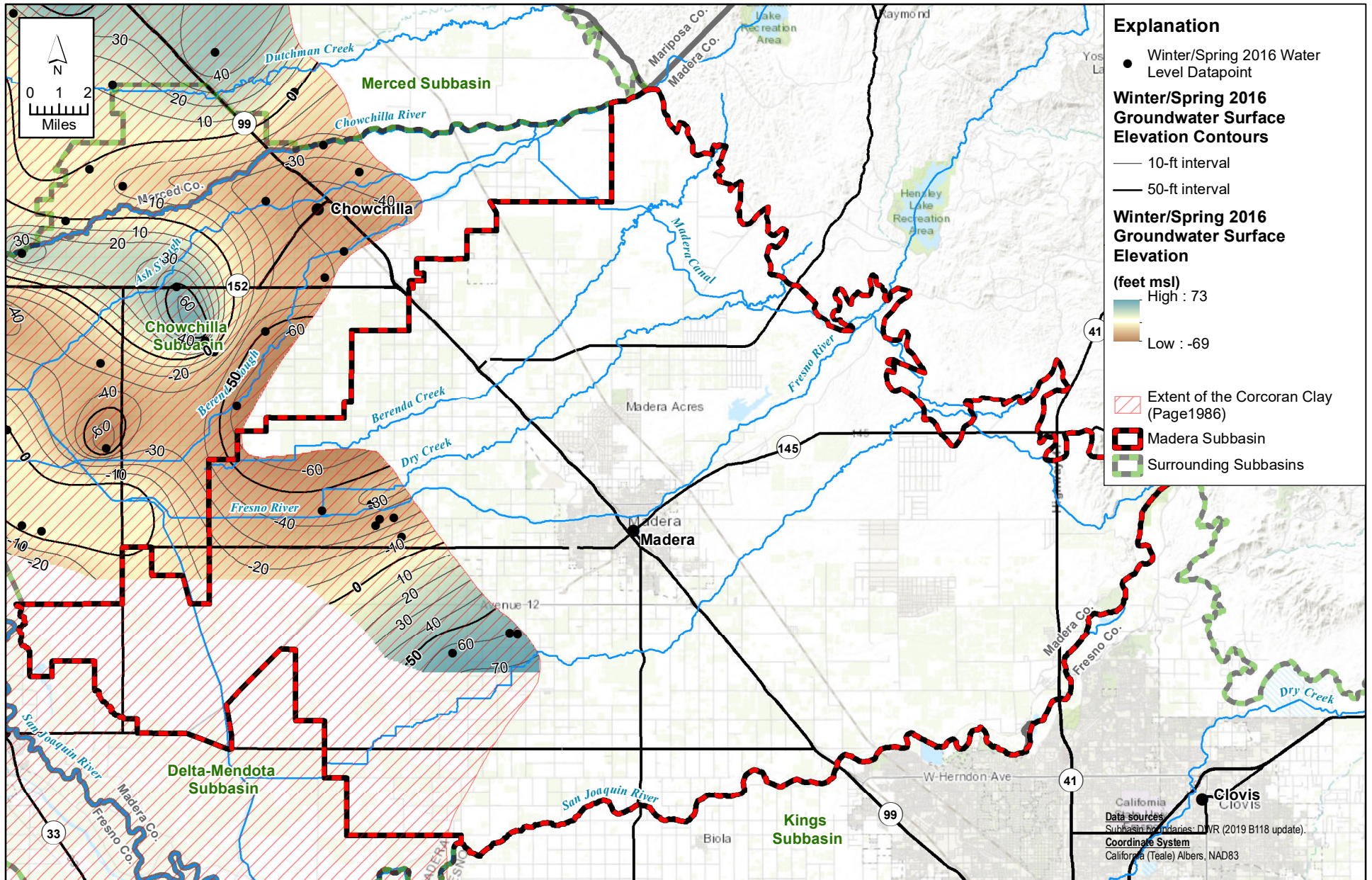
*Madera Subbasin*  
*Groundwater Sustainability Plan*



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**FIGURE 2-52**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2014 - Lower Aquifer within Corcoran Clay**  
*Madera Subbasin*  
*Groundwater Sustainability Plan*



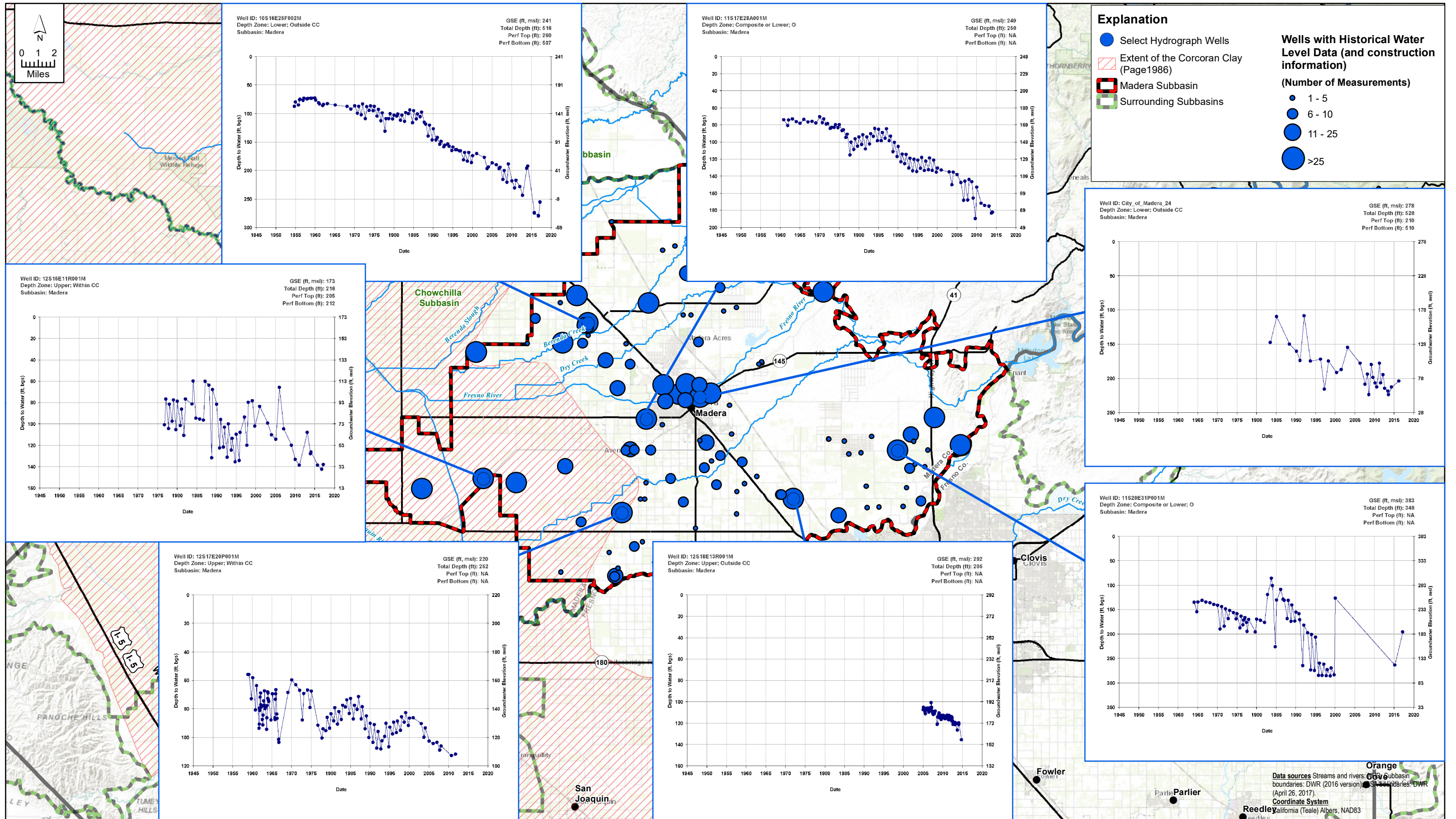


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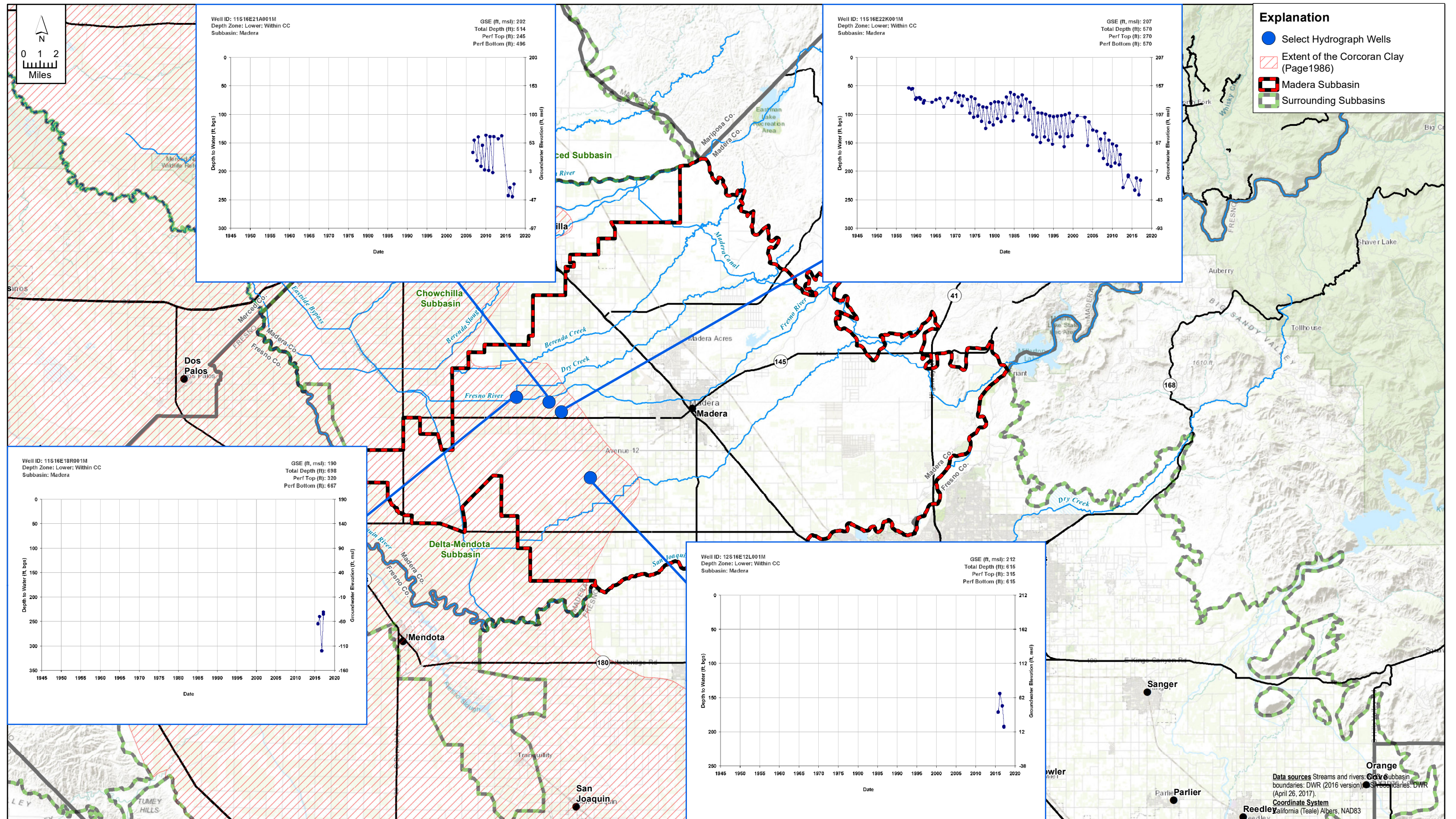
**FIGURE 2-53**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2016 - Lower Aquifer within Corcoran Clay**  
*Madera Subbasin*  
*Groundwater Sustainability Plan*





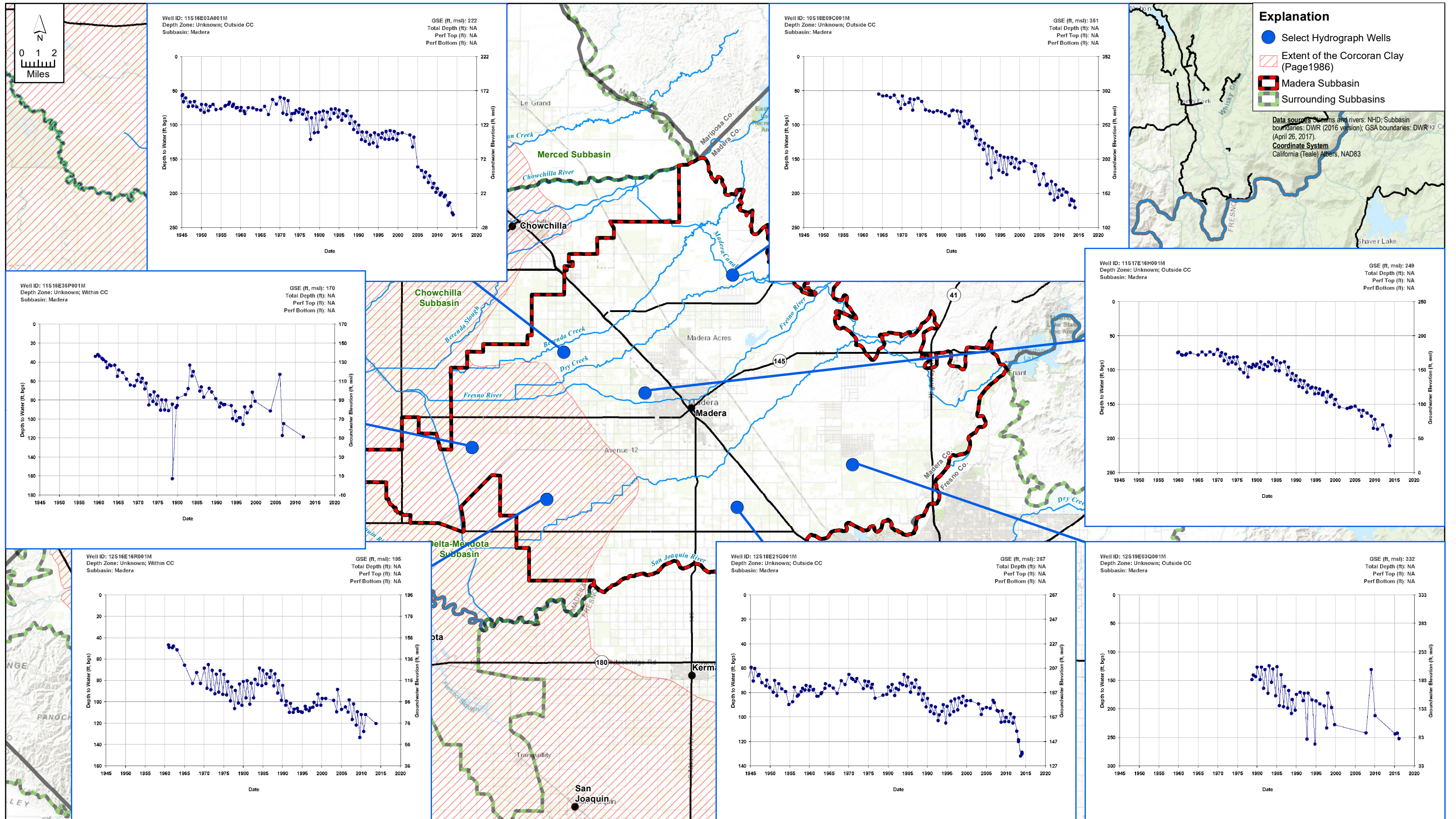
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-53 Madera Subbasin GW Level Hydrographs\_Upper.mxd

**FIGURE 2-54**  
**Select Groundwater Level Hydrographs:**  
**Outside the Corcoran Clay or Upper Aquifer within the Corcoran Clay**  
 Madera Subbasin  
 Groundwater Sustainability Plan

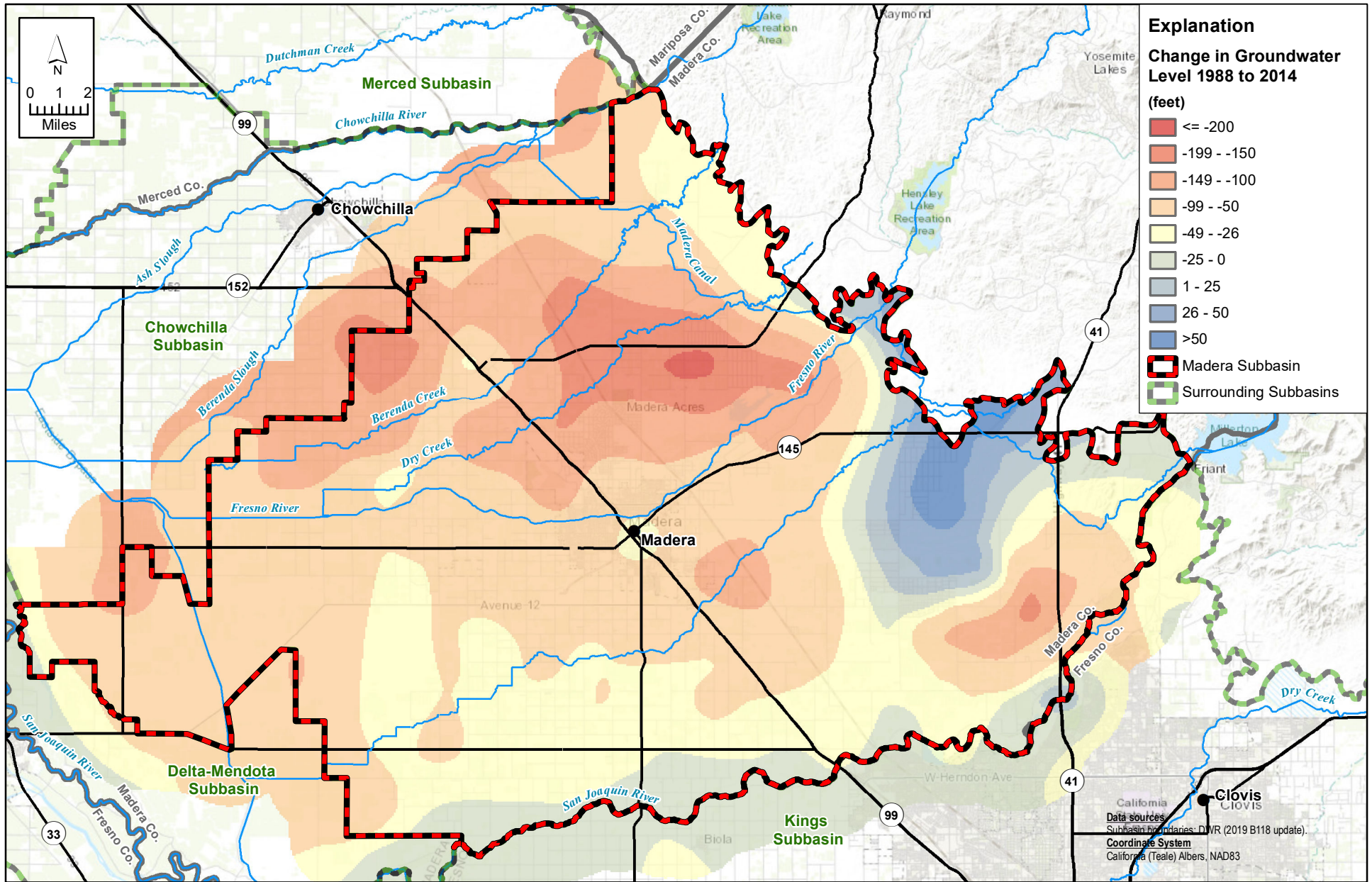


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-54 Madera Subbasin GW Level Hydrographs\_Lower.mxd

**FIGURE 2-55**  
**Select Groundwater Level Hydrographs:**  
**Lower Aquifer within the Corcoran Clay**  
 Madera Subbasin  
 Groundwater Sustainability Plan



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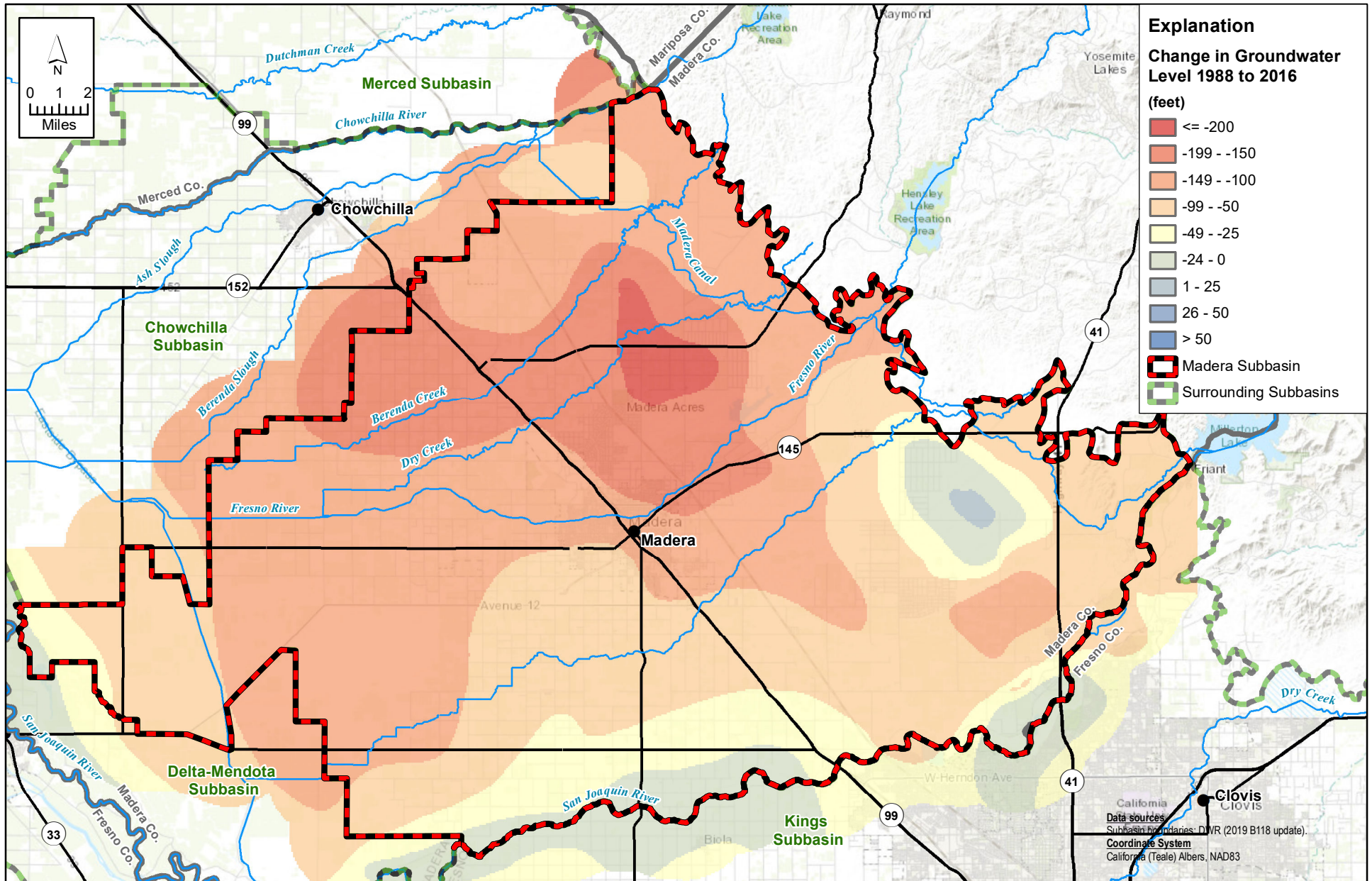


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-56 Madera Subbasin SpW1988 to 2014 GWEL Change\_Unconfined.mxd



**FIGURE 2-57**  
**Groundwater Level Change Map:**  
**Winter/Spring 1988 to 2014 - Unconfined Groundwater**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

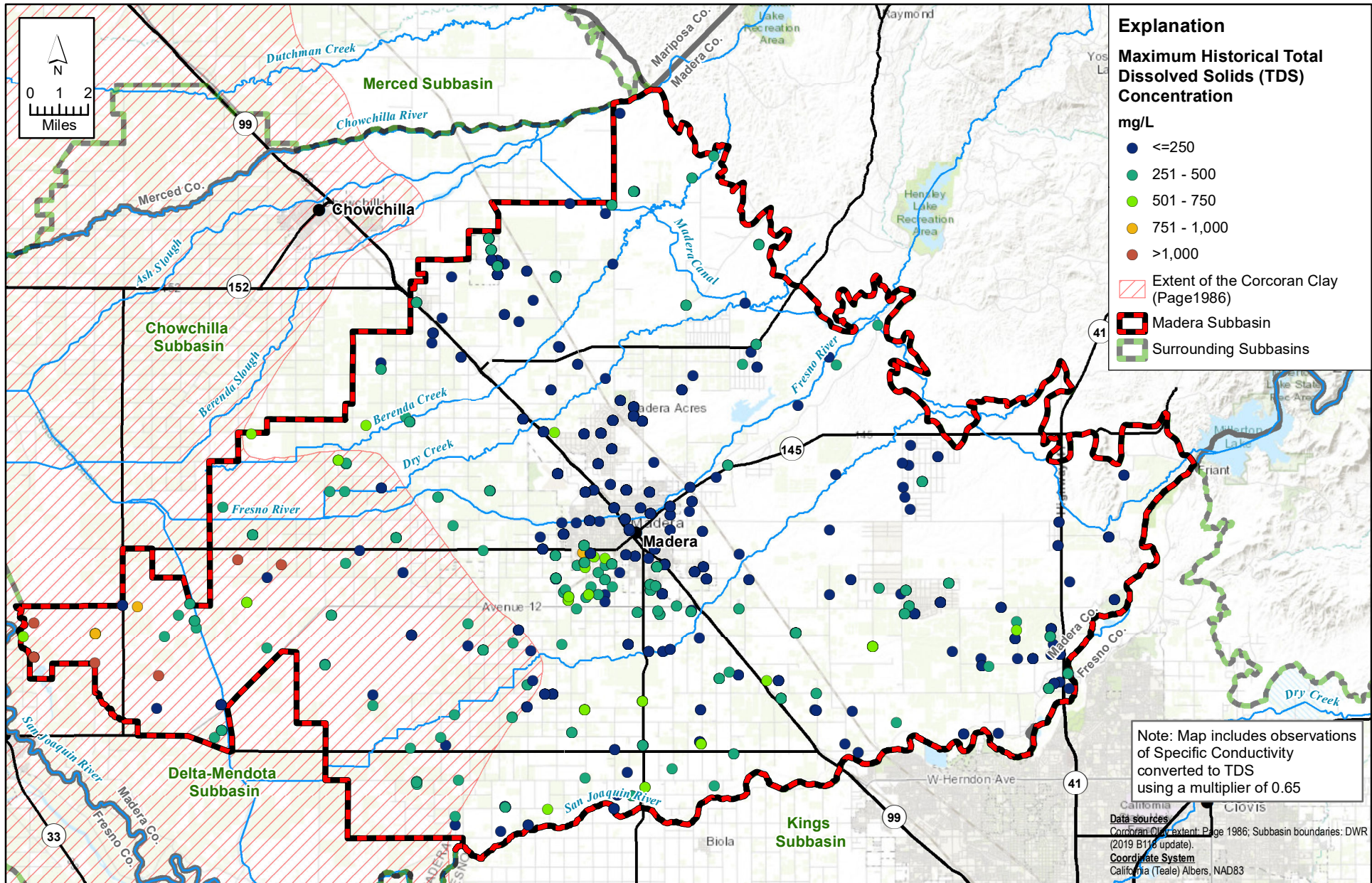


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**FIGURE 2-58**  
**Groundwater Level Change Map:**  
**Winter/Spring 1988 to 2016 - Unconfined Groundwater**

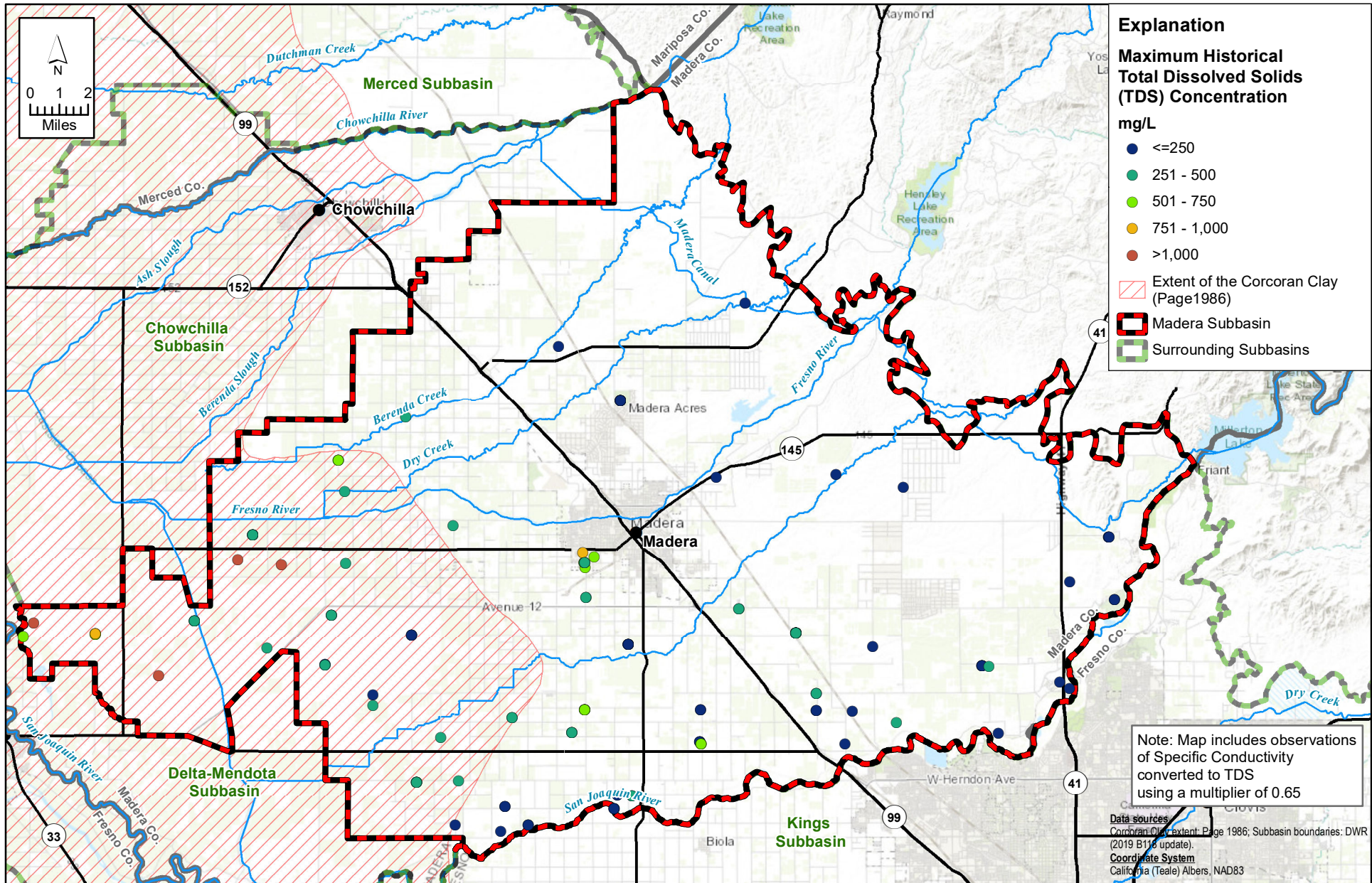
*Madera Subbasin*  
*Groundwater Sustainability Plan*



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-58 Madera Subbasin GW Quality Map TDS All Wells\_20190708.mxd

**FIGURE 2-59**  
**Groundwater Quality Map: Total Dissolved Solids Concentrations in All Wells**



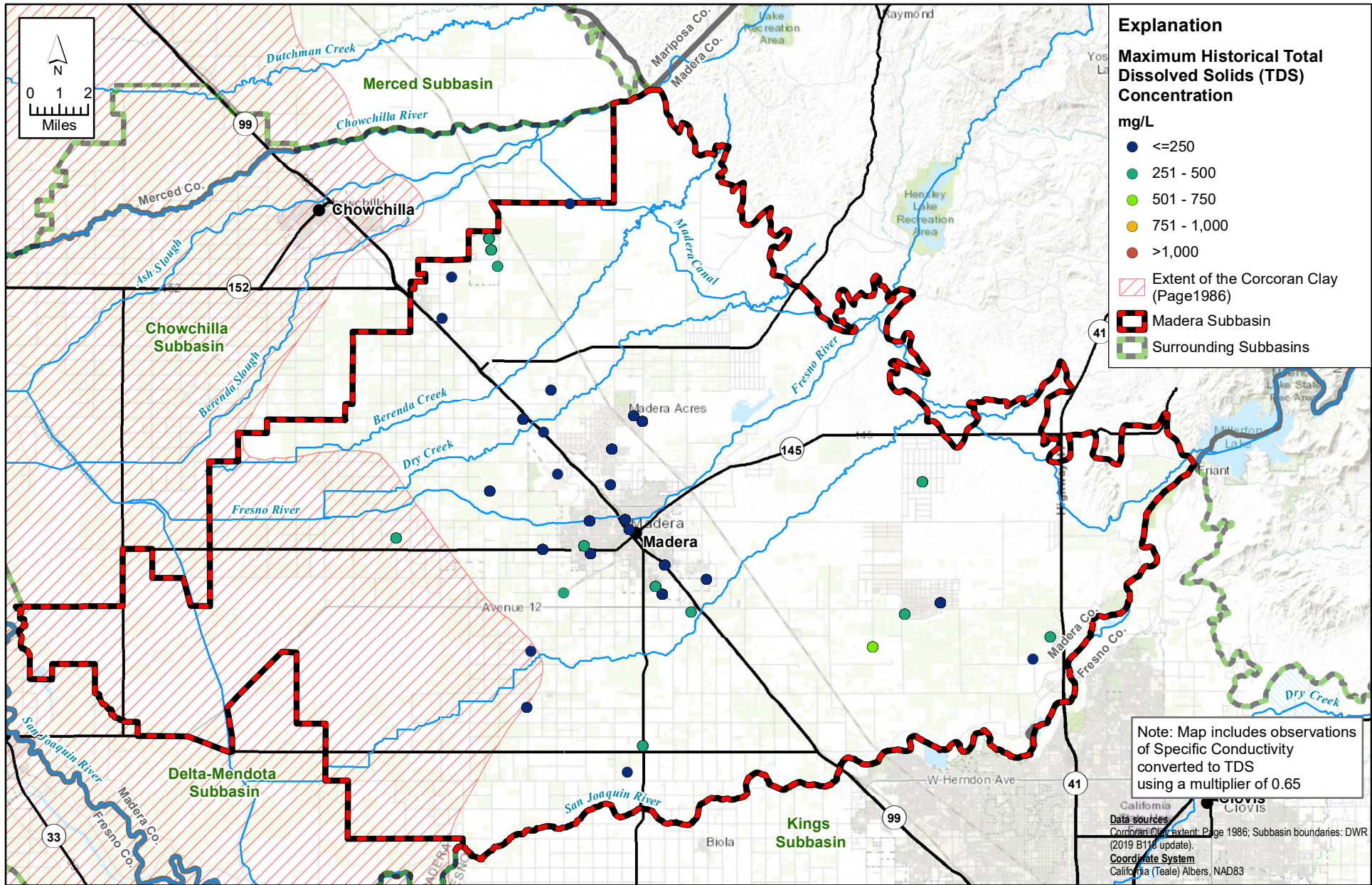


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-59 Madera Subbasin GW Quality Map TDS Upper\_20190708.mxd

**FIGURE 2-60**  
**Groundwater Quality Map: Total Dissolved Solids Concentrations in Upper Aquifer Wells**

*Madera Subbasin  
 Groundwater Sustainability Plan*





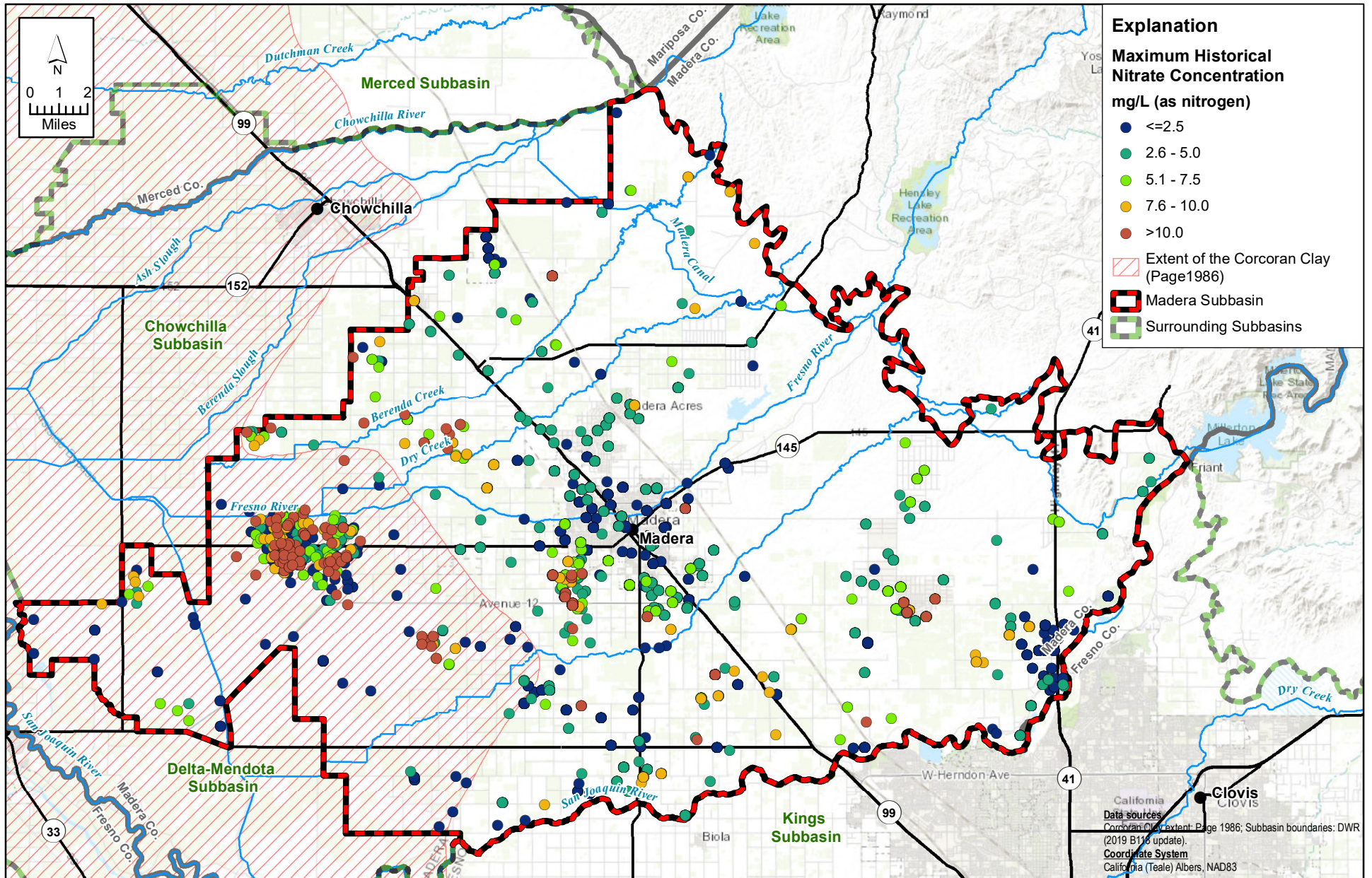
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-60 Madera Subbasin GW Quality Map TDS Lower\_20190708.mxd

**FIGURE 2-61**  
**Groundwater Quality Map: Total Dissolved Solids Concentrations in Lower Aquifer Wells**

Madera Subbasin  
 Groundwater Sustainability Plan





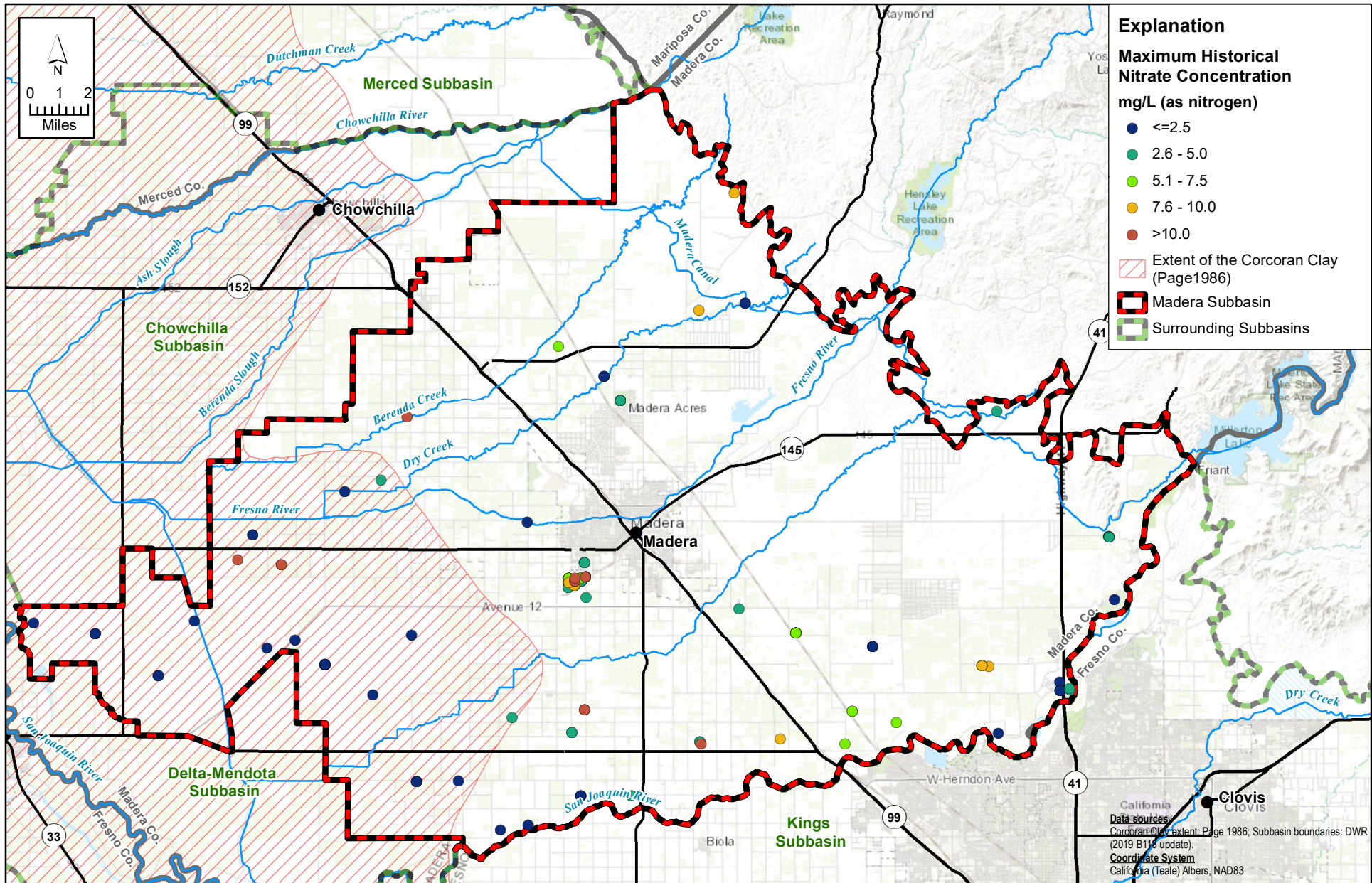


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-61 Madera Subbasin GW Quality Map Nitrate All Wells\_20190708.mxd



**FIGURE 2-62**  
**Groundwater Quality Map: Nitrate Concentrations**  
**in All Wells**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

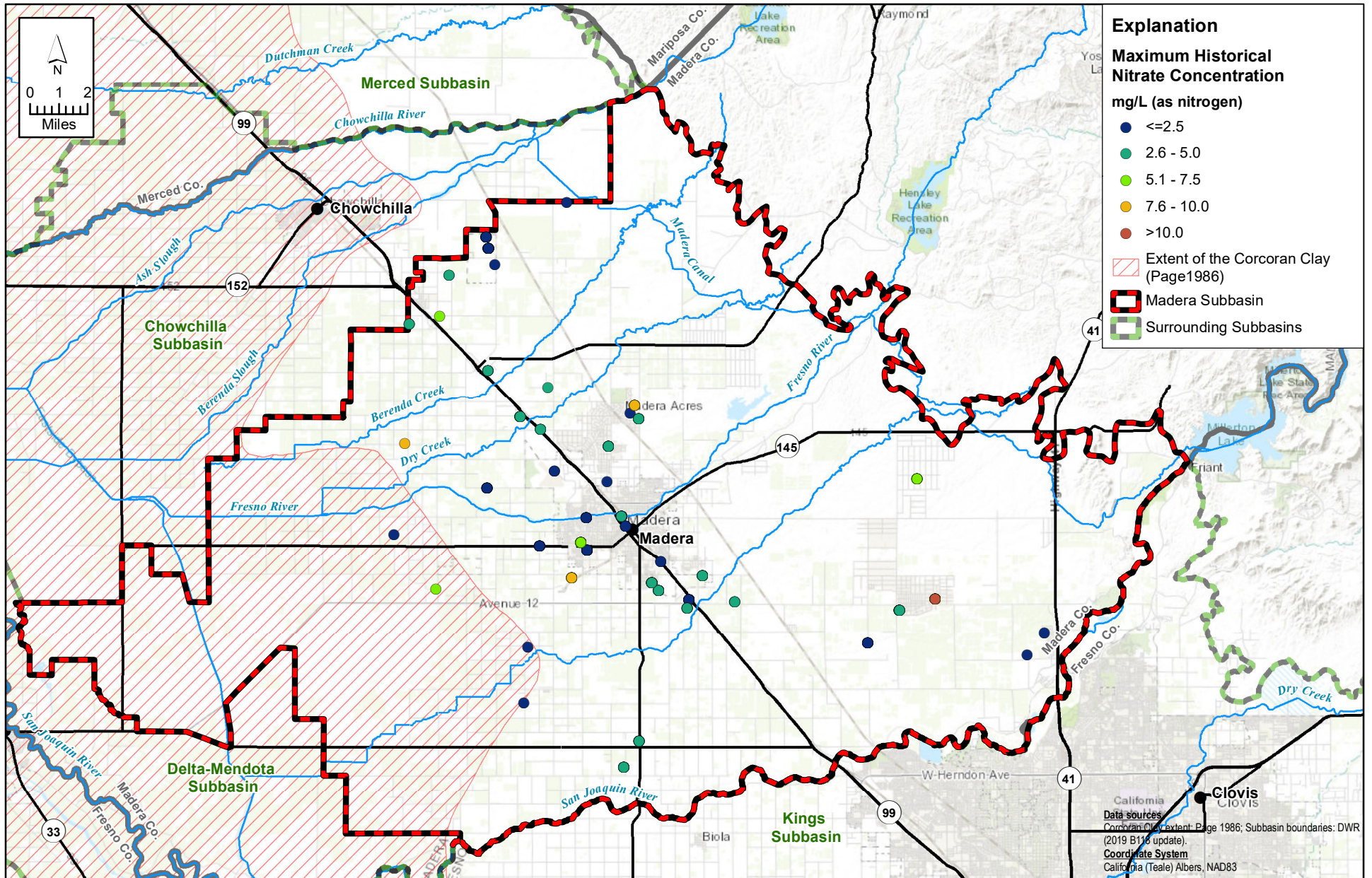


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-62 Madera Subbasin GW Quality Map Nitrate Upper\_20190708.mxd



**FIGURE 2-63**  
**Groundwater Quality Map: Nitrate Concentrations in Upper Aquifer Wells**

*Madera Subbasin  
 Groundwater Sustainability Plan*

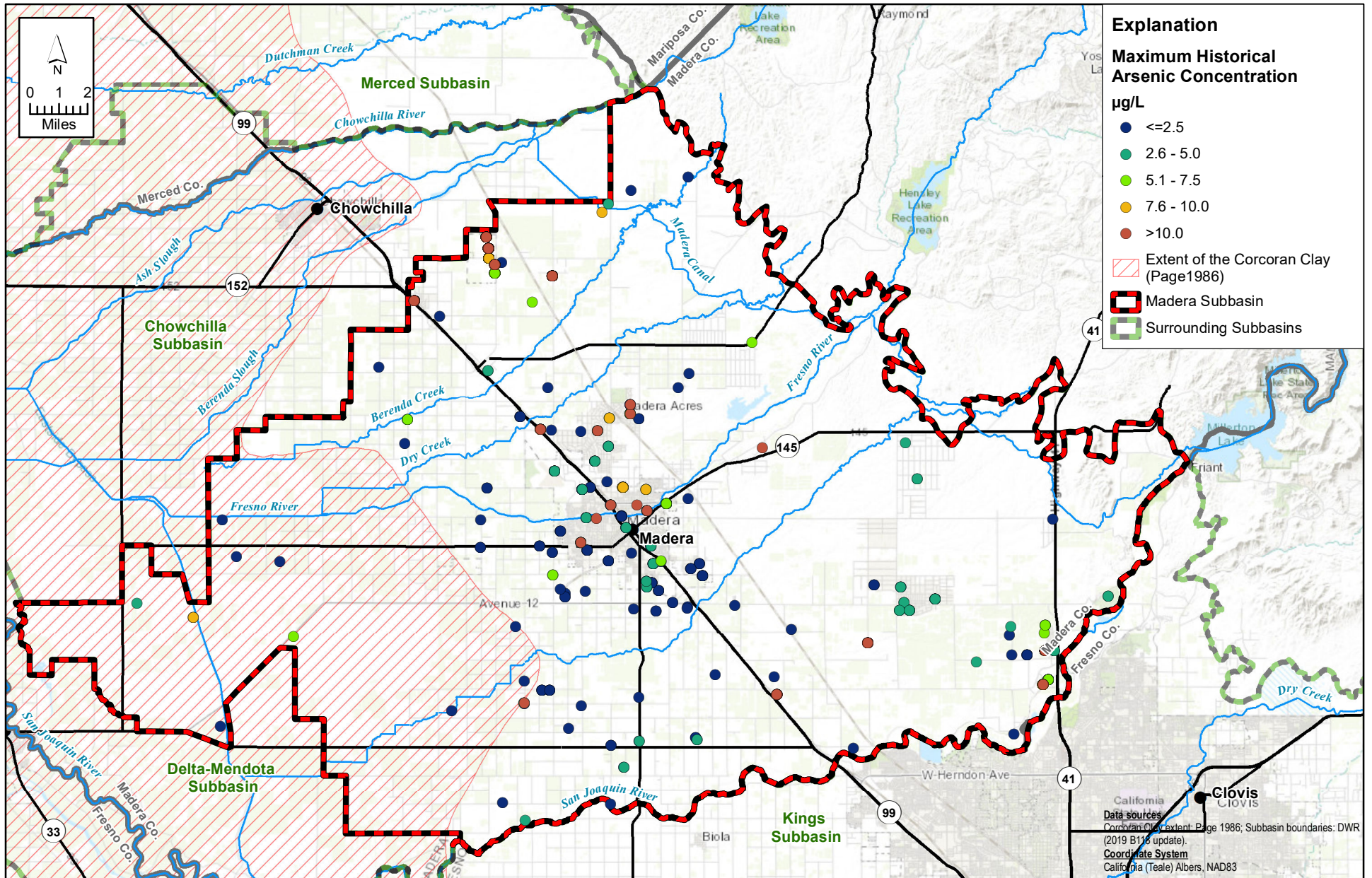


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**FIGURE 2-64**  
**Groundwater Quality Map: Nitrate Concentrations**  
**in Lower Aquifer Wells**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

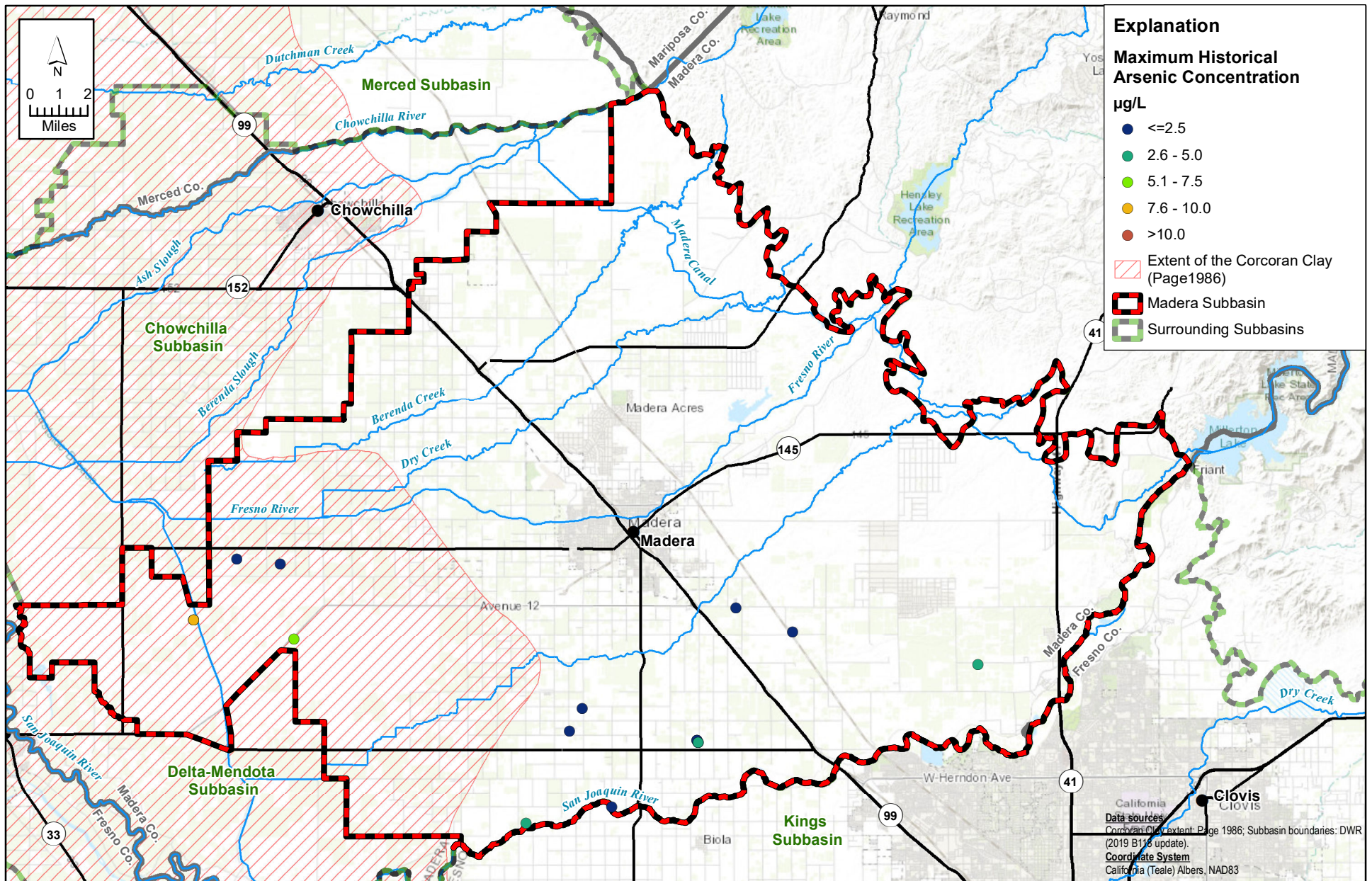


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-64 Madera Subbasin GW Quality Map Arsenic All Wells\_20190708.mxd



**FIGURE 2-65**  
**Groundwater Quality Map: Arsenic Concentrations**  
**in All Wells**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

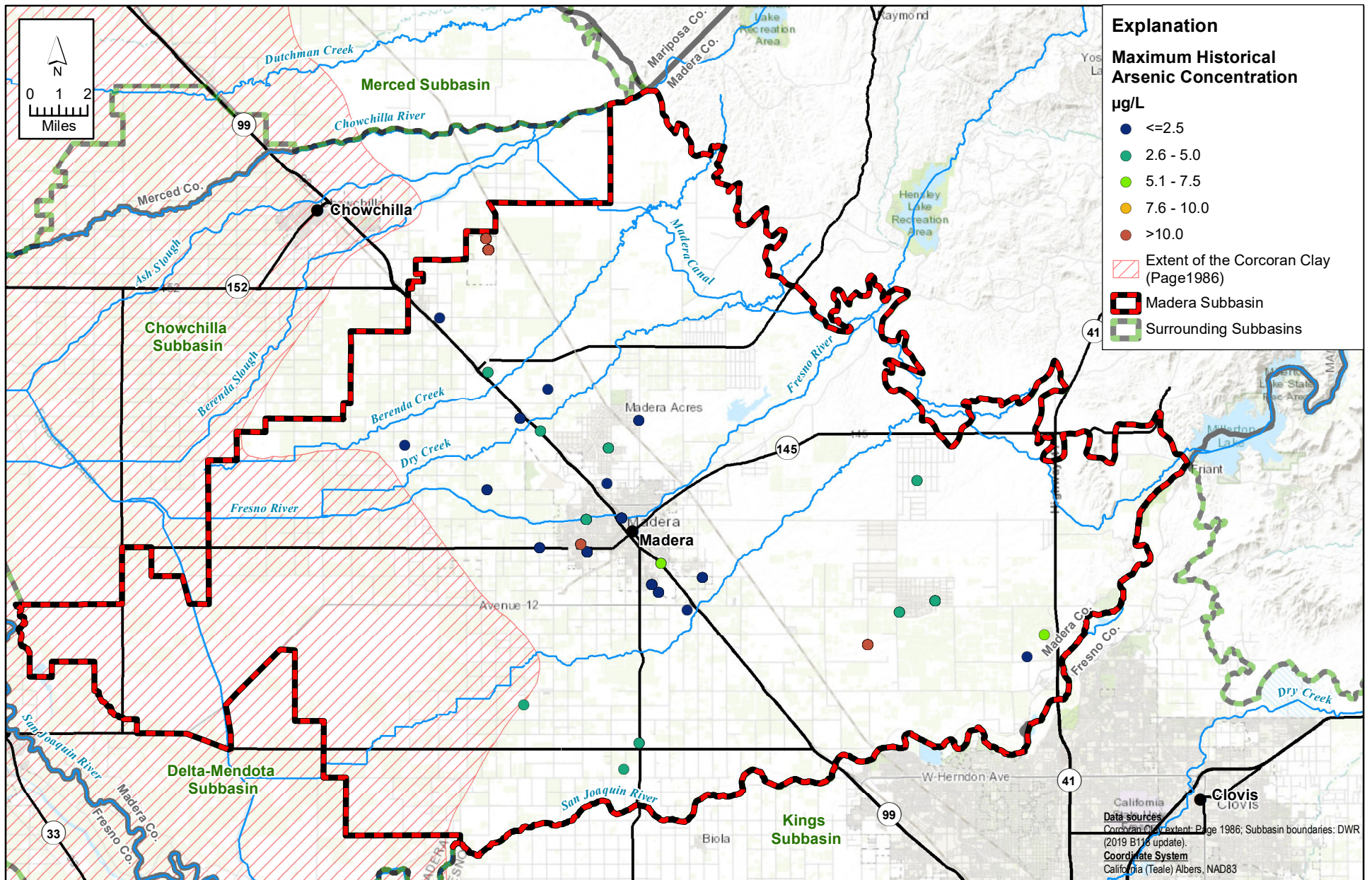


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**FIGURE 2-66**  
**Groundwater Quality Map: Arsenic Concentrations**  
**in Upper Aquifer Wells**

*Madera Subbasin*  
*Groundwater Sustainability Plan*



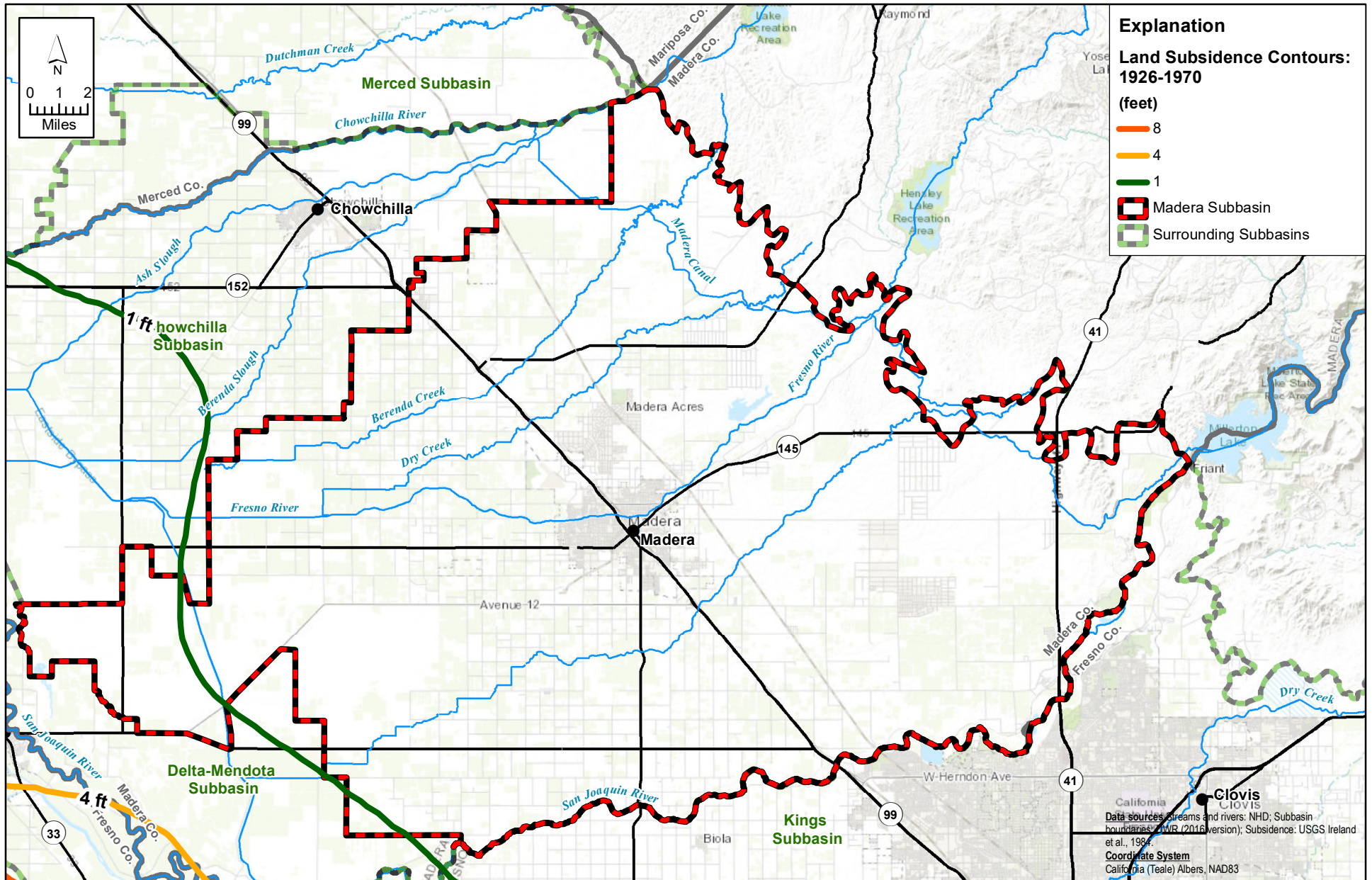


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**FIGURE 2-67**  
**Groundwater Quality Map: Arsenic Concentrations**  
**in Lower Aquifer Wells**

*Madera Subbasin*  
*Groundwater Sustainability Plan*



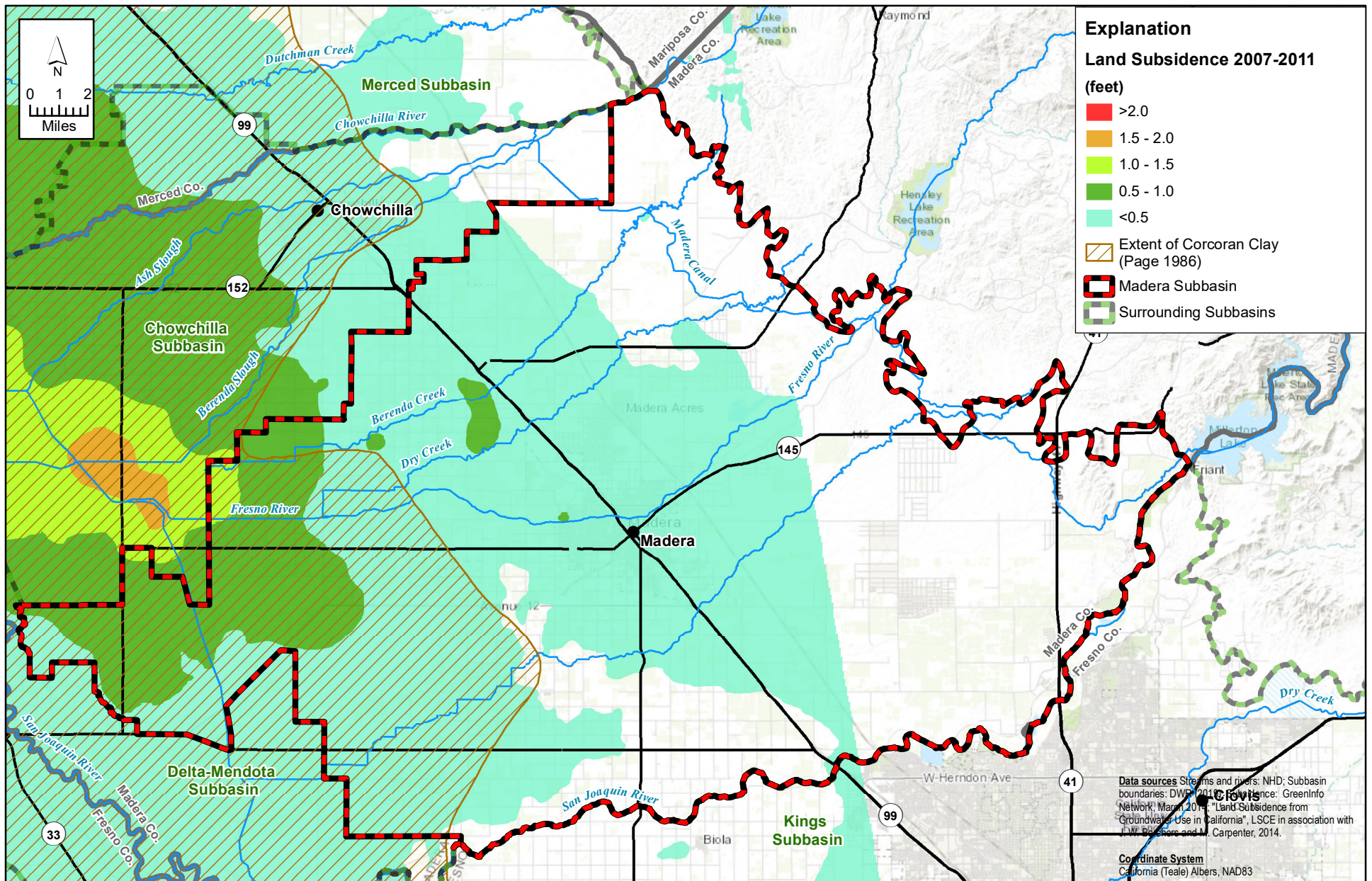
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-67 Madera Subbasin Land Subsidence 1926-1970.mxd

**FIGURE 2-68**



**Map of Historical Land Subsidence Contours: 1926-1970**

*Madera Subbasin  
Groundwater Sustainability Plan*



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-68 Madera Subbasin Land Subsidence 2007-2011.mxd

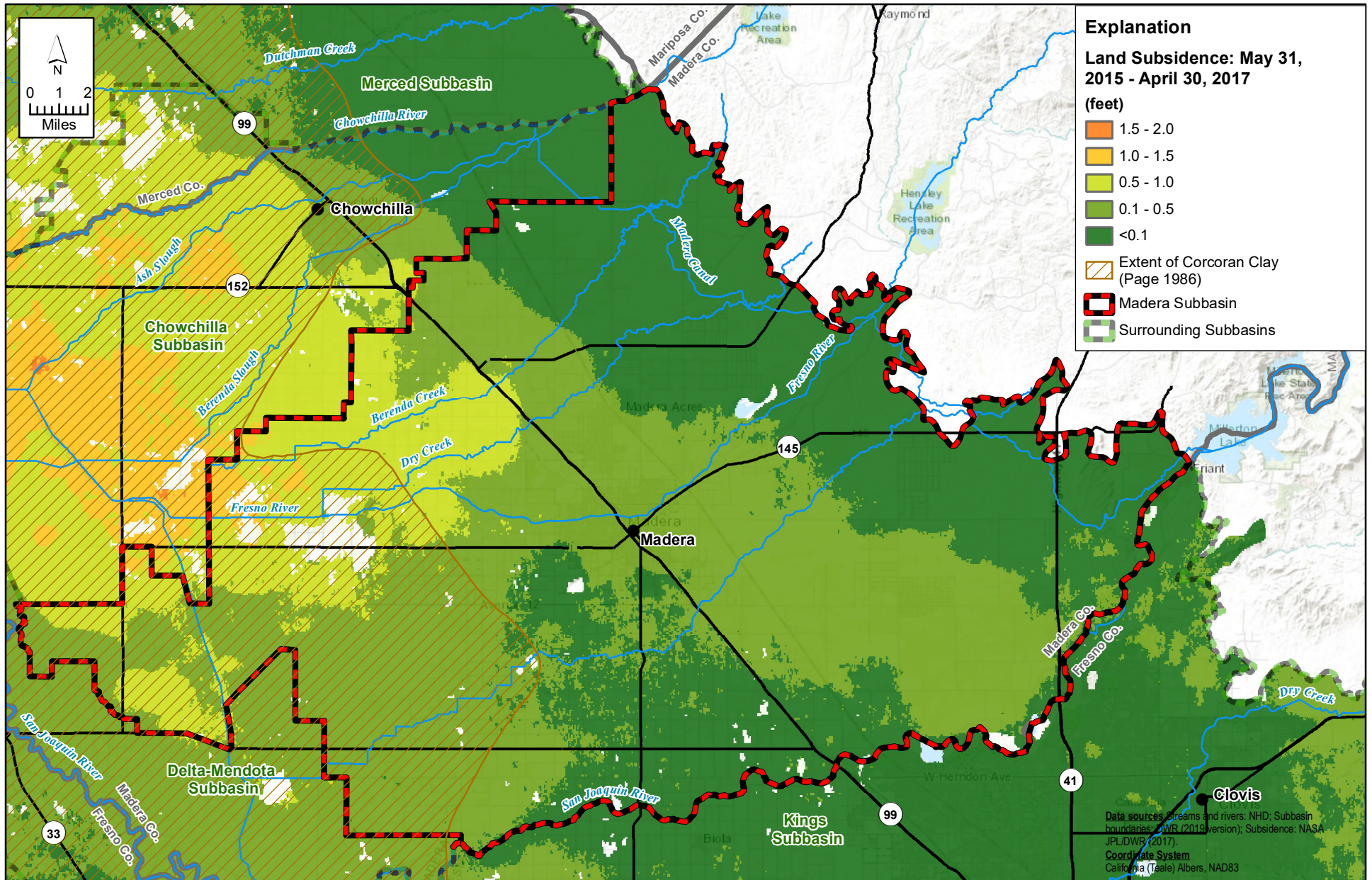
**FIGURE 2-69**



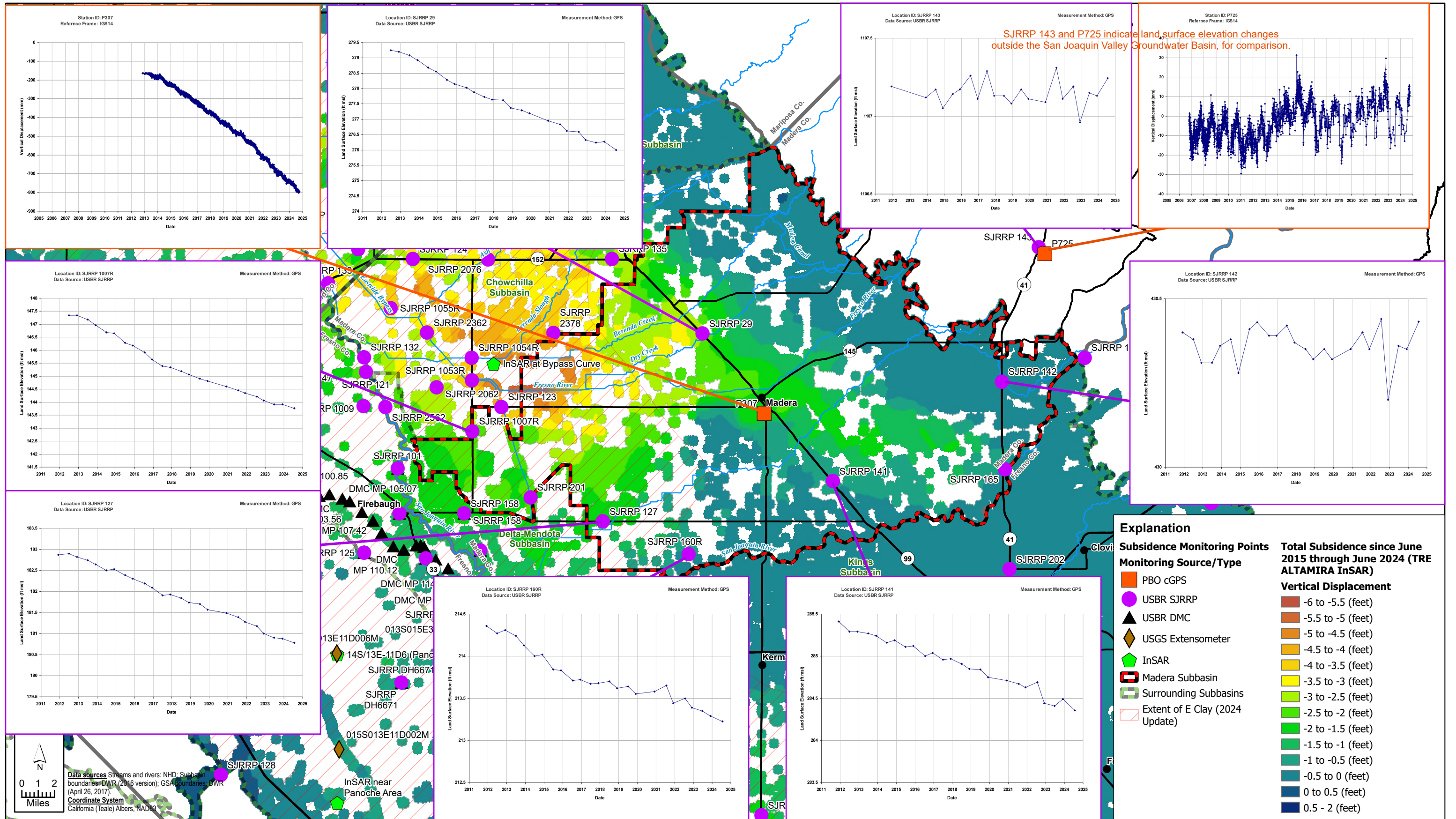
**Map of Historical Land Subsidence: 2007-2011**

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Groundwater Sustainability Plan





X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-69 Madera Subbasin Land Subsidence 2015-2017.mxd

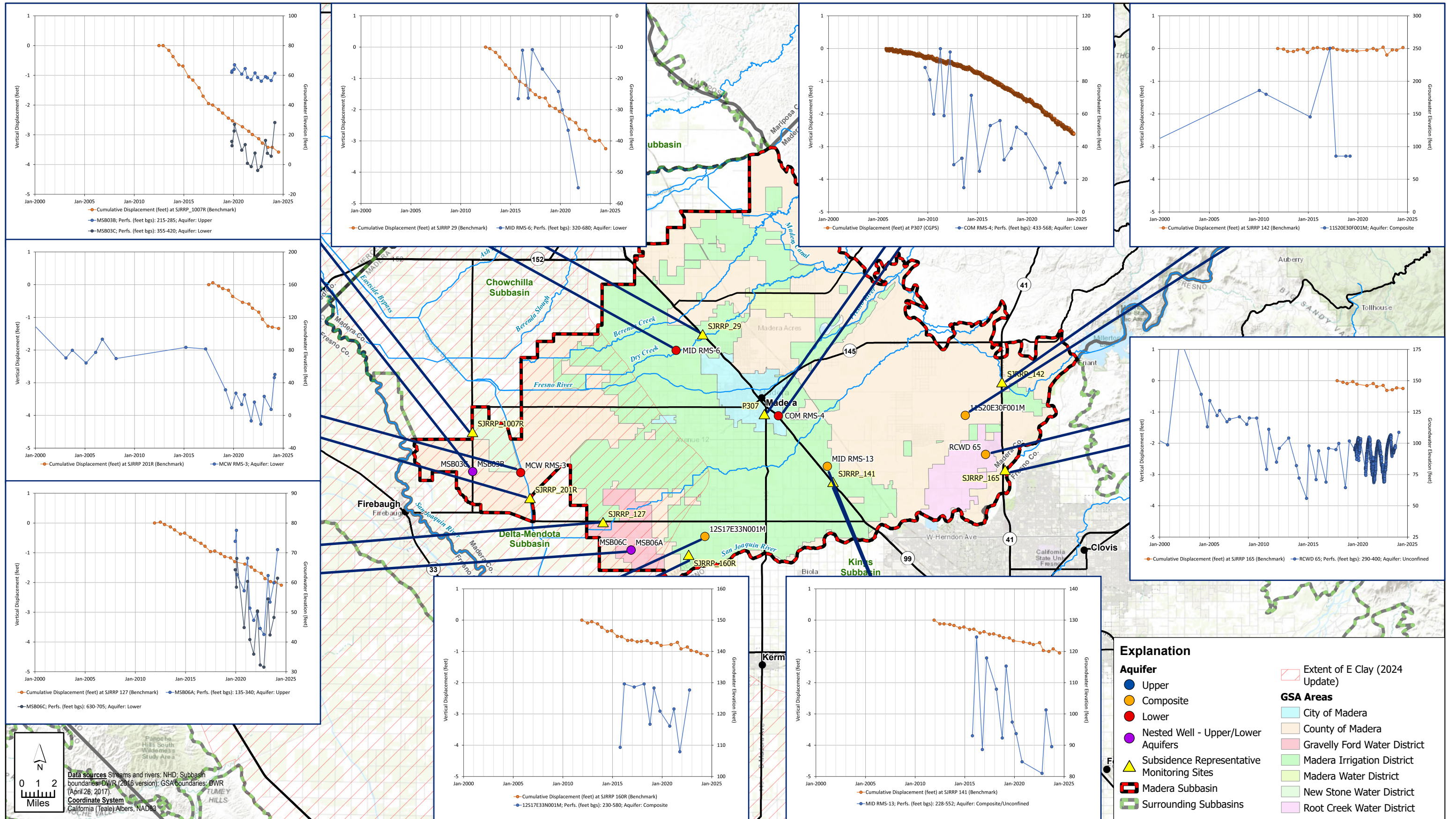


X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\GIS\MAD\_Five\_Year\_Update\MAD\_Five\_Year\_Update.aprx; Subsidence Monitoring

FIGURE 2-71

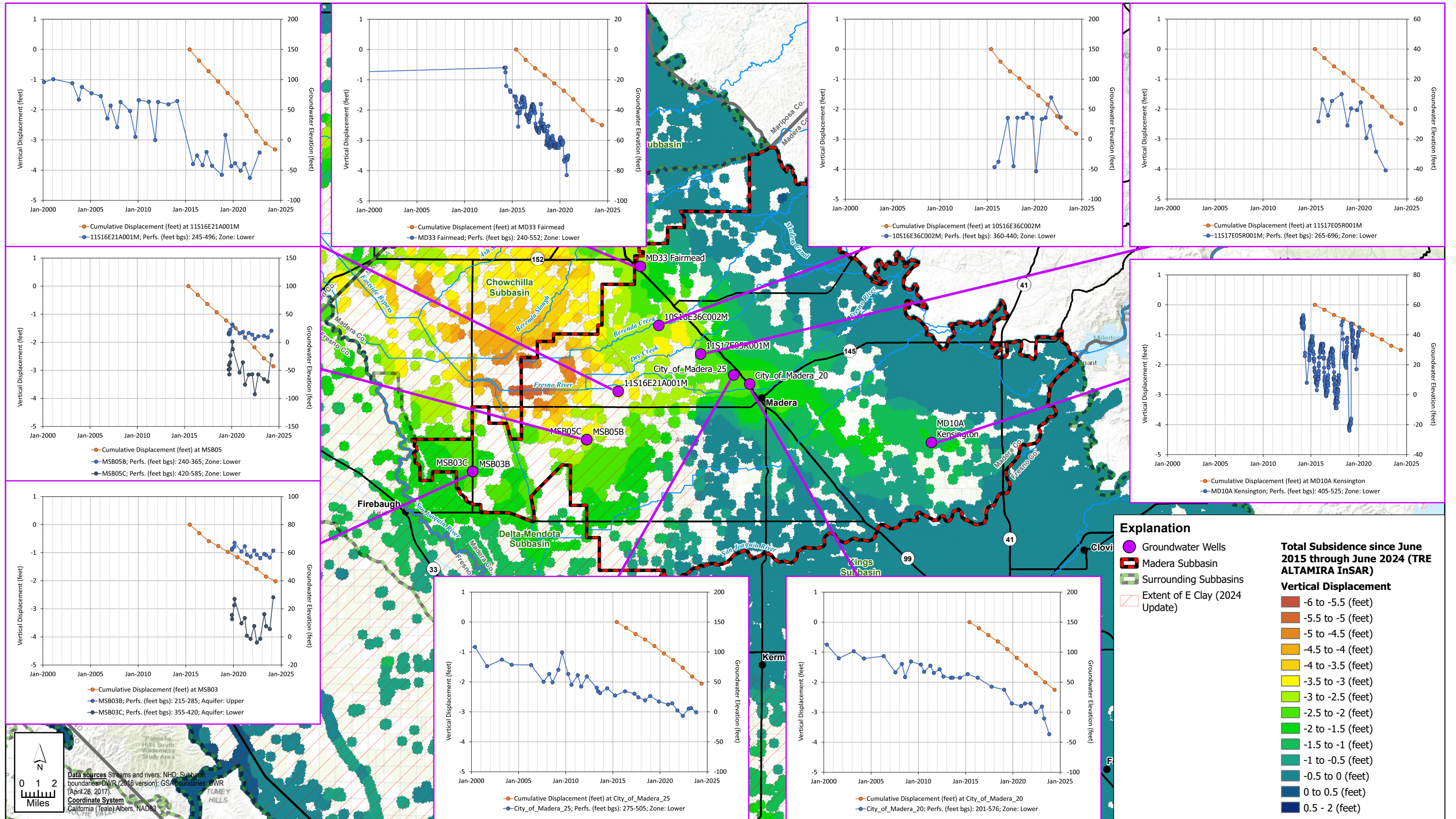
Map of Subsidence Monitoring Locations

Madera Subbasin  
Groundwater Sustainability Plan - First Plan Amendment



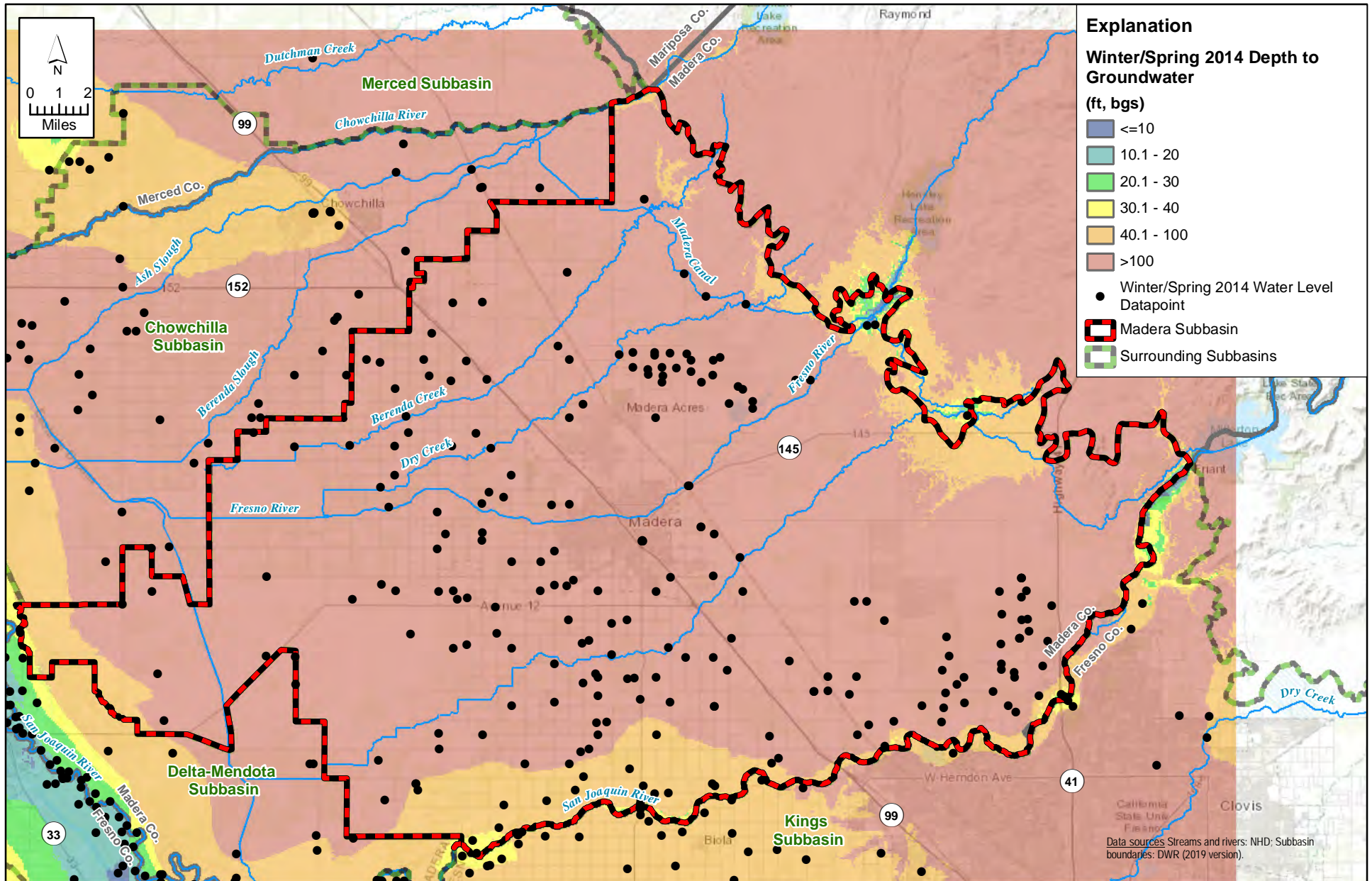
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\GIS\MAD\_Five\_Year\_Update\MAD\_Five\_Year\_Update.aprx; Subsidence Monitoring Point Trends with Water Levels

**FIGURE 2-72A**  
**Select Subsidence and Groundwater Level Hydrographs: SJRRP Benchmarks**



X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\GIS\MAD\_Five\_Year\_Update\MAD\_Five\_Year\_Update.aprx; Subsidence Monitoring InSAR Trends with Water Levels

**FIGURE 2-72B**  
**Select Subsidence and Groundwater Level Hydrographs: DWR Tre Altamira InSAR**

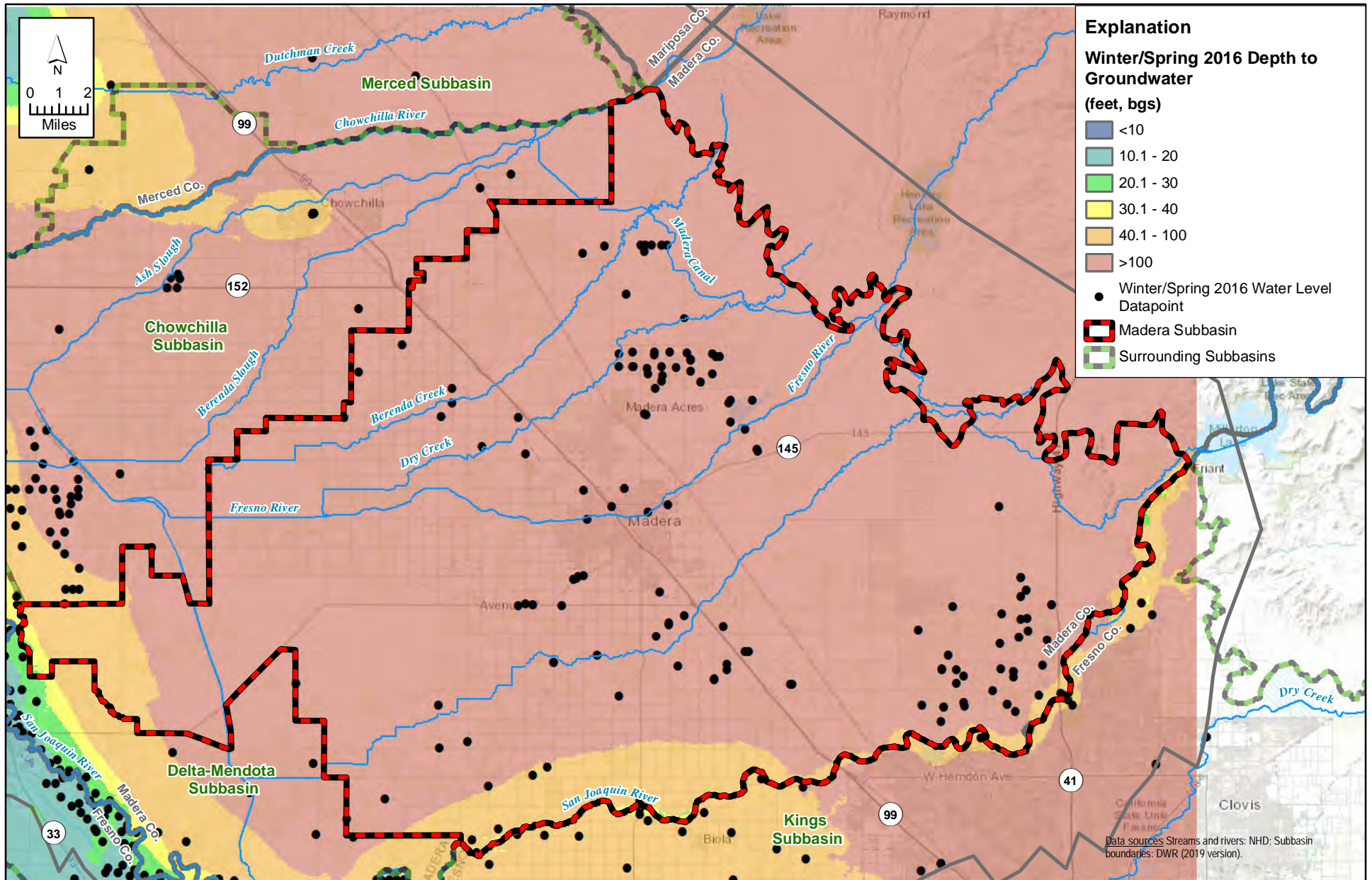


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-71 Madera Subbasin Unconfined Depth to Water Spring\Winter 2014.mxd



**FIGURE 2-73**  
**Map of Depth to Groundwater:**  
**Winter/Spring 2014 - Unconfined Groundwater**

*Madera Subbasin*  
*Groundwater Sustainability Plan*



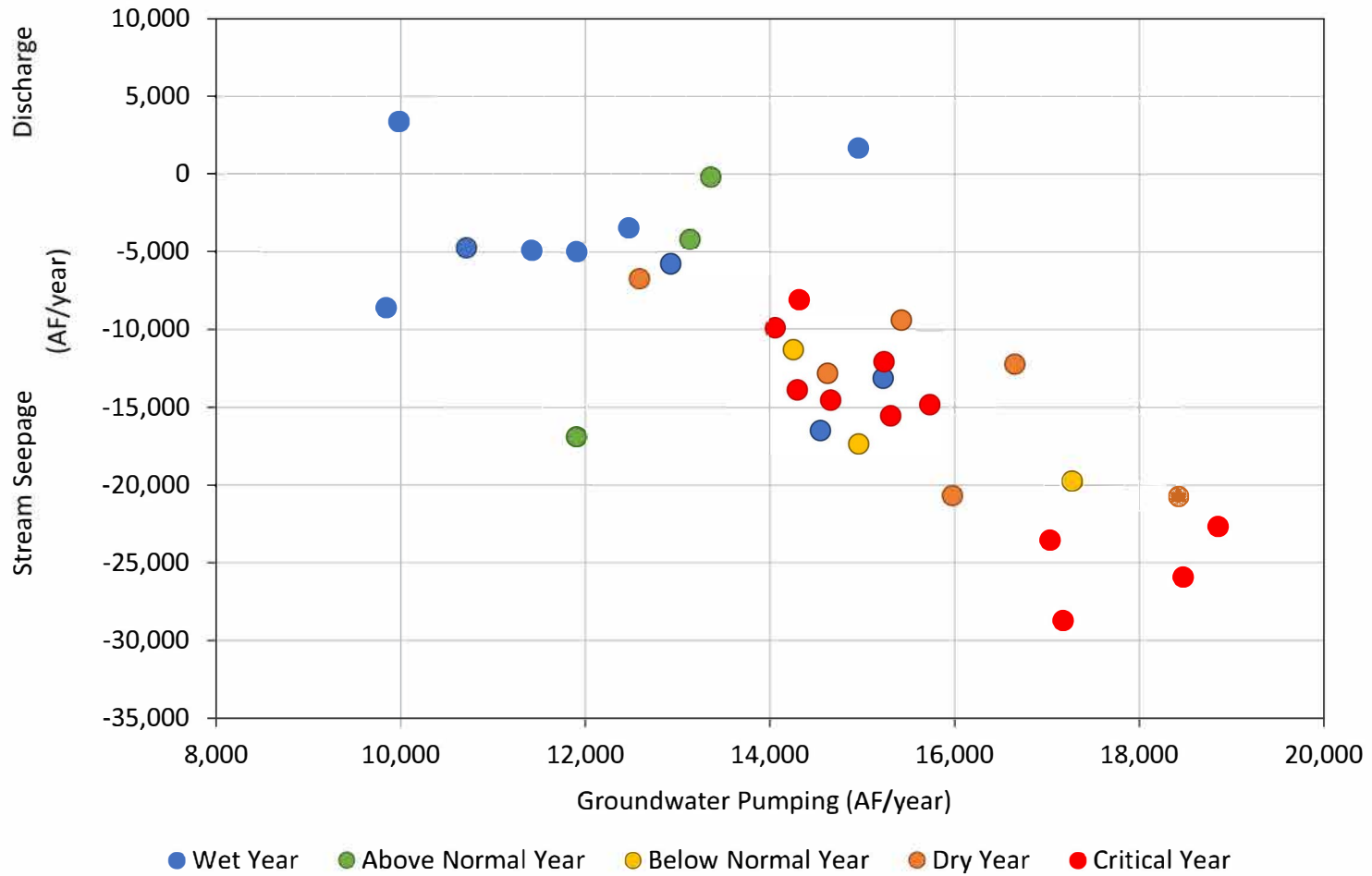
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-72 Madera Subbasin Unconfined Depth to Water Spring/Winter 2016.mxd



**FIGURE 2-74**  
**Map of Depth to Groundwater:**  
**Winter/Spring 2016 - Unconfined Groundwater**

*Madera Subbasin*  
*Groundwater Sustainability Plan*

### Groundwater Pumping along the San Joaquin River vs. Stream Seepage from the San Joaquin River



Data for chart from Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim)

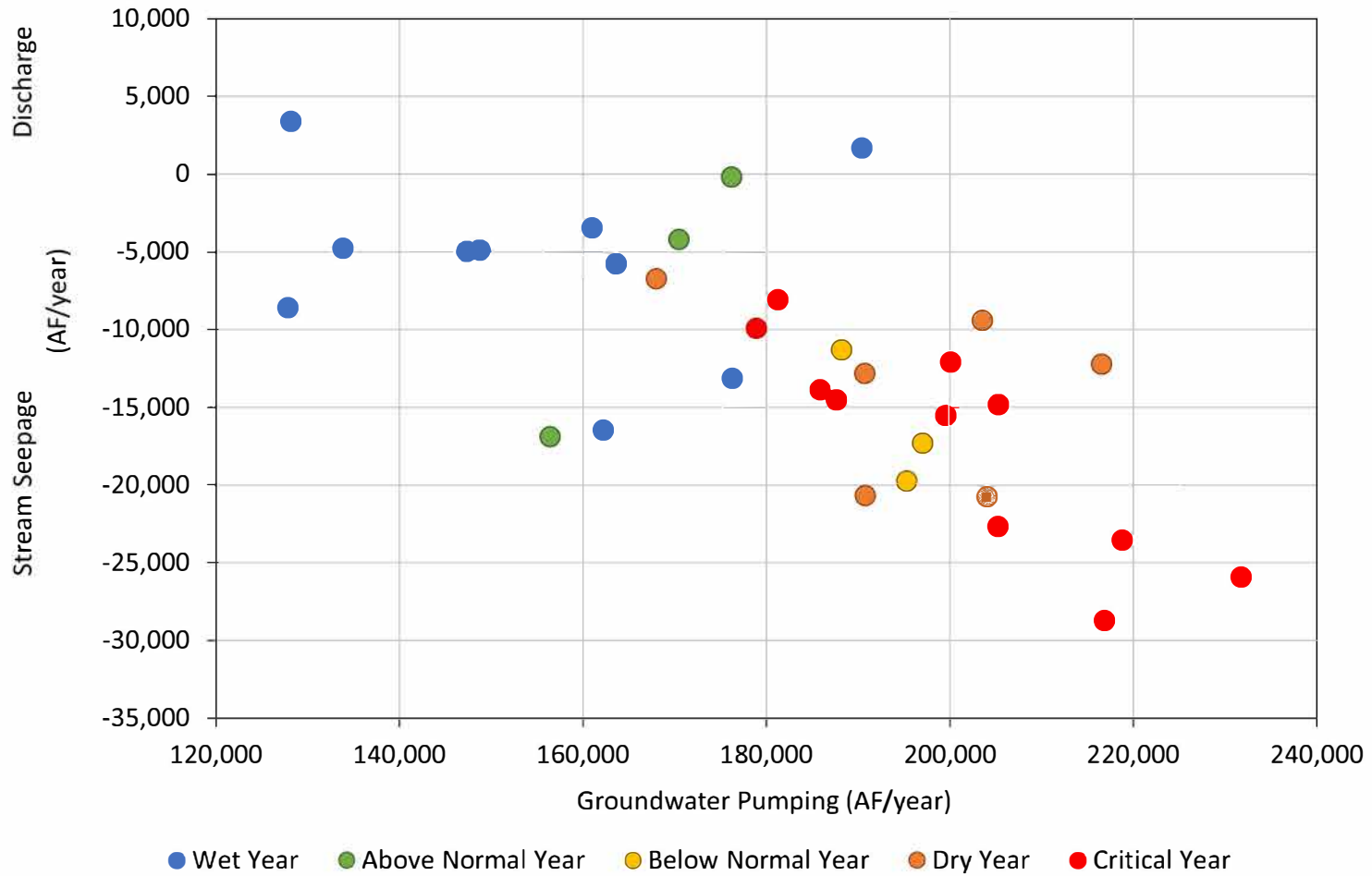
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**FIGURE 2-75**  
**Groundwater Pumping along the San Joaquin River vs.**  
**Stream Seepage from the San Joaquin River**

*Madera Subbasin  
Groundwater Sustainability Plan*

### Groundwater Pumping within 5 miles of the San Joaquin River vs. Stream Seepage from the San Joaquin River



Data for chart from Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim)

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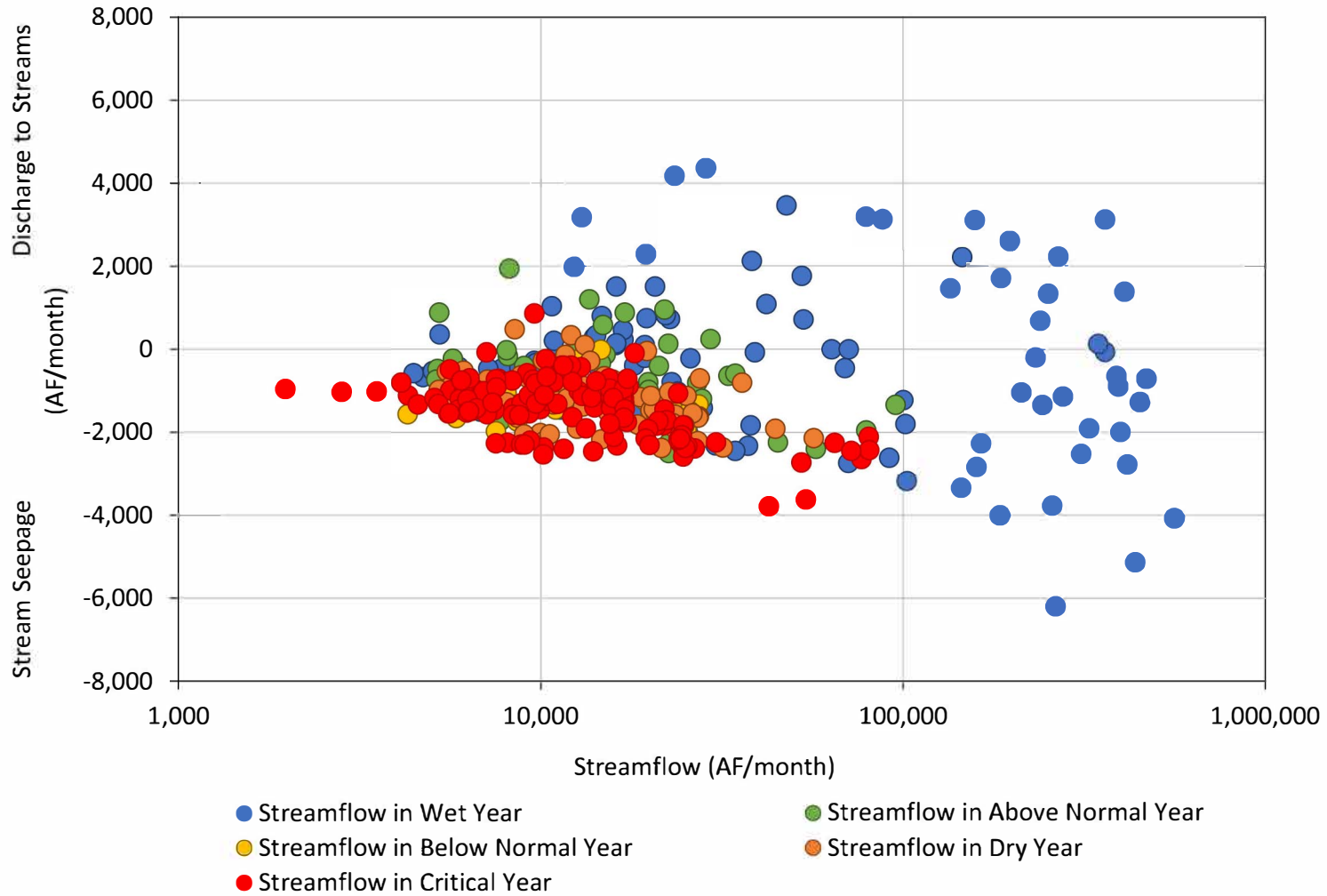


**FIGURE 2-76**  
**Groundwater Pumping in the Western Management Area vs.**  
**Stream Seepage from the San Joaquin River**

*Madera Subbasin  
Groundwater Sustainability Plan*



### Streamflow vs. Stream Seepage in the San Joaquin River



Data for chart from Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim)

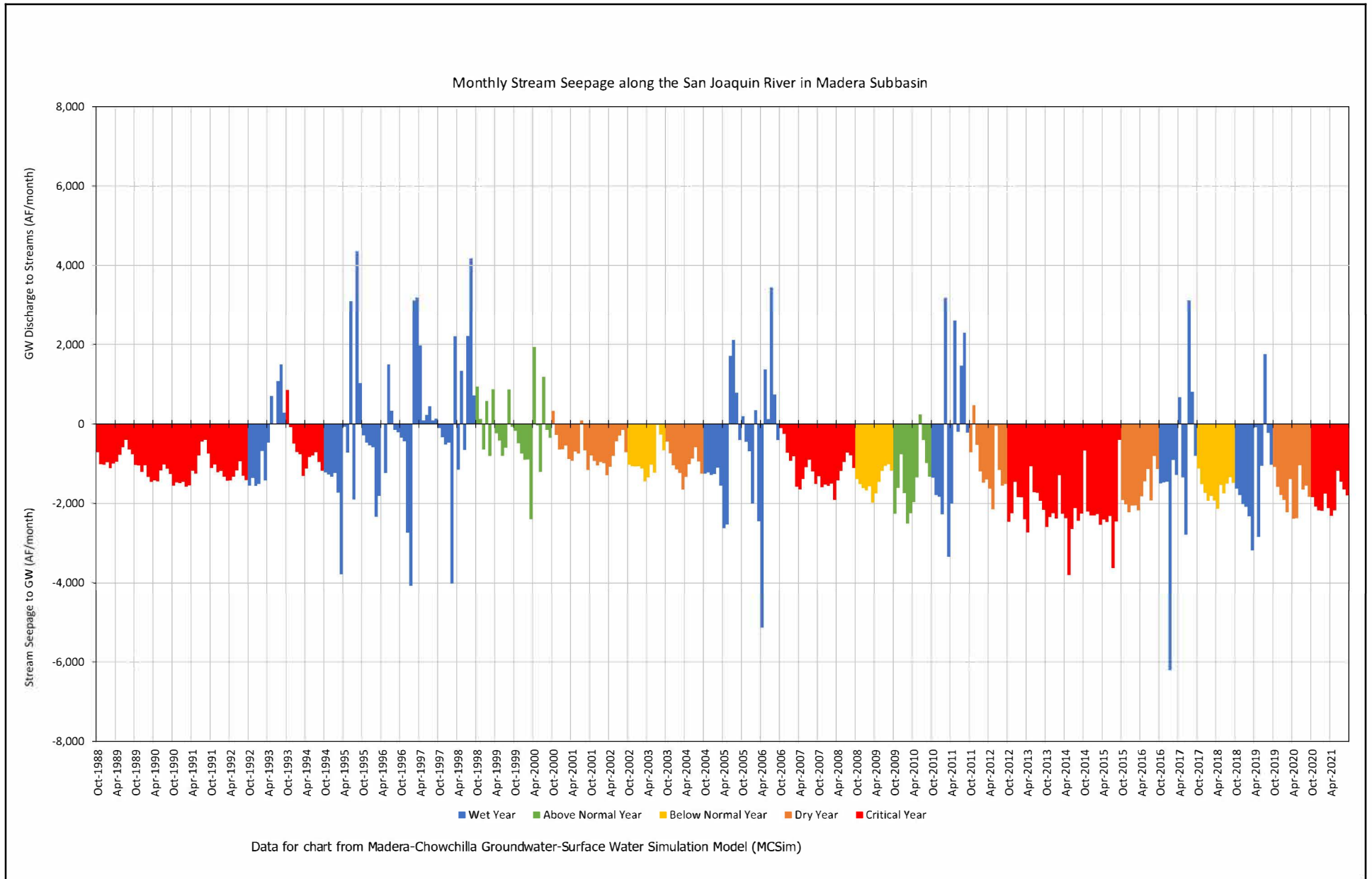
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**FIGURE 2-77**

**Streamflow vs. Stream Seepage in the San Joaquin River**

Madera Subbasin  
Groundwater Sustainability Plan



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**FIGURE 2-78**



## Stream Seepage in the San Joaquin River in Madera Subbasin

*Madera Subbasin  
Groundwater Sustainability Plan*

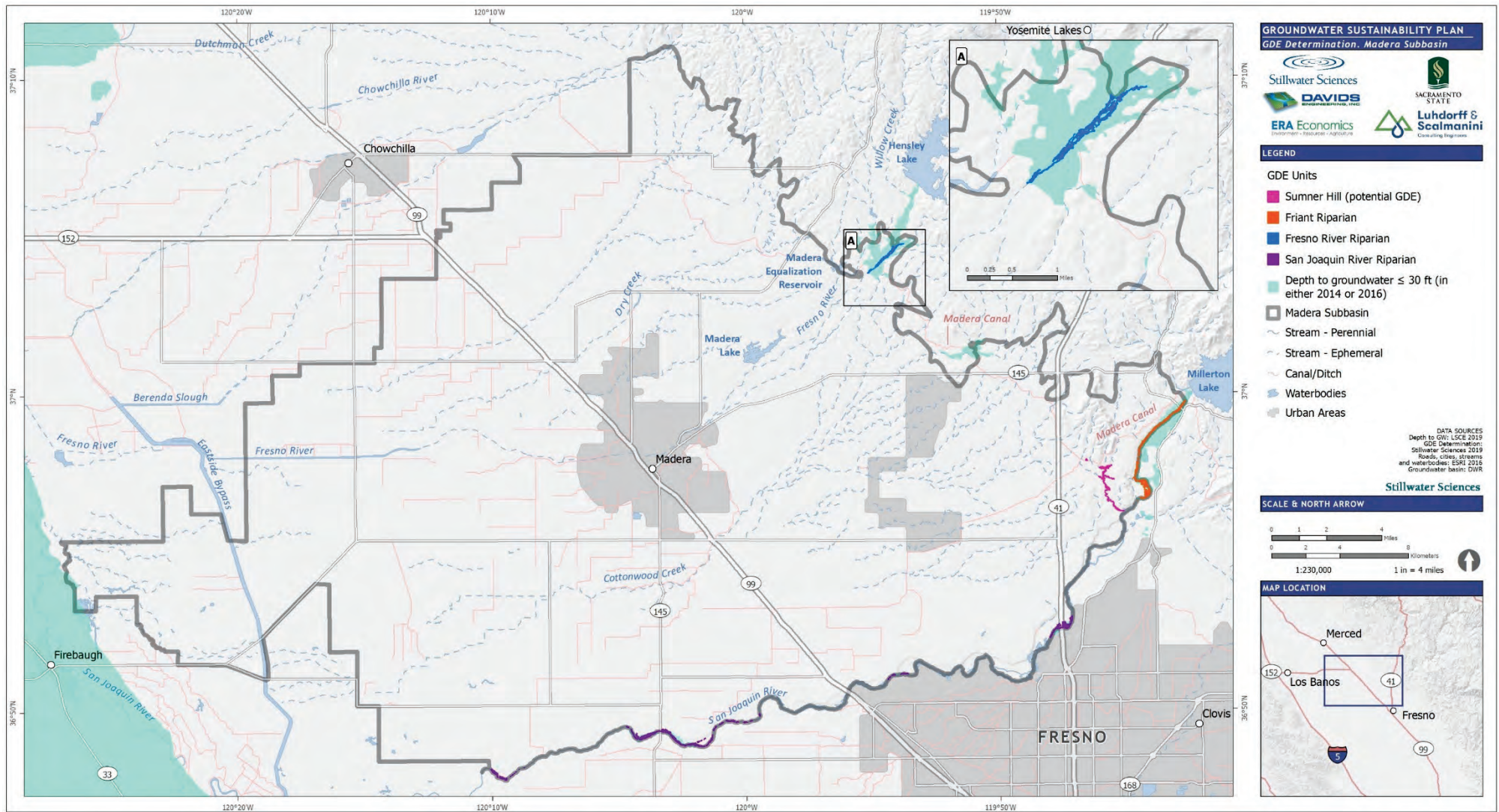
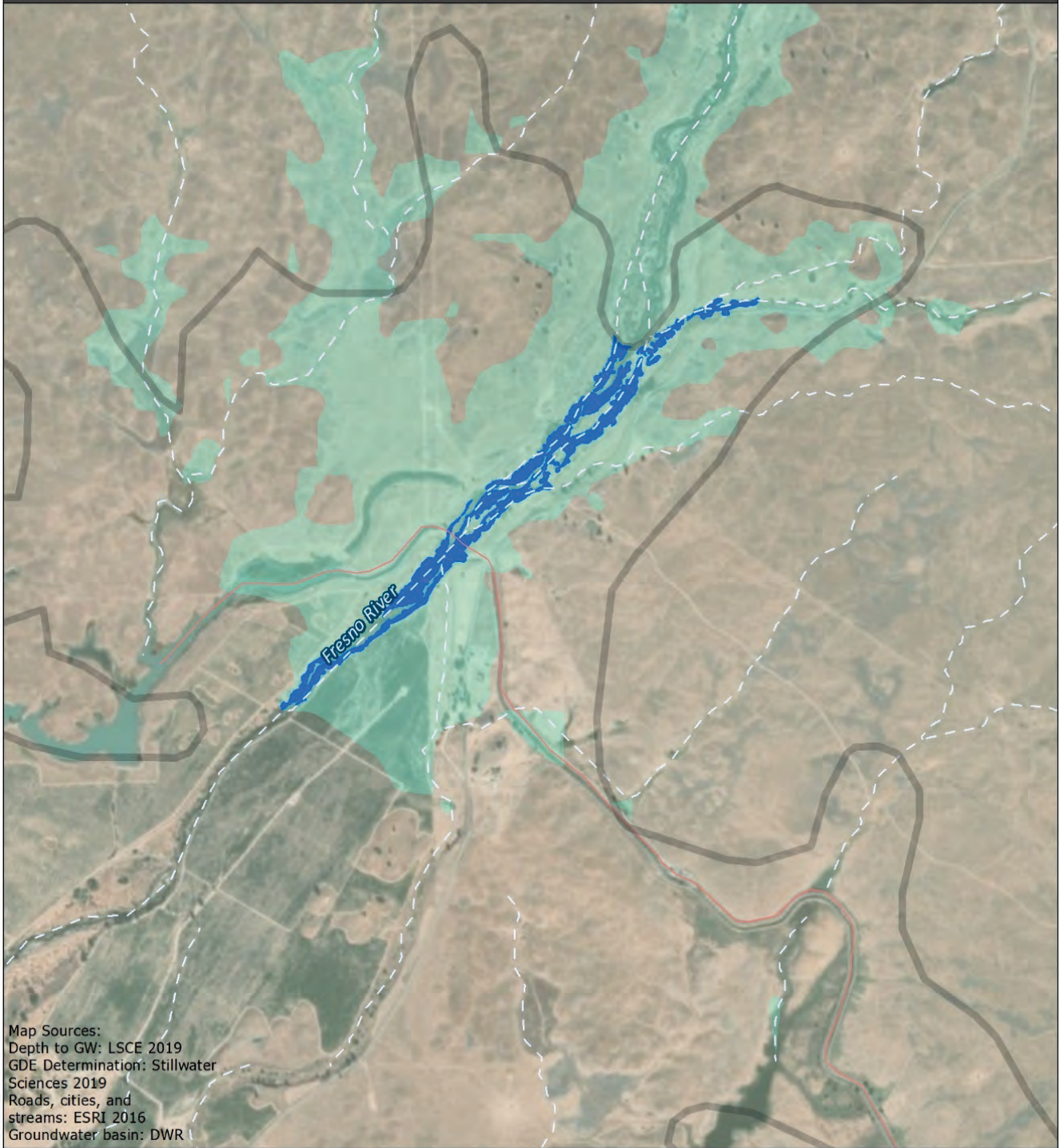
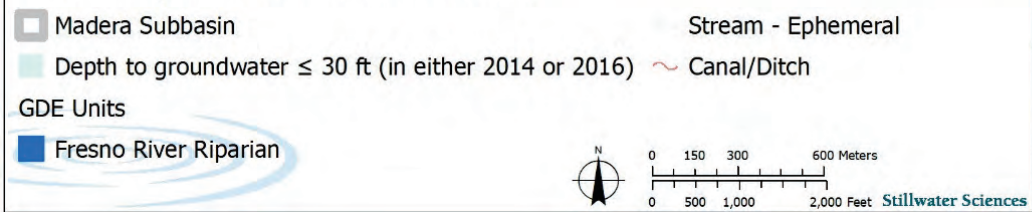


Figure 2-79. GDE units and depth to groundwater in the Madera Subbasin.

MADERA GROUNDWATER SUSTAINABILITY PLAN



Madera Equalization Reservoir GDEs



Map Location

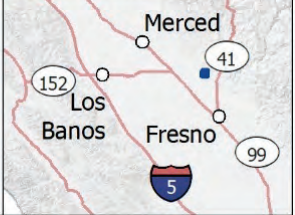
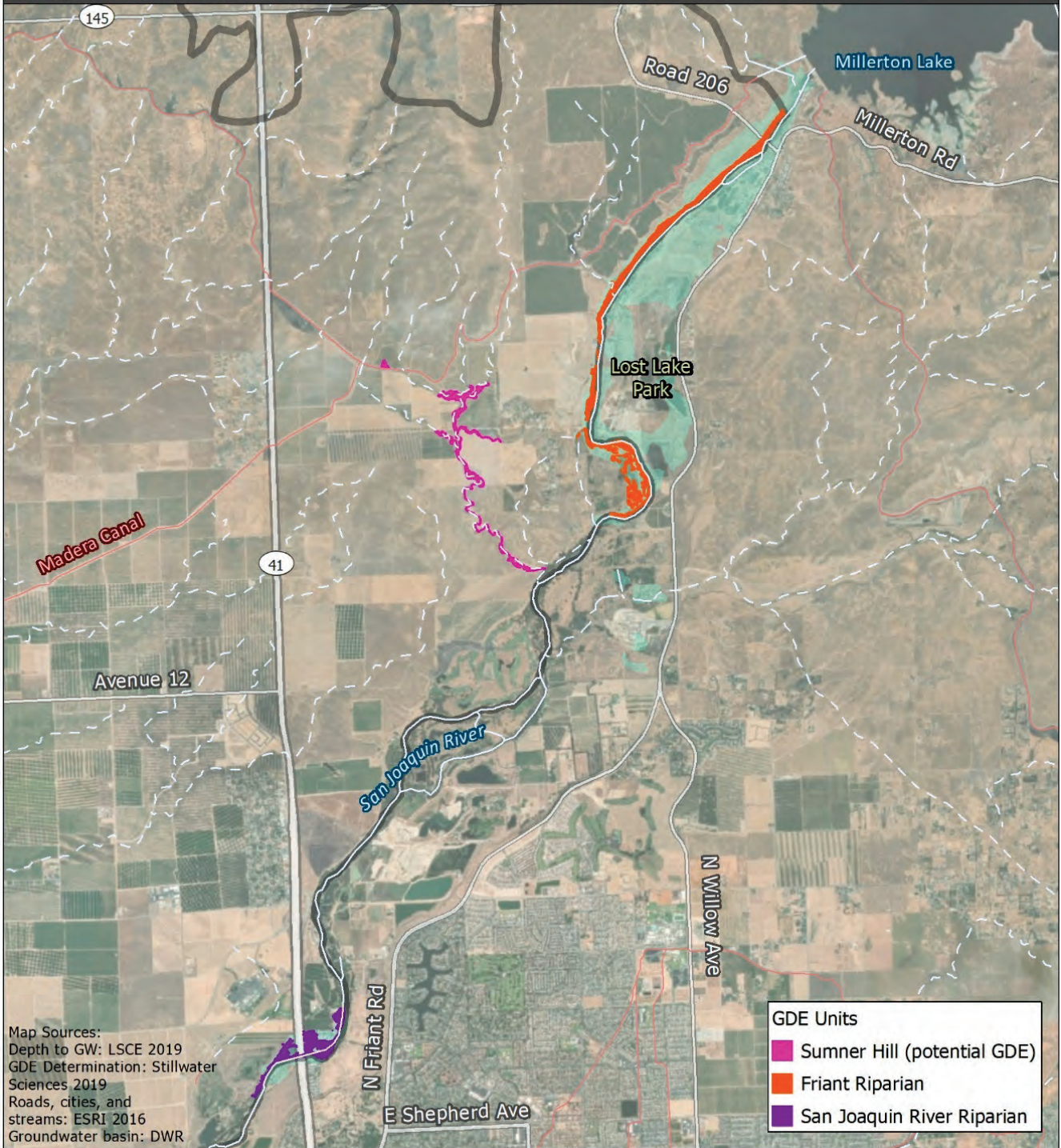
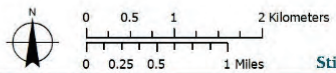
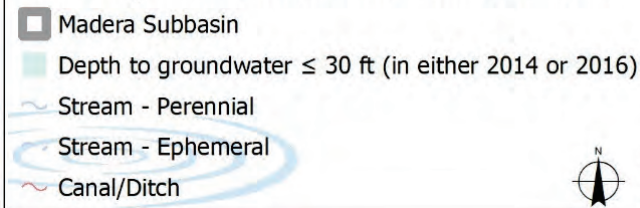


Figure 2-80. Fresno River Riparian GDE Unit.

MADERA GROUNDWATER SUSTAINABILITY PLAN



Friant Riparian and Sumner Hill GDE Units



Stillwater Sciences

Map Location



Figure 2-81. Sumner Hill potential GDE Unit, Friant Riparian GDE Unit, and upstream portion of San Joaquin River Riparian GDE Unit.

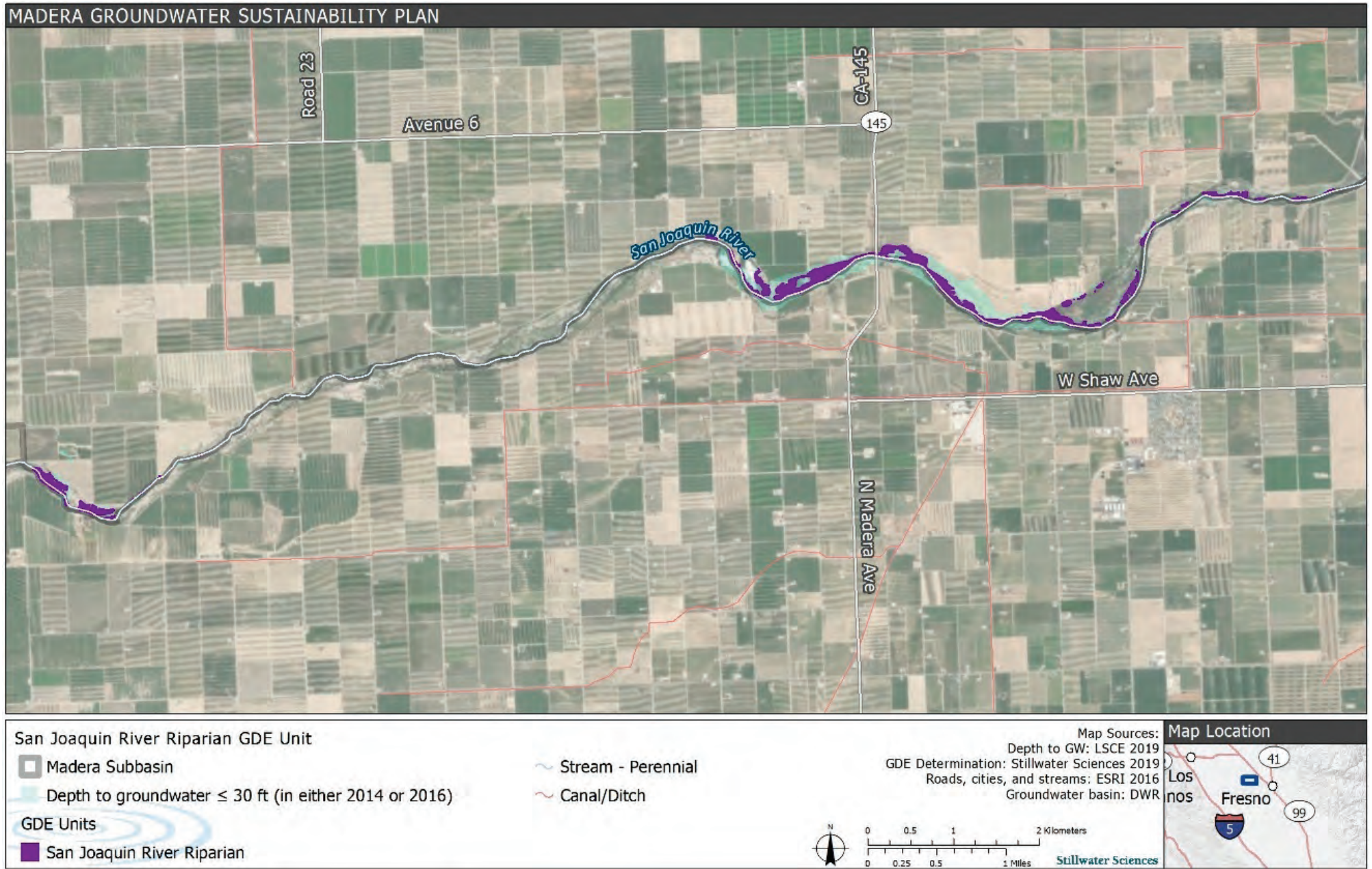


Figure 2-82. San Joaquin River Riparian GDE Unit, downstream portion.